

IM Monthly Report



Mississippi Public Service Commission Kemper IGCC Project

November, 2017

URS

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Executive Summary

URS Corporation (URS), later acquired by AECOM, was requested by the Mississippi Public Service Commission (MPSC) to provide Independent Monitoring services for the Kemper Integrated Gasification Combined Cycle (IGCC) Project located in Kemper County, MS. The scope of services includes monthly reporting by URS (AECOM) and its subcontractors, the Independent Monitor (IM), of the status and prudence of the on-going engineering, procurement, construction and startup activities performed by Mississippi Power Company (MPC or the Company), its parent Southern Company and subsidiary Southern Company Services (SCS), and its subcontractors on the project. This IM Monthly Report provides the results of this assessment for the reporting period of November, 2017, and review of the project status reported by MPC for the period of September and October, 2017 (September 2017 accounting records and October 2017 PSC Report).

During this reporting period, the IM has conducted weekly status review meetings with MPSC staff. Other meetings and reviews were also conducted, as described below (refer to other Report Sections where referenced for more details):

- November, 2017 – Accounting audit of financial records from end of August, 2017 through end of September, 2017 held at MPC offices in Gulfport, MS (Appendix C).
- November, 2017 – Daily monitoring of on-going site activities at the jobsite (Appendix E).

Project Status through November, 2017 (Unless Noted Otherwise)

Engineering - The gasification island design performed by KBR, and the SCS design of the combined cycle island and the balance of plant (BOP) work, is 100% complete for base scope. All major Revision 0 design packages have been issued for construction. Remaining resource pool and scope addition activities were placed on hold on June 28.

Procurement - All major equipment and commodity orders have been placed. Major equipment deliveries are complete. Remaining final construction and startup activities including procurement of miscellaneous items as identified for scope additions were placed on hold on June 28. During November, there were no new awards or vendor recommendations reported.

Construction – Overall base plant construction is 100% complete (as of November 13, 2016). Construction for remaining approved scope additions was placed on hold as of 6/28/17.

Transmission – Right of way acquisition and construction is complete for all 11 line segments and all 8 substations. MPC will continue to monitor transmission right of ways for any needed restoration and maintenance.

Supply Chain – Right of way acquisition and construction is complete for all 3 pipelines. Long term sales or supply contracts have been signed with the City of Meridian (water supply), Tennessee Gas Pipeline (NG supply), Denbury Resources (CO2 sales), Air Liquide (nitrogen supply from onsite Air Separation Unit), and Martin Product Sales (sulfuric acid and ammonia

sales by truck). If gasification operations do not resume, a plan will be developed for final disposition of these contracts.

Liberty Mine - Current land control is 100% complete for the initial five year permit area. Construction activities are complete. Total actual spending for the mine development through October, 2017, including mine Allowance for Funds Used during Construction (AFUDC), was unchanged at \$232 million, which is the forecast final cost. Mine operations were suspended on June 28. Assuming gasification operations do not resume, a plan will be developed for final disposition of the mine assets and operating contract with Liberty Fuels.

Mississippi Economic Impact

IM has reported for each contract and purchase order whether MS bidders were involved, and if so, status and basis of the award decision (refer to Appendix F). Through October, 2017, contracts totaling \$2.184 billion have been awarded to MS companies, and total MS spending is \$2.168 billion (about 29% of the total, including uncapped costs). MS workforce contributed 86 construction jobs and 218 plant/mine jobs in October. A total of 577 MS Companies have provided construction, equipment, material or professional services for the Project.

Key Concerns

The remaining Project Execution related concerns and associated resolution status at the time that gasification operations were suspended have been reported (refer to the July 2017 IM Monthly Report). These concerns would need to be resolved should gasification operations resume.

Contractor Hotline

MPC has established a toll free telephone number for contractors or others to provide observations of any concerns with improper activities associated with the project. Comments are collected by a third party and reported to MPC for follow up investigation and action. The IM is copied on all correspondence and will report status of all cases. There were no new concerns filed this reporting period (November, 2017). On-going need for the Hotline will be evaluated based upon plans for future Contractor activities.

A summary of the twenty six (26) claims received to date and their status, including corrective actions taken, is included in Appendix I.

