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Recommendations for Lake Hico End of Lease with Entergy

Powerpoint developed from excerpts from information provided by Entergy and Mississippi Department of Environmental Quality (MDEQ).

Goals of the Presentation

- Provide Overview of History of Rex Brown Steam Electric Station and Lake Hico
- Provide Overview of Current High Hazard Status of Lake Hico Dam
- Ongoing Obligations and Responsibilities of the Body of Water
- Sixteenth Section Lease Overview
- Proposed Next Steps

Overview of the Rex Brown Steam Electric Station

- The Rex Brown Steam Electric Station (SES) is a 5 unit natural gas steam plant owned by Entergy Mississippi located at 1960 West Northside Drive.
- The first unit at the Facility, Rex Brown Unit 1, was brought into service in July of 1948 and the last unit, Rex Brown Unit 5, was brought into service in November of 1968.
- For approximately 71 years, the Rex Brown Facility has been an important generation facility that provided reliable power to the Metro Jackson area.

Overview of the Rex Brown Steam Electric Station

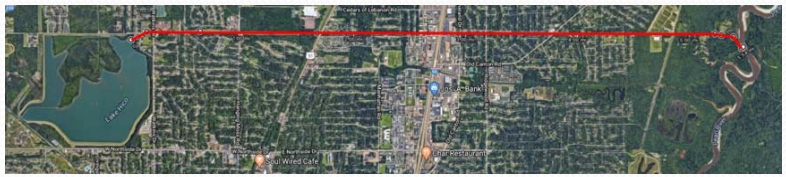
- Adjacent to Entergy's Steam Electric Station (SES) is the Recirculating Cooling Water Facility located on Sixteenth Section land owned by Jackson Public Schools.
- The Cooling Water Facility was built in the late 1950's by the Sixteenth Section Development Corporation specifically as a recirculating cooling pond to support the Rex Brown SES.
- The Cooling Water Facility is a shallow, man-made body of water created by an earthen dam and supplied with water by a pipeline and pump station that transports water from the Pearl River

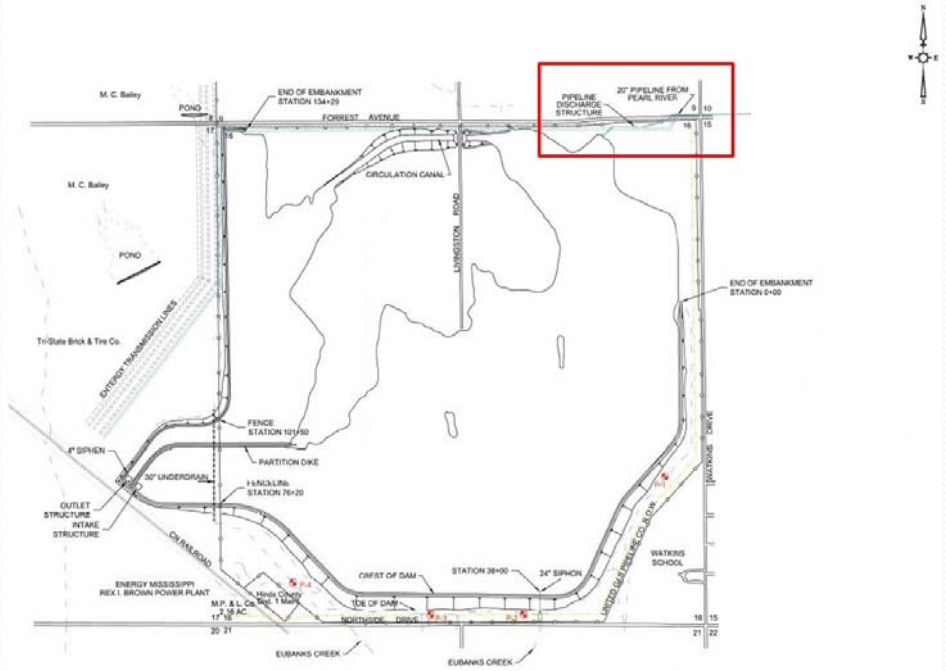
Overview of the Rex Brown Steam Electric Station

- The Rex Brown site consists of approximately 562 leased acres of Sixteenth Section Land, outlined in red.
- The site also consists of approximately 194 acres of Entergy owned property, outlined in yellow.

