

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
International Paper Company


has been granted permission to operate a solid waste management facility

located at
3737 Highway 3 North
Redwood, Mississippi
in Section 24, Township 18 North, Range 04 East
of Warren County

under the name of
Vicksburg Mill Ash Management Unit

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



AUTHORIZED SIGNATURE

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

Issued: October 24, 2018
Expires: September 30, 2028

Permit No. SW0750040560

CONDITIONS

EFFECT OF PERMIT

The permittee shall operate the solid waste management facility in accordance with the Mississippi Nonhazardous Solid Waste Management Regulations (Regulations), applicable federal regulations, and conditions of this permit. Any changes, alterations, or modifications of the above referenced regulations which pertain to any condition of this permit shall supersede and replace the affected conditions of this permit. In such instances, the permittee shall comply with the altered condition(s) of the Regulations.

B. PERMIT ACTIONS

This permit may be modified, revoked, and/or reissued for good cause or 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, reissuance, or modification, or for denial of a permit renewal application.
2. Duty to Reapply. If the permittee wishes to continue an activity authorized 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, prevent, or correct any adverse impact on human health or the environment resulting from noncompliance with this permit.
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 application as submitted and approved by the Department of Environmental Quality (Department).

5. Duty to Provide Information. The permittee shall furnish to the Department, within a reasonable time, any relevant information which the Department may request to determine whether cause exists for modifying, revoking, reissuing, or terminating this permit or to determine compliance with this permit.
6. Inspection and Entry. The permittee shall allow an authorized representative of the Department 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. Property Rights. It is the responsibility of the permittee to possess and maintain a sufficient interest in or right to the use of the properties describes in this permit, including the access route(s).

The issuance of this permit does not convey any property rights or interest in either real or personal property; nor does it authorize any injury to private property, invasion of personal rights, or impairment of previous contract rights; nor any infringement of Federal, State, or local laws or regulations outside the scope of authority under which this permit is issued.
8. Anticipated Noncompliance. The permittee shall give written notice to the Department at least thirty (30) days in advance of any planned changes in the permitted facility or activity which may result in noncompliance with the requirements of this permit or the Mississippi Nonhazardous Solid Waste Management Regulations.
9. Modification of Permits. Any proposed modification to the approved application or plan of operations resulting in an expansion of the facility or a significant change in the method of waste management must be

approved by the Mississippi Environmental Quality Permit Board or the Board's Designee prior to implementation. Other proposed modification to the approved facility design or operations must be approved by the Department prior to implementation.

10. Transfer of Permits. This permit is not transferable to any person except after notice to and approval of the Mississippi Environmental Quality Permit Board. The Permit Board may require modification or revocation and reissuance of the permit to change the name of the permittee and incorporate such other requirements as may be necessary.
11. Signature Requirements. The permittee shall ensure that an application for the re-issuance, modification or transfer of this permit and all reports required by this permit or by state regulations shall be signed in accordance with Rule 1.2.G of the Mississippi Nonhazardous Solid Waste Management Regulations.
12. Contract Operator. If the permittee executes a contract with a private entity to operate the landfill, a complete disclosure statement for the contractor shall be submitted and approved by the Permit Board or the Permit Board's Designee as set forth in state law and regulations prior to the contractor beginning operations.

E. SITE PREPARATION AND CONSTRUCTION REQUIREMENTS

1. The permittee shall ensure that the site preparation and construction activities are conducted in accordance with the Mississippi Nonhazardous Solid Waste Management Regulations and the approved plans as submitted to the Department
2. The permittee shall ensure that the construction of the components of the landfill is conducted by qualified and experienced personnel.
3. The permittee shall ensure that the constructed disposal area and disposal activity is limited to the approved area defined in the submitted application consisting of approximately 17.5 acres of the property located in Section 24, Township 18 North, Range 04 East of Warren County.
4. As detailed in the approved application, a French drain system shall be installed along the southeast perimeter of the landfill for the purposes of lowering the groundwater table to meet required buffer thicknesses. Construction of the system shall be in accordance with the drawings submitted in the application. Before clay liner installation begins, the following requirements must be met:
 - a. The French drain system shall be extended as new phases are constructed, and the Department shall be notified of installation and

operation.