Requests for Information (RFI) Status

The overall status of the project data requests are summarized in Appendix B to this monthly report. Most of the RFI's have been posted, reviewed and closed (over 1000 items total; 13 open items remaining including On-Going and On Hold items). Status of remaining items is summarized below:

- Accounting – MPC posted response to RFI requesting MPC post In Service Date process for 1) categorization of on-going costs (capped or uncapped); and 2) accounting records showing how these costs are being booked; IM review is on hold.
- Scope Additions – MPC posted updated list through April, 2017 for approved items (\$166 million) and through May 31, 2017 for pending items (4 items); future updates are on hold pending resumption of Scope Addition construction; weekly updates were being provided to the IM Site Team for all FCR's, OCR's and Resource Pool Listings; future updates are on hold.
- Process and Technology – MPC short term response to RFI requesting Root Cause Analysis for recent syngas cooler tube leaks along with long term action plan, schedule and cost was posted in May; supplemental response was posted in July; this item is on hold.
- Shutdown and/or Mothballing procedures for gasifier equipment – MPC short term response to RFI requesting procedures to be used to protect gasifier equipment during planned shutdown was posted in July; IM requested long term procedures; supplemental response was posted in August; this item is on hold.
- New RFI was submitted in August regarding NGCC performance data – MPC response was posted on 11/14/17 (RFI 2-905).

Project Cost and Schedule

In the October, 2017 PSC Report, MPC reported no change in forecast capped cost at \$5.946 billion. Forecast uncapped costs were also unchanged in October at \$1.570 billion.

Forecast costs include \$55.9M reclassification of Beneficial Capital, Force Majeure, and Change in Law from capped to uncapped cost, subject to approval by the MPSC.

Actual costs for post-June 2017 are reported as Suspension Costs. Through October, capped suspension costs total \$47.0 million, and uncapped suspension costs total \$31.4 million. Refer to Appendix G for the PSC Report Summary.

IM monthly review meetings at the jobsite are on hold. The last meeting was conducted on August 29, 2017. Short term layup of the gasification systems is in progress. On December 1, 2017, MPC submitted an Amended Kemper Settlement Agreement which was joined by multiple intervenors, including the Mississippi Public Utilities Staff (refer to Accounting Summary below). On December 5, 2017, the Commission issued a Scheduling Order in the Kemper Settlement Docket, setting Final Hearings for settlements starting on January 22, 2017. Future plans for resumption of operations and startup activities on the gasifier portion of the Kemper IGCC are unknown at this time. Should construction and startup activities resume, the remaining risks noted under key Project Execution and Process and Technology concerns in previous IM Reports, and as previously reported by MPC (see Appendix H), would need to be addressed.

Accounting

Topp McWhorter Harvey, PLLC (hereinafter referred to as "TMH") has completed the accounting audit of the special-purpose Historical Schedules of Capped and Uncapped Plant

Expenditures of the Project for the historical project-to-date costs prior to suspension as of June 30, 2017, prior month suspension costs, current month suspension costs for the month-to-date period ended September 30, 2017, as well as total cost from inception through September 30, 2017 and the related notes.

On December 1, 2017, the Company filed their October 2017 Monthly Status Report with the Commission which reported Suspension Costs (actual costs for post-June 30, 2017 suspension of IGCC Gasifier operations and start-up activities) for Capped Cost of \$47.0 million and Uncapped Cost of \$31.4 million. The total Capped Plant Cost and Total Exemptions and Exceptions Cost (Non-Capped Cost) in the Company's Monthly Status Report through October 2017, is \$7,306.6 billion.

On November 22, 2017, the Company reached an amended and restated settlement agreement with Chevron Products Company, a division of Chevron U.S.A. Inc., the Federal Executive Agencies, and the Chemours Company FC, LLC. On December 1, 2017, the Company reached a second amended and restated settlement agreement (the "Amended Kemper Settlement Agreement") with the Staff (MPUS) and the parties to the first amended and restated settlement agreement. It is anticipated that other parties, including the parties to the Original Kemper Settlement Agreement, will also file joinders in support of the Amended Kemper Settlement Agreement.

The Amended Kemper Settlement Agreement provides for an annual revenue requirement of approximately \$112.6 million for costs related to the Kemper Facility based on (1) a fixed return on equity ("ROE") for 2018 and 2019 of 8.6% calculated in accordance with the Company's Performance Evaluation Plan ("PEP"), excluding the performance adjustment, (2) for future years, a performance-based ROE calculated pursuant to PEP, and (3) amortization periods for the regulatory assets and liabilities associated with the In-Service Assets of eight years and six years, respectively. The revenue requirement also reflects a disallowance related to a portion of the Company's investment in the Kemper Facility requested for inclusion in rate base, which will be recorded in the fourth quarter 2017 as an additional charge to income of approximately \$85 million pre-tax.