Intake Pumps from Pearl River

- Pipes run from the northeast corner of the lake to the pump house at the Pearl River.
- Used to keep water level steady during drought periods.
- Not necessary if some water level fluctuation is acceptable.





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Lake Hico Dam – MS01729

Dam Characteristics:

- Length – 2.5 miles
- Height – 36 feet
- Normal Pool Area – 360 acres
- Top of Dam Area – 410 acres

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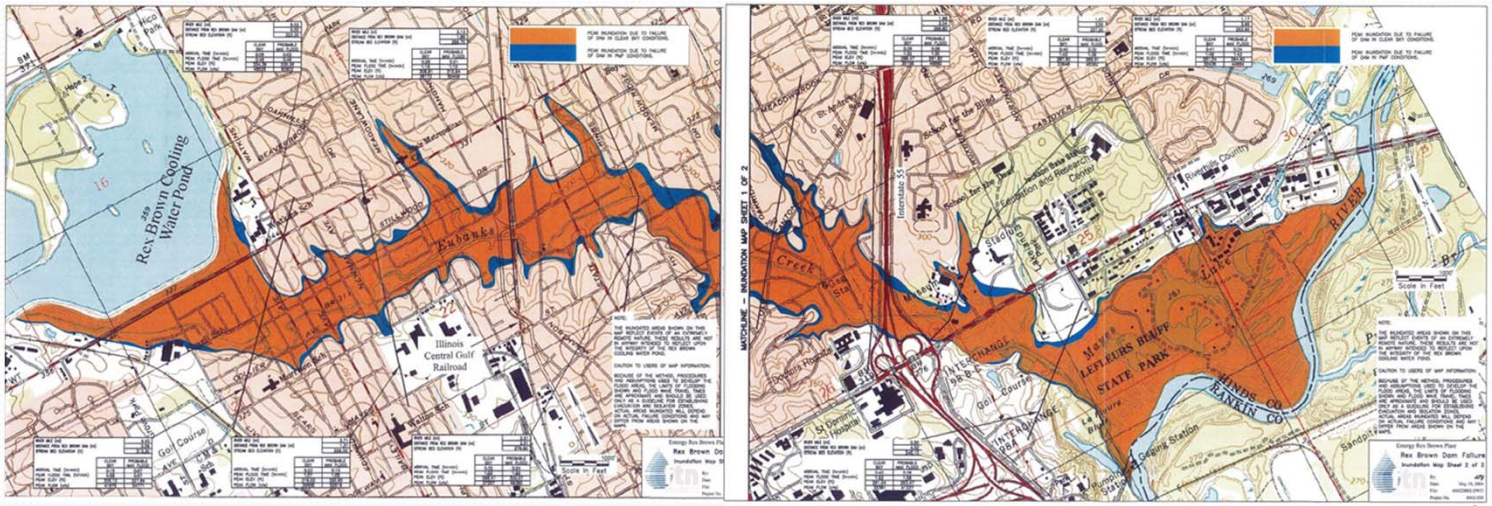
High Hazard Classification

A class of dam in which failure may cause loss of life, serious damage to residential, industrial, or commercial buildings; or damage to, or disruption of, important public utilities or transportation facilities such as major highways or railroads.

In the event of a breach, this dam floods **4000+** structures in the heart of Jackson, floods I-55 North and South bound lanes and Lakeland Drive before flowing into the Pearl River at LeFleurs Bluff State Park.