- b. Following installation of the French drain system, water levels within the landfill footprint shall be monitored through test pits or temporary piezometers to verify that groundwater is below the bottom of the geologic buffer. Water levels shall be measured on a bi-weekly basis subsequent to French drain installation for three (3) weeks, or until water levels have dropped. A minimum of four (4) consecutive sampling dates should demonstrate the proper function of the system to meet the buffer requirements of this permit.
 - c. At the end of the previously designated sampling schedule, the permittee shall submit a report to the Department with the results of each sampling event and an adequate demonstration of compliance with condition E.4.b. The Department may require further sampling based on the results of the initial sampling events.
5. The permittee shall ensure that the construction of the landfill and any individual cell or construction phase is prepared in accordance with the following, unless an alternate method is approved by the Department:
- a. Prior to construction, all borings drilled on the site in preparation of the permit application, which will not be converted to monitoring or supply wells, will be properly sealed in accordance with the requirements of the Office of Land and Water Resources of the Department.
 - b. Prior to construction or preparation of any new disposal cell at the site, the cell boundaries shall be appropriately located and marked by a land surveyor licensed by the State of Mississippi to ensure construction within the approved area. Property line setback distances as indicated in the approved permit application shall be maintained.
 - c. The permittee shall notify the Department of an approximate construction schedule at least 14 days prior to initiating construction of any cell or phase of the ash management.
 - d. For the development of the disposal cells, the excavation of any overburden shall not occur below the subgrade elevations approved in the construction plan. The permittee shall ensure a minimum thickness of three (3) feet of naturally occurring soils between the uppermost aquifer and the base of the liner. The permeability of this buffer material shall not exceed 3×10^{-5} cm/sec. In preparation for composite liner construction, the buffer shall be inspected for cracks, large stones, other protrusions, and for soil material which would not be suitable buffer material. Areas where unsuitable soil materials or groundwater seeps exist shall be excavated and the soils replaced.

Constructed or reconstructed buffer areas shall be recorded, constructed, tested, and certified in accordance with the approved construction plans. The surface of the subgrade shall be compact, smooth, uniform, and free of desiccation cracks.

- e. The constructed composite liner system for the landfill shall consist of a flexible membrane liner placed atop a constructed, compacted clay liner, with the following requirements:
 1. The constructed clay liner of the landfill shall consist of compacted soils processed to produce a uniform layer that exhibits a hydraulic conductivity of no more than 1×10^{-7} cm/sec. The clay liner shall be constructed in compacted 6-inch lifts to a minimum thickness of 2 feet. Prior to placement of the soil liner, the surface of the prepared subbase shall be scarified for proper bonding with the liner. Each lift shall be evenly compacted to the density and moisture content required. Placement of the compacted liner on the side slopes shall be in lifts along the slope, not in horizontal lifts. Between lifts, the surface shall be scarified for proper bonding. MDEQ shall be notified at least 48-hours prior to the scheduled completion of the compacted clay liner so that an observer may be on-site upon completion, if available.
 2. Upon concurrence of the compacted clay liner by the Department, the flexible membrane liner (FML) shall be installed in direct and uniform contact with the compacted clay liner. The FML shall consist of a 60-mil HDPE geomembrane placed atop of the constructed clay liner and deployed and seamed utilizing approved methods.
- f. In construction/preparation of the buffer sub-base and the compacted clay liner, the surface shall not be allowed to dry out and crack before placement of the next layer. If desiccation cracks do form, the surface shall be re-wetted, re-homogenized, and re-compacted to the depth of the cracks before placement of the succeeding layer.
- g. Field density, moisture content, and permeability tests shall be conducted in accordance with the approved plan. Test holes in the soil liner shall be sealed with bentonite, or another method approved by the Department.
- h. Prior to placement of the FML, the compacted clay liner shall be smooth, uniform, and free from protrusions or cracks. The FML shall be properly anchored and seamed in accordance with the approved construction and installation plan. Seams will be tested for integrity and corrected where necessary. During and after installation, the flexible membrane liner shall be protected from damage (e.g., heavy

equipment, tearing, puncturing, exposure to the sun, etc.). Field seams shall be oriented vertically along the side slopes (i.e., top to bottom of side slope). A protective layer shall be placed over the entire FML in accordance with the approved plan and properly maintained until waste is placed over the area.