The following table summarizes the differences between the Original Kemper Settlement Agreement and the Amended Kemper Settlement Agreement:

	Original Kemper Settlement Agreement	Amended Kemper Settlement Agreement
Annual Revenue Requirement	\$126.4 million	\$112.6 million
Gross Plant In-Service	\$1,186 million	\$1,101 million
Return on Equity	9.33%	8.6% for 2018 and 2019. For further years, a performance based ROE calculated pursuant to PEP.
Amortization of Regulatory Assets	20 years	8 years
Amortization of Regulatory Liabilities	5 years	6 years

Under the Amended Kemper Settlement Agreement, retail customer rates would (1) be effective in January 2018, (2) reflect a reduction of approximately \$13.8 million annually, and (3) include no recovery for costs associated with the gasifier portion of the Kemper Facility in 2018 or at any future date.

In addition, the Amended Kemper Settlement Agreement also provides that (1) the certificate of public convenience and necessity for the Kemper IGCC would be modified to limit the Kemper Facility to natural gas combined cycle operation and (2) the Company would file a reserve margin plan with the Commission within six months following approval of the Amended Kemper Settlement Agreement by the Commission.

The Commission is expected to vote on the Amended Kemper Settlement Agreement in January 2018. As previously disclosed, the Company expects to incur additional pre-tax costs, which would not be recovered from customers, estimated at approximately \$100 million to \$200 million, in connection with the cancellation of the gasification portion of the Kemper IGCC.

The ultimate outcome of these matters cannot be determined at this time.

On December 5, 2017, the Commission issued a scheduling order for the hearing on the stipulation to begin on January 22, 2018, and continue day to day until complete. The Commission anticipates issuing its Final order on or before its February 6, 2018 open meeting.

On November 30, 2017, the SEC staff notified Southern Company that it has concluded its investigation concerning the estimated costs and expected in-service date of the Kemper IGCC, and is closing the investigation without recommending an enforcement action.

The Company is reviewing its contact with DOE to determine any obligations that it has to meet in order to complete its contract with DOE in order to retain the funds that it has received from DOE. This determination is expected to be made when the final reporting is delivered to DOE in the second half of 2018.

Discipline Summaries

Environmental / Permitting

The IM has completed its review of environmental/permitting documentation provided by MPC. The IM's review of these documents has not identified any major concerns or issues. However, there may be additional monitoring reports prepared by MPC and LF for the MDEQ and the Corps of Engineers, depending on future plant operational plans.

These documents and reports should be provided to and reviewed by the IM to insure that the permit requirements for the IGCC Plant Site and Linear Facilities and for the Liberty Mine continue to be met (see Appendix B, RFI 2-904).

One (1) remaining plant permit application is under review by regulatory authorities (Title V Operating Permit Modification for Air). If gasification operations resume, the plant would operate under the current construction permit until the Title V Operating Permit is issued. Liberty has submitted and received all permits that govern the construction and initial operation of the lignite mine.

Process and Technology

Site monitoring of gasifier startup by IM gasification technology specialist is on hold. Last site visit was conducted week of July 10, 2017. Key technical milestones not yet achieved as of gasifier shutdown on June 28, 2017 have been reported (refer to IM July 2017 Monthly Report, Section 1.10).

Lignite Delivery Facility

LDF construction is 100% complete. MPC announced that they were suspending all coal operations in the plant on Wednesday, June 28. The remaining employees will be manning the mine 7 days a week (days only) for general maintenance until a decision is made to either restart mine production or to shutdown and restore the mine site.

Dewatered sludge from the filter presses in the LDF continues to be hauled to the ash pond as needed. The amount of coal still in outside storage is roughly 850,000 tons. The mine coal pile is around 400,000 tons, the plant coal pile is 350,000 tons and the outside storage coal pile next to the Dome has 110,000 tons.

Contract Awards Review

IM reviews of Contract Awards are complete. Most known key Contracts and Purchase Orders, including construction and Liberty Mine facilities, have been included, totaling about 700 items (excluding O&M Service Contracts, MS Tier II contractors, and Transmission). Refer to the IM July 2016 Monthly Report (Appendix F), for the final update of completed reviews.