*** Highest risk of any dam in the State of Mississippi**



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Legal Spillway Requirements

Required:

- Primary spillway will need to be capable of passing a 100-year storm without activating the auxiliary spillway
- Combined spillway capacity must be capable of passing 100% of the Probable Maximum Precipitation (PMP) design storm of 44.7 inches/ 24 hours

Currently:

- Lake Hico has no spillway to maintain water levels and pass storm water (only dam like this in MS)
- The water level is lowered manually with siphons that drain to Eubanks Creek and Town Creek and have an associated NPDES permit from OPC.

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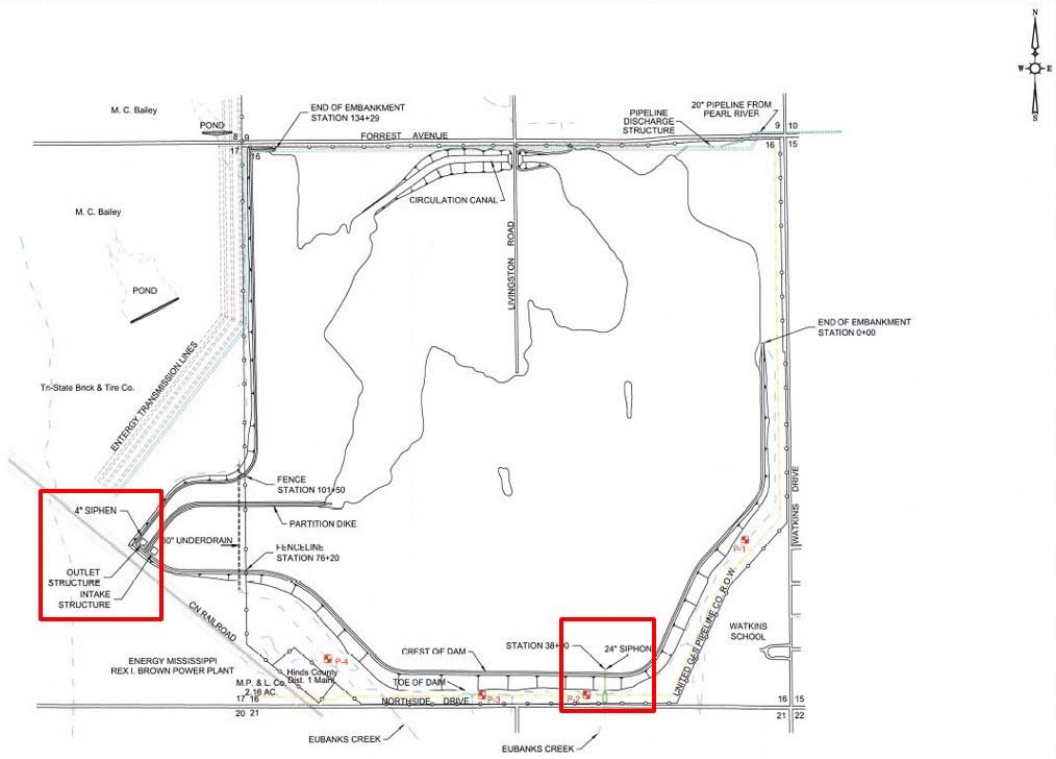
Current Spillway Configuration

Two 24 inch siphons

- One discharging from the facility intake structures to Town Creek (principal)
- One discharging to Eubank Creek under Northside Drive (auxiliary)
- **ONLY ALLOWED TO OPERATE IN THIS CONFIGURATION DUE TO THE PRESENCE OF TRAINED STAFF 24-7**



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Current Spillway Configuration

24 inch Siphon to Town Creek

24 inch siphon to Eubank Creek

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Transition

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Transition

- The final operating units at the plant were shut down June 7, 2019.
- Entergy MS intends to convey the Sixteenth Section property back to the Board of Trustees of the Jackson Public School District in **October 2020** per the terms outlined in the lease.
- Upon termination of the lease for the 16th section property, the Board of Trustees of the Jackson Public School District will become responsible for the ongoing obligations for the body of water and the dam structure in accordance with applicable requirements as outlined by Mississippi Department of Environmental Quality (MDEQ) and other applicable entities.