- i. At least two weeks prior to the placement of solid waste in a newly constructed cell, a construction quality assurance (CQA) report shall be submitted to the Department that demonstrates compliance with all applicable sections of the state regulations, the approved design plans and this permit. The report shall contain a certification from an independent registered professional engineer (registered in the State of Mississippi) that the area has been constructed according to the approved design plans, all applicable sections of the state regulations and this permit. The report shall also include field logs, results of testing, subgrade survey, top of liner survey, top of leachate collection layer survey and construction testing methods and results. All surveys shall be certified in accordance with the approved plans. Engineering drawings submitted with the report shall contain GPS coordinates of the constructed disposal cell within the total permitted disposal area.
- j. The perimeter storm water management system and the surficial runoff collection system including the perimeter and interior diversion ditches and dikes, access road storm water ditches, storm water collection swales, side slope diversion swales, down chutes, and the runoff collection basin shall be constructed as per the approved plans for each construction phase, prior to the placement of any waste and in such a manner so as to inhibit erosion and minimize storm water contact with the waste.

F. OPERATING CONDITIONS

1. The permittee shall ensure that the facility is operated in accordance with all applicable regulations and the approved plan of operations, unless otherwise approved by the Department.
2. The permittee shall implement and maintain security and monitoring measures to prevent uncontrolled access and disposal. An attendant shall be on duty at any time access to the site is unsecured
3. The permittee is authorized to accept and dispose of the following nonhazardous solid wastes generated by the International Paper Vicksburg Mill as described in the approved plan of operations: wood ash, woodyard wastes, chemical recovery by-products (including lime mud/waste, dregs, grit, etc.), broke, waste water treatment system solids, inert waste, construction and demolition debris, and other ancillary operational waste. Any other solid wastes generated onsite must be approved by the

Department prior to disposal.

4. The permittee shall implement a program in accordance with the Mississippi Nonhazardous Solid Waste Management Regulations and the approved plan of operations to ensure that unauthorized wastes are prohibited from disposal.
5. The permittee shall ensure that authorized wastes, excluding wood ash, will be covered in accordance with the approved plan of operations. Cover shall consist of at least 6 inches of wood ash or earthen materials. The Department may require alternative or additional cover if necessary to prevent or correct potential environmental problems or nuisance conditions.
6. The permittee shall construct and maintain all weather access and transport roads at the site to maintain operations during inclement weather conditions.
7. The permittee shall ensure proper training of all facility employees and ensure the employment of an adequate amount of employees required to properly operate the facility.
8. The French drain system shall be operated to maintain the buffer requirements of condition E.4. Routine maintenance shall be performed to ensure proper functionality. Upon determination that the French drain system is not operating in compliance, waste deposition shall be halted until the system is fixed and water levels are lowered to acceptable elevations. The Department shall be notified of this noncompliance immediately, and the permittee shall submit a report within 14 days detailing the extent of the problem and the measures taken to correct it.
9. The permittee shall ensure that, should a fire occur within the disposal area, the owner and/or operator of the facility will take immediate action to extinguish the fire and will notify the Department within 24-hours. Initial Department notification may consist of either written or verbal communication. However, written correspondence describing the incident and the conditions of its extinguishment shall be submitted within 5 working days of the incident.
10. The permittee shall take appropriate actions to inhibit ash particles from becoming windblown off the site. In addition, appropriate dust control measures shall be conducted as necessary to contain and/or suppress fugitive dust emissions from the unit, from the access and transport roads, and from other facility components.
11. The permittee shall operate the facility in a manner that minimizes windblown litter and prevents vector attraction. Windblown and scattered

litter and debris around the disposal site and along the property access roads shall be collected at the end of every operating day and returned to the active working area for proper disposal or placed in a receptacle for disposal elsewhere as appropriate.

12. The permittee shall ensure that waste will not be disposed in standing water, in any waters of the state, nor in any manner that may result in washout of waste. Furthermore, the site shall be developed and contoured to direct storm water run-off/run-on away from the active disposal area and to prevent ponding of water.
13. The permittee shall ensure that the landfill will be constructed, operated, and maintained with earthen berms, ditches or other means such that uncontaminated surface water run-off is directed around and away from the developed landfill area. The permittee shall additionally ensure that each cell will be constructed and maintained to direct uncontaminated surface water run-off around and away from the active disposal area. Erosion, sloughing, or other damage shall be promptly repaired.
14. The permittee shall ensure that uncontaminated surface water run-off from construction and operating activities and from areas without established vegetation is diverted to an onsite sedimentation basin.
15. The permittee shall ensure that the facility's sedimentation basins will be constructed and maintained to collect and control, at a minimum, the water volume resulting from a 24-hour, 25-year storm event. Additionally, the permittee shall ensure that periodic dredging of the basins will be conducted to maintain proper elevations and the required capacity.
16. The permittee shall operate the site in a manner that prevents the discharge of pollutants into waters of the State in violation of NPDES requirements as described in the Rule 1.4 of the Mississippi Nonhazardous Solid Waste Management Regulations.
 - a. Surface water run-off contaminated by contact with solid waste and leachate flowing from filled areas of the landfill shall be collected and managed as leachate and routed back to the main facility's wastewater treatment facility via force main as described in the approved application. Additionally, the permittee shall prevent surface leachate and contaminated surface water run-off from flowing into storm water conveyance ditches, into the storm water sedimentation ponds, or through the storm water discharge points.
 - b. The permittee shall conduct weekly inspections of all areas of intermediate cover, final cover, and other pertinent areas of the landfill.

