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BALCH & BINGHAM LLP

SEMI-ANNUAL REMEDY SELECTION AND DESIGN PROGRESS REPORT

PLANT WATSON FORMER CCR UNIT
MISSISSIPPI POWER COMPANY

Prepared for

Balch & Bingham, LLP
1310 Twenty Fifth Avenue
Gulfport, MS 39501

Prepared by

Geosyntec Consultants, Inc.
1255 Roberts Blvd. NW Ste 200
Kennesaw, GA 30144

Project Number: 26008271

September 30, 2026

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Jeremy Gasser, PE (MS)
Senior Principal PE29877

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ACRONYMS AND ABBREVIATIONS

ACM	assessment of corrective measures
AS	air sparge
CCR	coal combustion residuals
CFR	Code of Federal Regulations
EPA	Environmental Protection Agency
GWPS	groundwater protection standards
ISCR	in-situ chemical reduction
LDH	layered double hydroxides
LLDPE	linear low-density polyethylene
MDEQ	Mississippi Department of Environmental Quality
MNA	Monitored Natural Attenuation
NPDES	National Pollutant Discharge Elimination System
PRB	permeable reactive barrier
SSL	statistically significant level
ZVI	zero valent iron

1. INTRODUCTION

In accordance with the U.S. Environmental Protection Agency (EPA) Coal Combustion Residuals (CCR) Rule, 40 Code of Federal Regulations (CFR) § 257.97(a), this *Semi-Annual Remedy Selection and Design Progress Report* was prepared to provide a semi-annual progress update on the remedy selection process for the former CCR unit at Mississippi Power Company (Mississippi Power) Plant Watson in Gulfport, Mississippi (Site). The location of the former CCR unit is shown on **Figure 1**.

In August 2020, Mississippi Power completed an *Assessment of Corrective Measures* (ACM) to address the occurrence of arsenic, barium, lithium, molybdenum, and combined radium 226 and 228 in Unit 3[1] groundwater at statistically significant levels (SSLs) (Geosyntec, 2020a). In 2020, Mississippi Power completed a *Barium Alternate Source Demonstration* and a *Radium Alternate Source Demonstration* showing that naturally occurring sources of barium and combined radium 226 and 228 result in the SSLs downgradient of the former CCR unit (Geosyntec, 2020b; Geosyntec, 2020c). Since 2021, Mississippi Power has completed *Semi-Annual Remedy Selection and Design Progress Reports* detailing remedy selection activities from August 2020 through September 2026. The ACM and progress reports were placed in the operating record and posted to Mississippi Power's CCR Rule Compliance Data and Information website.

Pursuant to 40 CFR § 257.97, Mississippi Power is continuing to evaluate potential groundwater remedies, or combinations of remedies, presented in the ACM to select a final remedy. As discussed in the ACM, the following groundwater remedies are potentially viable at the Site:

- Geochemical approaches (e.g., in-situ injections);
- Pump-and-treat (hydraulic containment and dewatering);
- Monitored natural attenuation (MNA);
- Permeable reactive barrier (PRB);
- Phytoremediation; and
- Subsurface vertical barrier walls.

Groundwater monitoring activities completed from July 2025 through June 2026 were summarized in the *2026 Annual Groundwater Monitoring and Corrective Action Report* (Annual Report; Southern Company Services, 2026) in accordance with 40 CFR § 257.90(e). The Annual Report was placed in the operating record on August 1, 2026.

[1] Four distinct geologic units have been encountered near the former CCR unit. Unit 1 is comprised of dike fill material and is underlain by Unit 2, a sandy clay aquitard. Material in the former CCR unit is at the same elevation as Unit 1 and above Unit 2. Unit 3, below Unit 2, is the uppermost aquifer beneath the former CCR unit and consists primarily of sand. The CCR monitoring well network is screened in Unit 3. Finally, Unit 4 (the deepest unit) acts as a clay aquitard underlying Unit 3.

The following sections describe: (i) former CCR unit closure and source control; (ii) summary of work completed since the March 2026 progress report (Geosyntec, 2026); and (iii) the anticipated schedule for currently planned activities.

2. FORMER CCR UNIT CLOSURE AND SOURCE CONTROL

Mississippi Power completed closure of the former CCR unit in 2018 via closure in place and capping. During closure, the former CCR unit was dewatered sufficiently to remove free liquids. The CCR material remaining in the former CCR unit was graded and a final cover system installed. The final cover system consists of a ClosureTurf® final cover system by Watershed Geo® that utilizes a 50-mil linear low-density polyethylene (LLDPE) geomembrane overlain by an engineered synthetic turf with an aggregate infill. The final cover system was designed to limit infiltration of precipitation by providing positive grades and slopes to promote the shedding of runoff to discharge points along the intake and discharge canals along the perimeter of the former CCR unit.