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Transition

- **Active MDEQ permits – Surface Water Withdrawal from Pearl River**
  NPDES Discharge Permit
- All future uses will require changes to the lake and dam. These changes will require plans from a **Mississippi Registered Professional Engineer** and a **Permit for Modification/Repair of Dam**
- Post-termination of the lease, the Board of Trustees, in concert with others as needed, can determine future use of the 16th section land.

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Ongoing Obligations and Responsibilities

Dam Safety and Maintenance

- Emergency Action Plan
- Inspections
- Maintenance

Care and custody of pump/pipeline connecting to the Pearl River

- Maintenance for the pump, pump house, and pipeline to keep in working order.
- Maintain and update applicable permits

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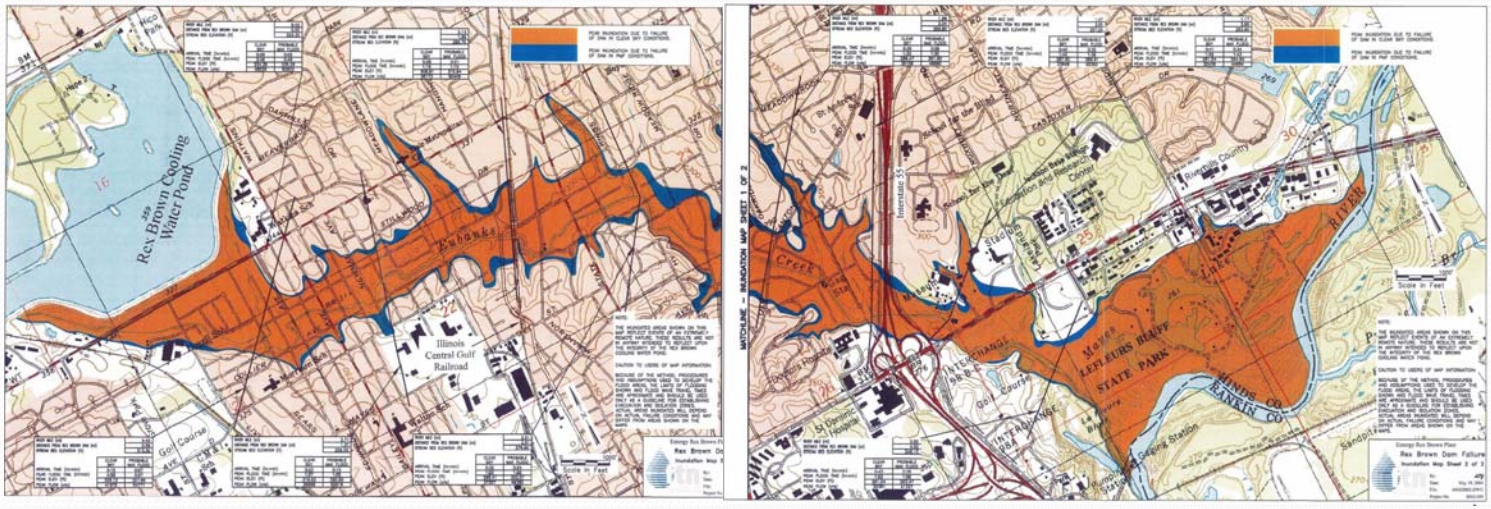
Emergency Action Plan

- Most recent EAP developed in 2015.
- Most recent inundation map developed in 2004 (must be updated $$$)
- Issues with evacuation procedure noted in 2014 EAP tabletop.