1. Leachate outbreaks or seeps that flow out of the permitted disposal area and/or into onsite storm water conveyances or onsite sedimentation basins shall be immediately contained. The permittee shall repair such outbreaks within three (3) working days of identification and provide a written report to the Department upon completion of repairs detailing the location and corrective actions initiated to repair the outbreak.
 2. Inspections, identified outbreaks, and corrective actions shall be documented by the permittee and such documents shall be maintained onsite and made available for review by the Department upon request.
17. The permittee shall ensure that the leachate collection system will be operated as follows:
 - a. The leachate collection system of pipes, trenches and sumps shall be cleaned, maintained and pumped to ensure proper leachate collection.
 - b. The depth of leachate over the liner, excluding trenches and sumps, shall not exceed 30 cm.
 18. The permittee shall construct and maintain internal and external slopes of the landfill in such a manner to ensure an adequate factor of safety to prevent slides and slope failures.
 19. The permittee shall ensure that operations of the facility are conducted in accordance with all applicable requirements of the U.S. Army Corps of Engineers and the U.S. Fish and Wildlife Service.
 20. The permittee shall ensure that excavation, mining, and/or removal of solid waste from the disposal area is prohibited unless plans are submitted to and approved by the Department.

G. MONITORING, RECORDKEEPING, AND REPORTING REQUIREMENTS

1. Leachate Monitoring Requirements
 - a. The permittee shall ensure that depth of leachate measurements is made and/or monitored daily in each active, inactive and closed disposal cell.
 - b. The permittee shall maintain records at the facility confirming daily leachate monitoring and shall ensure that the records also consist of documentation of the following:

1. leachate depth measurements that exceed 30 cm or greater over the liner;
 2. any electronic pumping failures;
 3. any corrective measures implemented for repairs or other actions to return depth of leachate over liner to less than 30 cm;
 4. quantities of leachate pumped;
 5. results of any required leachate analysis; and
 6. system cleaning and maintenance records.
2. Groundwater Monitoring Requirements
- a. The permittee shall install a groundwater monitoring system in accordance with Rule 1.4 of the Mississippi Nonhazardous Solid Waste Management Regulations prior to the disposal of wastes. Groundwater monitoring system plans and specifications for each phase of landfill development shall be submitted to the Department for approval prior to well installation. All wells installed prior to waste disposal shall be sampled to establish background data. Well installation reports containing methodology, construction logs, well specifications, depths, and surveyed locations shall be submitted to the Department no later than sixty (60) days after installation of the wells.
 - b. The permittee shall conduct detection groundwater monitoring at the facility in accordance with State and Federal regulations and the approved groundwater monitoring plan. Proposed changes or modifications to the approved groundwater monitoring plan must be approved by the Department prior to implementation.
 - c. The permittee shall conduct groundwater monitoring semi-annually, unless otherwise directed by the Department. The semi-annual groundwater monitoring periods shall be January through June and July through December. Although samples may be obtained at any time during the monitoring period, the permittee shall ensure that all required sampling events, excluding background events, will be at least four months apart.
 - d. The permittee shall submit a copy of the results of the groundwater monitoring to the Department within 60 days of the sampling event. Additionally, the permittee shall retain reports and records for each groundwater monitoring event in the operating record and ensure that the report and records consist of the following:
 1. The dates, exact location, and time of sampling
 2. Identification of individuals who performed the sampling
 3. Results of groundwater level measurements and a map indicating the direction of groundwater flow
 4. The date(s) laboratory analyses were performed