The closure of the former CCR unit in the manner described above provides a source control measure that minimizes infiltration, reduces the migration potential of CCR constituents, and provides an opportunity for natural attenuation processes to remediate SSL constituents.

3. SUMMARY OF WORK COMPLETED

Since completion of the most recent *Semi-Annual Remedy Selection and Design Progress Report*, further remedy selection-related activities have been performed as described below.

3.1 Semi-Annual Groundwater Monitoring

Semi-annual assessment monitoring of the certified CCR groundwater monitoring network continued at the Site in accordance with 40 CFR § 257.95. Groundwater samples were analyzed for Appendix III and Appendix IV constituents. Groundwater monitoring data and associated statistical analyses are documented in the Annual Groundwater Monitoring and Corrective Action Reports.

3.2 SSL Nature and Extent Assessment

The horizontal and vertical delineation of nature and extent of SSLs remains complete. During the current reporting period, confirmatory groundwater and surface water sampling was conducted in October 2025 and March 2026. Associated data analyses evaluated background and CCR monitoring wells, surface water monitoring locations for horizontal delineation, and deep groundwater monitoring wells for vertical delineation. Surface water concentrations were below applicable groundwater protection standards (GWPS) and/or background concentration for arsenic and molybdenum, indicating the SSLs of arsenic and molybdenum observed in Unit 3 groundwater are spatially limited to the area immediately surrounding the former CCR unit. Surface water samples from October 2025 and March 2026 events continued to exhibit a seasonal trend where lithium concentrations are elevated during fall sampling events and lower during spring sampling events, including at upstream (i.e., background) locations. During the October 2025 sampling event, lithium concentrations exceeded the GWPS in all surface water locations, consistent with historical trends. The presence of elevated lithium in upstream samples, the consistency of the historical trend, and the lack of lithium in surface water during spring sampling events indicate this phenomenon is not related to the former CCR unit. Therefore, the surface water monitoring data from the current reporting period, as well as the former isotopic analysis provided in the addendum to the *Comprehensive Groundwater Investigation Report* (Geosyntec, 2020d), continue to support that horizontal and vertical delineation are complete.

Field investigation activities, including installation of piezometers and additional sampling to further delineate the nature and extent of SSL constituents at the Site, are scheduled to commence in fourth quarter of 2026.

3.3 Monitored Natural Attenuation (MNA) Assessment

A natural attenuation evaluation for Site SSLs was completed prior to the September 2022 progress report and has been subsequently updated as new Site data has been collected. Results of the recent data collection and updated evaluation indicated ongoing natural attenuation of arsenic, lithium, and molybdenum based on statistically significant decreasing concentration trends for select

constituents[2] since 2018 (at the 95% confidence level) at APMW-4, APMW-5, APMW-8, and APMW-10. Concentration of arsenic at APMW-4 has decreased to the extent that a portion of the confidence interval is no longer greater than the GWPS.

Temporal concentration trends at APMW-5 and APMW-6R (along with recent data trend observations at APMW-3) are more variable and have led to further evaluation through treatability and pilot study programs. Additional potential remediation mechanisms may be evaluated following field investigation activities noted in Section 3.2.

3.4 Laboratory Treatability Study

A Site-specific laboratory-scale treatability study was conducted from October 2024 through May 2025 to evaluate groundwater amendments that have the potential to create conditions favorable for the co-precipitation and/or sorption of SSL constituents under anaerobic conditions. Once precipitated, these reactions are often stable even if geochemical conditions revert to alternative pH and/or redox environments.

The laboratory treatability study, with the collection of Site geologic materials and groundwater, focused on two areas: the area around APMW-6R, which has historically shown the highest concentrations of select SSL constituents, and the area around APMW-3. APMW-5 is also an area of interest due to historical concentration trends, but historical sample results and geochemical analyses from APMW-5 appear similar to APMW-3. As such, treatability testing results from APMW-3 are considered applicable to APMW-5.