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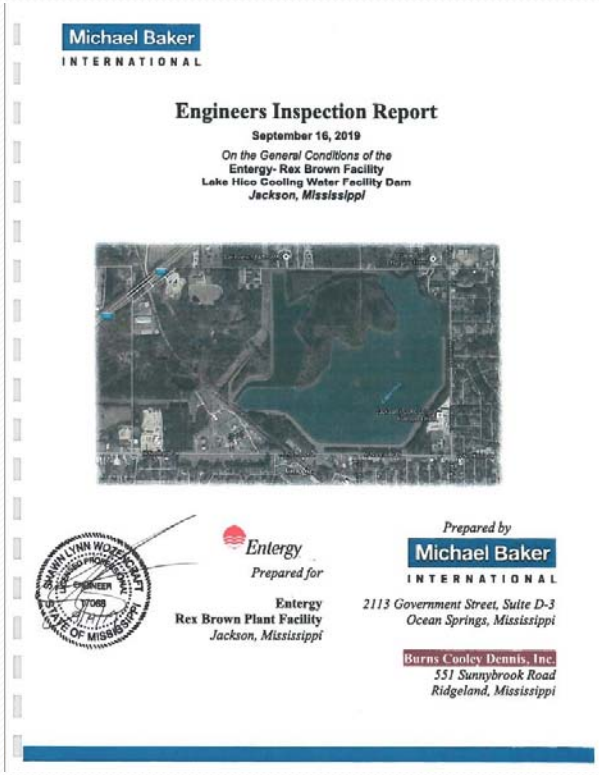
Inspections

- Formal inspections have been conducted annually by Professional Engineers at Michael Baker and Burns Cooley Dennis.
- Visual inspections have been conducted daily and weekly by Entergy personnel.



Michael Baker
INTERNATIONAL

Engineers Inspection Report

September 16, 2019

On the General Conditions of the
Entergy- Rex Brown Facility
Lake Hico Cooling Water Facility Dam
Jackson, Mississippi

Entergy
Prepared for
Entergy
Rex Brown Plant Facility
Jackson, Mississippi

Prepared by
Michael Baker
INTERNATIONAL
2113 Government Street, Suite D-3
Ocean Springs, Mississippi

Burns Cooley Dennis, Inc.
551 Sunnybrook Road
Ridgeland, Mississippi

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Maintenance

- Mowing of grass along dam and within 50 feet of the toe
- Repair of issues noted in annual or daily/weekly inspections
- Common Repairs:
  - Replacement of rip rap along upstream slope
  - Repair of erosion along the upstream and downstream slope
  - Addition of gravel to fix ruts on top of dam
  - Trimming of woody vegetation on or near the embankment