5. Identification of individuals who performed the laboratory analyses
 6. The analytical techniques or methods utilized
 7. The results of such analyses, prepared according to industry standards or as directed by Department
 8. The statistical report of the analyses
 9. A determination of statistically significant increases, and
 10. The chain of custody forms
- e. The permittee shall conduct groundwater monitoring at the ash management unit in accordance with the approved groundwater monitoring plan for the following parameters:

Total Arsenic	Total Lead
Total Barium	Total Nickel
Total Chromium	Total Zinc
Total Copper	

- f. Any time a statistically significant increase is identified for any parameter listed in G.2.e., the permittee shall ensure that the Department is notified within 14 days. Additionally, the permittee shall conduct groundwater assessment monitoring and corrective action, if necessary, at the facility in accordance with the Mississippi Nonhazardous Solid Waste Management Regulations.
- g. In accordance with the submitted plan required by Condition E.4 of this permit, the permittee shall perform verification of operation of the French drain once every two (2) months to show compliance with Condition F.8. Results of this monitoring shall be submitted to the Department by the 15th of the following month.
3. Solid Waste Recordkeeping and Reporting Requirements
- a. The permittee shall maintain an accurate daily record of each waste load entering the facility. The record shall include the following:
1. The name of the hauler,
 2. The source of the waste,
 3. The type(s) of waste received, and
 4. The weight of the waste in units of tons.
- b. The permittee shall ensure that an annual report will be submitted to the Department each year on or before February 28th providing information regarding the operations of the preceding calendar year. The report shall include the following items:
1. Aggregate information on the types, amounts, and sources of wastes received during the previous calendar year.

2. A contour drawing of the landfill showing areas filled during the report year and total areas filled.
3. The estimated remaining capacity, in terms of volume and years of life remaining.
4. Other information as requested by the Department.

H. CLOSURE/POST-CLOSURE REQUIREMENTS

1. The permittee shall conduct closure and post-closure activities in accordance with the Mississippi Nonhazardous Solid Waste Management Regulations and the approved closure/post-closure plan in the application. Any proposed changes to the closure/post-closure plan must be approved by the Department.
2. The permittee shall ensure that the final cover system is designed to minimize infiltration and erosion. The final cover system shall be designed to have a permeability less than or equal to the permeability of the bottom liner system and include:
 - a. An infiltration layer comprised of a minimum of 18 inches of earthen material that has a permeability of 1×10^{-7} cm/sec, and
 - b. An erosion layer consisting of a minimum of 6 inches of earthen material capable of sustaining native plant growth, or
 - c. An alternate final cover design may be approved by the Department
3. The permittee shall ensure that the final cover gradient shall be a minimum of 4% and a maximum of 25%, unless otherwise approved by the Department.
4. The permittee shall ensure that the final height of the facility, including the final cover system, does not exceed 217 feet above mean sea level (MSL).
5. At least 30 days prior to the initiation of final closure, the permittee shall submit an updated closure/post-closure construction plan for the landfill. This plan must be approved by the Department prior to initiating closure activities. This plan shall include, at a minimum:
 - a. a description of the construction details of the final cover system and the surface water control structures;
 - b. a construction quality assurance (CQA) plan for the final cover system components, drainage system features and any other appropriate closure components;
 - c. a proposed schedule of closure activities; and

- d. an updated description of the post-closure monitoring and maintenance plans for the landfill.
6. The permittee shall ensure that final closure activities are completed within 180 days of beginning closure activities, unless otherwise approved by the Department.
7. The permittee shall ensure that within 60 days of completion of final closure that the following documents are submitted to the Department:
 - a. a certification, signed by a registered professional engineer, verifying that the final cover system has been constructed in accordance with the regulations and the approved closure plan;
 - b. a survey drawing, prepared by a registered surveyor, depicting final contours, total acreage, and the boundaries of the landfill; and
 - c. a report documenting the final volume and tonnage of waste deposited in the landfill.
8. The permittee shall ensure that within 90 days of completion of final closure activities, the deed for the property is notated in accordance with Rule 1.4.E(2)(g) of the Mississippi Nonhazardous Solid Waste Management Regulations.
9. The permittee shall conduct post-closure maintenance and monitoring in accordance with Rule 1.4.E(3) of the Mississippi Nonhazardous Solid Waste Management Regulations and approved post-closure plan. The post-closure monitoring period for the landfill shall be a minimum of 30 years, unless otherwise determined by the Department