The laboratory treatability study evaluated biogeochemical transformations using three amendment approaches, with the following results:

- in-situ chemical reduction (ISCR) using zero valent iron (ZVI) reduced arsenic and molybdenum concentrations below the GWPS;
- soluble bio-geochemical reduction (BGCR-S) amendment, which includes an electron donor, trace nutrients (i.e., nitrogen and phosphorus), iron, sulfate, and/or pH buffer (i.e., sodium bicarbonate) amendments reduced arsenic and molybdenum concentrations below the GWPS;
- changes in lithium concentrations were not observed at any time in ZVI or BGCR-S amended systems as lithium typically does not exist as a strongly reactive species in groundwater; and
- layered double hydroxides (LDH) were able to reduce concentrations of arsenic, molybdenum, and lithium below the GWPS, but may also require in-situ adjustment of the redox conditions. In addition, the type and dosage of applied LDH need to be tailored to

[2] Statistically significant decreasing concentrations identified at APMW-4 (lithium), APMW-5 (arsenic and lithium), APMW-8 (lithium), and APMW-10 (arsenic).

each location based on initial concentrations of each constituent and in-situ groundwater chemistry.

The need for further work and/or supplemental investigation to support development of a long-term Site remedial strategy is currently being evaluated.

3.5 Air Sparge Pilot Study

Oxygenation of groundwater may also serve as an important mechanism to attenuate SSL constituents in groundwater at the Site but under aerobic conditions. By increasing the concentration of oxygen in groundwater, ferrous iron can be oxidized and precipitated out of solution. In addition, other dissolved compounds such as arsenic, molybdenum, and lithium may co-precipitate with the iron and/or adsorb to the precipitated iron. In-situ air sparge (AS) is a recognized remediation process for increasing the oxygen concentration in groundwater and includes injecting air under pressure through injection wells (AS wells) into an aquifer. In the treatment zone, the AS process should generate high concentrations of dissolved oxygen (DO) resulting in the precipitation of dissolved iron and potentially the co-precipitation of arsenic, molybdenum, and lithium.

One AS well (designated AS-1) was installed in the vicinity of APMW-6R to conduct the AS pilot study. Four observation wells were installed near the AS well to collect data necessary to evaluate the effectiveness and radius of influence of AS technology at the Site. The AS system was operated in cycles between November 2024 and February 2025. Monthly groundwater monitoring was completed during the implementation of the pilot study to assess the performance of the system. Between February and April 2025, three groundwater monitoring events were completed following removal of the system to assess reversibility of the attenuation mechanism. The layout of the air sparge system is provided in **Figure 2**.

The pilot study demonstrated that air sparging treatment can successfully reduce arsenic and molybdenum concentrations in groundwater to below the GWPS in the APMW-6R pilot study area with limiting factors primarily being subsurface lithologic variations and distance from the air sparge well. Air sparging did not influence lithium concentrations at the Site; therefore, alternative corrective actions will need to be considered to address lithium.

The need for further work and/or supplemental investigation to support the development of a long-term Site remedial strategy is being evaluated.

3.6 Temporary Remedy

In a letter to the Mississippi Department of Environmental Quality (MDEQ) dated December 14, 2020 (Mississippi Power, 2020), Mississippi Power proposed installing a groundwater extraction system at the former CCR unit as a temporary remedy. The temporary remedy was designed and installed to extract groundwater from Unit 3 below the footprint of the former CCR unit and within the existing slurry wall. Extracted groundwater undergoes treatment prior to discharge to the Site leachate pond. The system has been operational since October 2022 (approximately four years).

The goals of the temporary remedy extraction system pursuant to the 2020 correspondence were to:

- Begin groundwater corrective action while a long-term remedy strategy is developed.
- Reduce head in the uppermost aquifer (Unit 3) within the slurry wall footprint.
- Establish an inward flow gradient, thereby minimizing outward flow potential from the former CCR unit.
- Provide further data and information regarding uppermost aquifer and hydrogeology at the Site.

Temporary remedy discharge to the Site leachate pond was included in the approved National Pollutant Discharge Elimination System (NPDES) permit renewal in 2023 for the Site. Prior to the NPDES permit renewal in 2023, MPC received approval from the Mississippi Department of Environmental Quality to convey the temporary remedy discharge to the Site leachate pond.

As part of the temporary remedy system, four groundwater extraction wells (TW-4, TW-5, TW-6, and TW-7) were installed in November and December 2021 in the footprint of the former CCR unit as shown on **Figure 3**. TW-5 was initially included in the temporary remedy system operation, but in August 2023, operation was moved from TW-5 to TW-7. As of September 2026, TW-3, TW-4, TW-6, and TW-7 comprise the extraction well network incorporated into the temporary remedy system, and further optimization is being evaluated.

The temporary remedy system is being continuously evaluated to assess system performance and resulting effects on the groundwater conditions. Mississippi Power will continue this evaluation and periodically update the assessment throughout the remaining operational life of the system.