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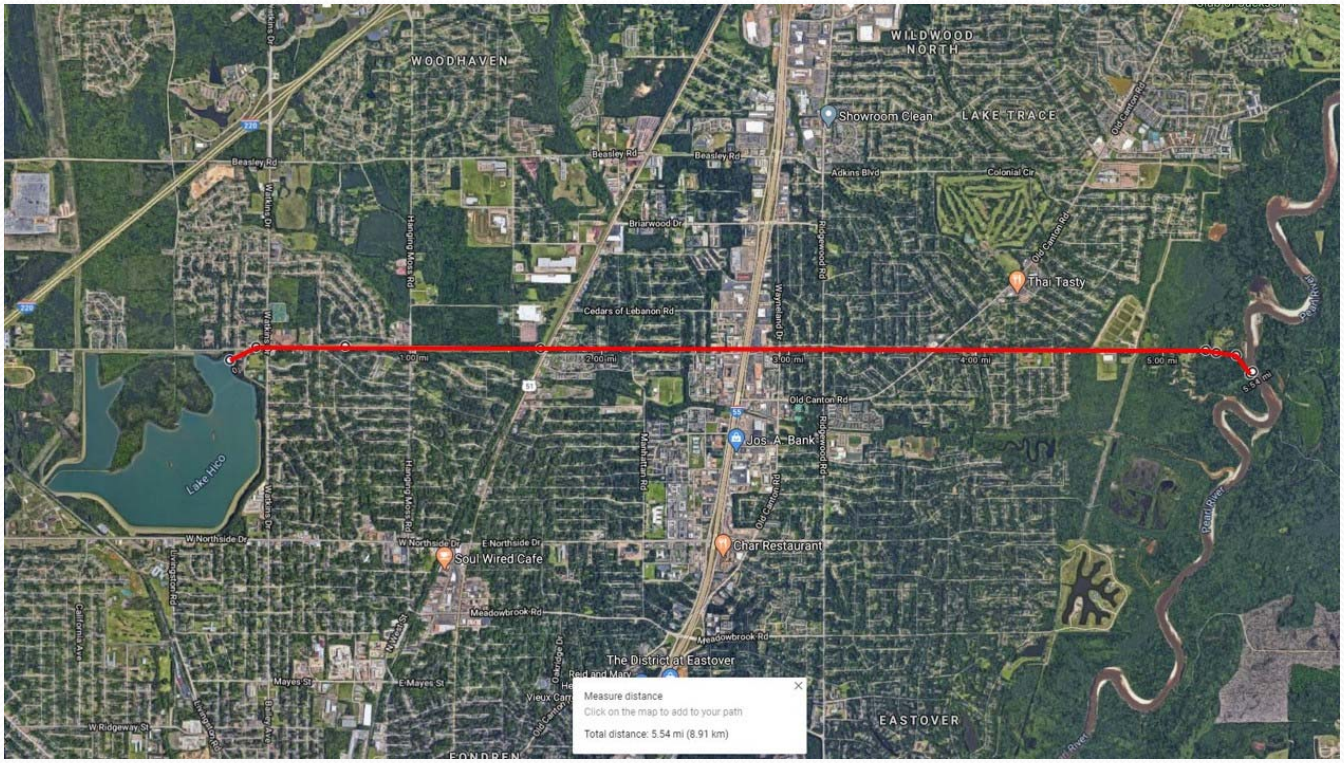
Water line from Pearl River



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MDEQ's Questions and Concerns

- The dam does not currently have a self-regulating spillway system.
  - The only way water is discharged during rainfall events is via a 24 inch siphon that drains to Town Creek or an auxiliary 24 inch siphon that discharges under Northside Drive to Eubank Creek. Both require manual activation by an employee.
  - A self-regulating spillway system that meets current high hazard standards will need to be installed, which could be expensive depending on design.
  - JPS or a new lessee will need to pay for these repairs if the lake is to remain.
- Regular maintenance of the structure (mowing, repair of rip rap, etc.) is time intensive and costly.

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Discussion of Future Alternatives

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Scenario 1: JPS keeps and operates lake

Considerations

- NO RISK REDUCTION – **4,000+** structures in danger of flooding should dam fail
- Spillways must be constructed to meet MDEQ High Hazard regulations
- Emergency Action Plan Update Immediately

- Annual Inspection Costs for Professional Engineers
- Substantial maintenance and repair
- Loss of Revenue
- Will need Surface Water Withdrawal Permit if Pearl River
- Additional water quality sampling required (See June 3, 2020 letter)

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Scenario 1: JPS keeps and operates lake

MDEQ Requirements:

- The spillway system must be upgraded to a self-regulating system that meets High Hazard spillway capacity requirements.
  - Application required that includes plans from a qualified Professional Engineer
- Emergency Action Plan (EAP) must be updated every 3-5 years
  - Desktop Exercise of EAP required
- The dam must be inspected yearly by a qualified Professional Engineer.
- The dam embankment must be maintained (mowing, clearing of vegetation, replacement of rip rap or soil, etc.)
- Any significant issues that arise in the future must be repaired in order to keep dam in compliance with High Hazard dam requirements.
- For water body classification change to Waters of the State or Recreational Status, dependent upon additional sampling efforts and request approved by MDEQ

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Scenario 2: JPS leases property, keeps lake