4. PLANNED ACTIVITIES AND ANTICIPATED SCHEDULE

The following activities are planned to support the remedy selection process:

- Semi-annual groundwater assessment monitoring, including sampling of horizontal and vertical delineation locations.
- Continued evaluation of SSL constituent concentration trends.
- Initiate a field investigation and sampling program in fourth quarter of 2026 to further characterize the nature and extent of SSL constituents at the Site.
- Complete an evaluation to understand potential effects and optimization of the temporary remedy system.

The need for further work and/or supplemental investigation to support the development of a long-term Site remedial strategy is being evaluated. As appropriate, data obtained during these activities will be included in the *2027 Annual Groundwater Monitoring and Corrective Action Report* due August 1, 2027.

Final selection of a remedy will occur in accordance with the CCR Rule. Until remedy selection is complete, semi-annual remedy selection and design progress reports will continue to be prepared. The next semi-annual progress report will be completed by March 31, 2027.

5. REFERENCES

Geosyntec, 2020a. Assessment of Corrective Measures. Former CCR Unit. Mississippi Power Company. Plant Watson. August 2020.

Geosyntec, 2020b. Barium Alternate Source Demonstration. Former CCR Unit. Mississippi Power Company. Plant Watson. August 2020.

Geosyntec, 2020c. Radium Alternate Source Demonstration. Former CCR Unit. Mississippi Power Company. Plant Watson. December 2020.

Geosyntec, 2020d. Comprehensive Groundwater Investigation Report and Addendum. Former CCR Unit. Mississippi Power Company. Plant Watson. December 2020.

Geosyntec. 2026. Semi-Annual Remedy Selection and Design Progress Report. Plant Watson Former CCR Unit. Mississippi Power Company. September 2025.

Mississippi Power, 2020. Mississippi Power – Plant Watson. Agreed Order No 7010-19. Temporary Remedy. December 2020.

Southern Company Services, 2026. 2026 Annual Groundwater Monitoring and Corrective Action Report. Mississippi Power Company. Plant Watson Former CCR Unit. August 1, 2026.

FIGURES



Legend

- Former CCR Unit (AP-1) Boundary
- RaceTrac Gas Station Property Boundary
- Plant Watson Property Boundary

Notes:
1. Property boundary georeferenced from Southern Company Services, 2020. Groundwater Monitoring Report. Mississippi Power Company. Plant Watson Ash Pond. 21 February.
2. CCR - Coal Combustion Residuals
3. Aerial Source: Google Earth Imagery 3/18/2019

N

0 1,000 Feet

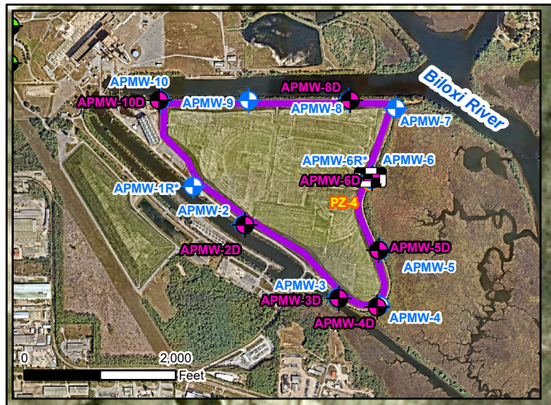
Site Location Map

Plant Watson
Gulfport, Mississippi

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Figure 1



OW-3
OW-1
APMW-6R
AS-1
OW-4
OW-2
APMW-6D
APMW-6
PZ-4

Legend

- Air Sparge Well
- Observation Well
- CCR Monitoring Well
- Vertical CCR Delineation Monitoring Well
- Piezometer
- Former CCR Unit (AP-1) Boundary
- Air Sparge Hose - 1 inch (Note 3)
- Steel Carrier Pipe - 2 inch (Note 4)
- Equipment Staging

Approximate observation well distances from AS-1:

OW-1: 5'
OW-2: 10'
APMW-6R: 20'
OW-3: 15'
OW-4: 12'

Notes:
1. CCR - Coal Combustion Residuals
2. Aerial Sources: Imagery © 2024 Nearmap
3. Wooden stakes with caution tape will be used to increase visibility of air sparge hose.
4. Steel carrier pipe will be installed over roadway and covered with gravel to allow traffic over road.
5. Steel carrier pipe and gravel to be provided and placed by Plant Watson.

N

0 20 Feet

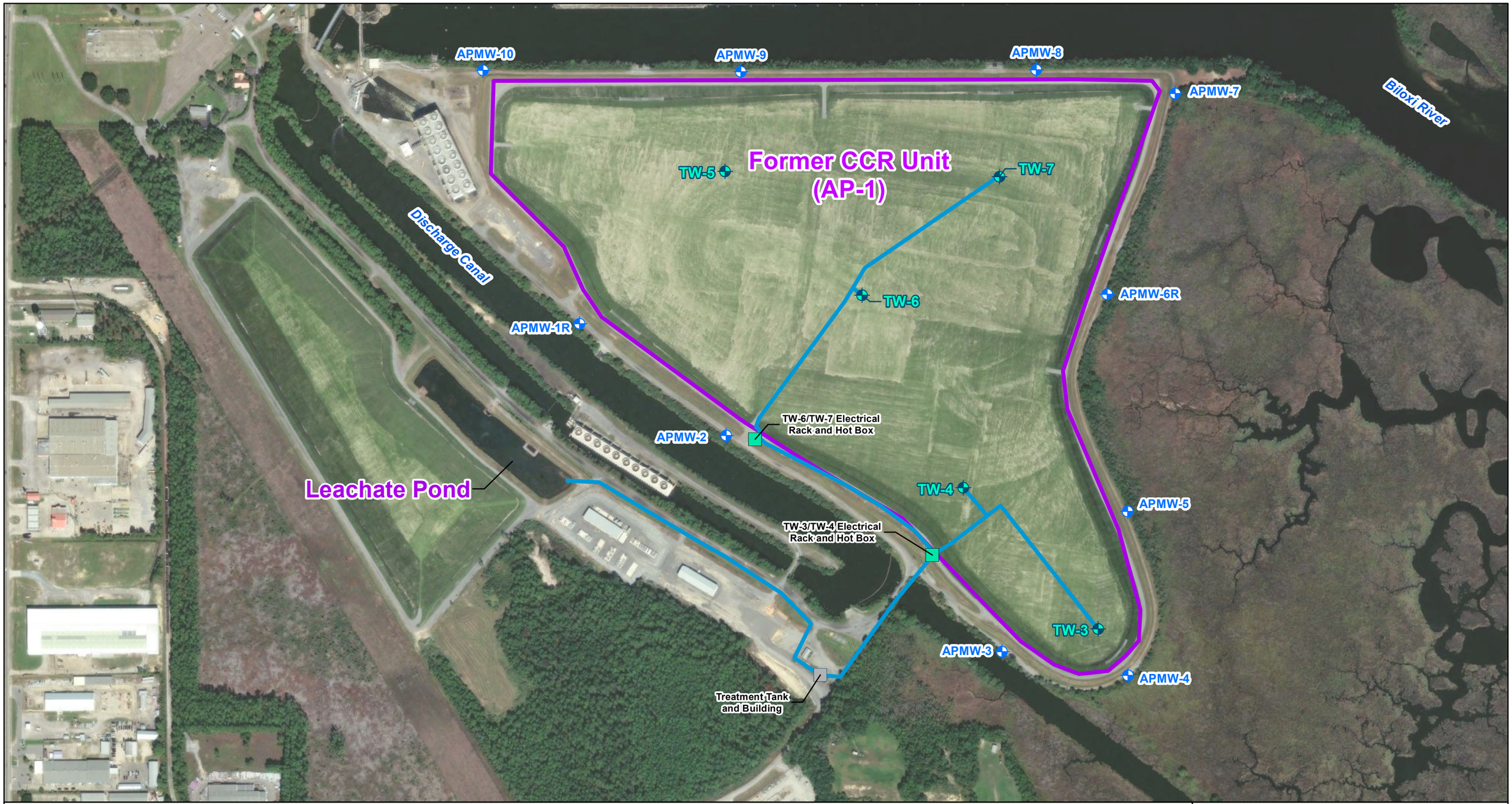
Air Sparge Pilot System Layout

10406 Lorraine Rd,
Gulfport, Mississippi 39503

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Figure 2



Legend

- Extraction Well
- CCR Monitoring Well
- Electrical Rack and Hot Box
- Treatment Tank and Building
- Temporary Remedy Pipeline and Conduit
- Former CCR Unit (AP-1) Boundary

Notes:
1. CCR - Coal Combustion Residuals
2. Aerial Source: Google Earth Imagery 3/18/2019
3. Actual Locations May Vary Depending Upon Conditions Encountered in the Field.

N

0 460 Feet

Temporary Remedy System Overview

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Figure 3