Considerations

- NO RISK REDUCTION – **4,000+** structures in danger of flooding should dam fail
- Spillways must be constructed to meet MDEQ High Hazard regulations
- Emergency Action Plan Update Immediately

- Annual Inspection Costs for Professional Engineers
- Substantial maintenance and repair
- Revenue generated by lease
- May need Surface Water Withdrawal Permit
- Additional water quality sampling required (See June 3, 2020 letter)

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Scenario 2: JPS finds new lessee, keeps lake

MDEQ Requirements:

- The spillway system must be upgraded to a self-regulating system that meets High Hazard spillway capacity requirements.
  - Application required that includes plans from a qualified Professional Engineer
- Emergency Action Plan (EAP) must be updated every 3-5 years
  - Desktop Exercise of EAP required
- The dam must be inspected yearly by a qualified Professional Engineer.
- The dam embankment must be maintained (mowing, clearing of vegetation, replacement of rip rap or soil, etc.)
- Any significant issues that arise in the future must be repaired in order to keep dam in compliance with High Hazard dam requirements.
- For water body classification change to Waters of the State, dependent upon additional sampling efforts and request approved by MDEQ

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Scenario 3: Dam Reduction

Considerations

- MINIMAL RISK REDUCTION – **fewer** structures in danger should dam fail
- Spillways must be constructed to meet MDEQ High Hazard regulations
- Emergency Action Plan Update Immediately

- Annual Inspection Costs for Professional Engineers
- Continued maintenance and repair
- Development Potential
- Additional water quality sampling required (See June 3, 2020 letter)
- Reduced need Surface Water Withdrawal Permit

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Dam Reduction

MDEQ Requirements:

- The spillway system must be upgraded to a self-regulating system that meets High Hazard spillway capacity requirements.
  - Application required that includes plans from a qualified Professional Engineer
- Emergency Action Plan (EAP) must be updated every 3-5 years
  - Desktop Exercise of EAP required
- The dam must be inspected yearly by a qualified Professional Engineer.
- The dam embankment must be maintained (mowing, clearing of vegetation, replacement of rip rap or soil, etc.)
- Any significant issues that arise in the future must be repaired in order to keep dam in compliance with High Hazard dam requirements.
- For water body classification change to Waters of the State, dependent upon additional sampling efforts and request approved by MDEQ

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Scenario 4: Dam Removal

- **DAM BREACH RISK ELIMINATED**
- No maintenance/repair costs and no liability from failure
- New land can be leased and used for development and new job opportunities
- Decommissioning costs
  - Potential for FEMA HHPD Grant Funds to cover 65% cost
- Loss of flood protection for homes downstream
- Should the cooling pond be drained and closed, the wastewater would need to be discharged in compliance with the NPDES permit.

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Scenario 4: Dam Removal

MDEQ Requirements:

- A permit application for removal of the dam must be submitted to MDEQ with plans drafted by a qualified Professional Engineer.
- The current embankment must reduced/removed so that it is unable to impound water.
- The changes to runoff characteristics must be evaluated to ensure that homes currently protected by the dam are not suddenly flooded due to normal rainfall.

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Proposed Next Steps

- Based on review of the information provided by the Mississippi Department of Environmental Quality (MDEQ), the JPS Executive Cabinet is recommending that the lake be decommissioned and drained before the 16th Section land is conveyed back to the District.
- JPS Legal Team will notify Entergy Legal of this intent and forthcoming recommendation to the Board of Trustees.
- JPS Board Members will be briefed of this recommendation.
- Appropriate City of Jackson leadership will be briefed of this recommendation

Proposed Next Steps

- JPS and Entergy will develop coordinated communications plan for the public on decommissioning process.
- Recommendation to decommission the lake will be presented to the Board of Trustees.
- Public will be notified of the next steps.
- Long range planning for the redevelopment of the Sixteenth Section land will begin starting with an Request for Information (RFI) lead by JPS.