Site Activities

Significant IGCC Plant Events which occurred during November 2017

- OCT 30: Preventive Maintenance Plan was reestablished.
- NOV 1: Resumed deinventorying the Riser after using air lances to free the ash buildup on the interior refractory walls of the Riser.
- NOV 8: Deinventorying the Riser was suspended for the second time due to ash buildup on the interior refractory walls of the Riser falling again. No activity has been observed since being suspended.
- NOV 8: Began deinventorying the coal from Gasifier A Continuous Coarse Ash Line.
- NOV 13: Completed vacuuming the coal from around the base of Coal Mills 4, 5 and 6 and started vacuuming the coal from the U-Drains under the Gasifier structure.
- NOV 13: Completed cleaning the Dewatering Pad Sump
- NOV 14: Maintenance isolated the outlet of the Particulate Control Devices on both Gasifier trains.
- NOV 16: Completed deinventorying the coal from Gasifier A Continuous Coarse Ash Line.
- NOV 24: The Combined Cycle was taken offline to repair the 325# Steam Header that was damaged earlier in the month.
- NOV 28: Started cleaning modular Tank 3. Modular Tank 1 is the only tank left to be dewatered and cleaned. Modular Tanks 9 and 11 have been dismantled.
- NOV 30: The Combined Cycle was brought back online. As has been the case for the past five months, Combustion Turbines CTA and CTB continue to fire on natural gas fuel in 2 on 1 mode.
- NOV 30: Remaining ash levels in Ash Silos have remained unchanged in November:
 - Ash Silo A – 25% ash level
 - Ash Silo B – 8% with ash level in the bottom of the cone section
 - Ash Silo C – 0% still a small amount of ash left in the cone section
 - Ash Silo D – 0% still a small amount of ash left in the cone section
- NOV 30: Both Acid Gas Removal Selexol trains remain under nitrogen atmosphere while refrigeration unit continues to operate with the minimum number of compressors to prevent overpressure from ambient heat rise.
- NOV 30: Level in the Sulfuric Acid Tank is still at 64% with no unloading this month.
- NOV 30: Dewatered sludge from the filter presses in the LDF continues to be hauled to the ash pond as needed.
- NOV 30: Baghouse #4 has been permitted for filter removal with no activity observed this month. Filter removal is complete in Baghouses 1 and 2 with no filter removal in Baghouse #3.

Startup

- Startup activities were suspended on June 28, 2017.
- Prior to the shutdown, Train A sustained operation for over 5 days at 100% syngas to the turbine for most of that period.

- CO₂ was captured and sold at target capture rates near 65%.
- On-spec ammonia and sulfuric acid was produced 100% of this time.
- During the last night of operation the lignite dryers, gasifier, and CT operated at highest rates to date, above 80% of design rate.
- Train A was running well when taken off line.
- Repairs to the syngas cooler superheater on Train B were completed on June 29 – Train B was ready for restart.
- Short term layup of the gasification systems is in progress – should operations not resume, long term plans for plant lay-up and dismantling would need to be developed.

Operations

CC Operation:

- Plant is currently operating on natural gas only (see summary of Site Activities above).
- Through June 28, 2017, CTA had operated 977 hours on syngas producing 83,625 MWHs while CTB had operated 1,092 hours on syngas producing 81,275 MWHs.
- Average load on syngas was 86 MW on CTA and 74 MW on CTB.
- Maximum load on syngas was 170 MW on CTA and 129 MW on CTB.

Gasifier Operation:

- Through June 28, 2017, syngas production had totaled 2,236 hours (93 days) on Train A and 3,077 hours (128 days) on Train B.

Integrated Operation:

- Through the end of June, both trains had operated simultaneously while producing electricity from syngas on both turbines for a total of 138 hours (maximum continuous integrated run time of 54 hours from January 29 – 31, 2017).

Gas Cleanup Operation:

- CO₂ captured and delivered – 105,320 tons
- Sulfuric acid produced – 6,190 tons
- Ammonia produced – 78 tons

Land

IM Review of Documents, Leases and Purchases from the Kemper County and Lauderdale County, Mississippi Courthouses and Update on Litigation Related to the Kemper IGCC Power Plant Site and Liberty Mine, Kemper County, Mississippi

In the October 2017 report, the IM reported that no new leases or acquisitions were discovered during its review of land records at the Lauderdale and Kemper County Courthouses and also discussed the status of various litigation related to the Kemper Project including two lawsuits now pending before the Mississippi Supreme Court as well as cases before the United States District Court for the Northern District of Georgia, the United States District Court for the Northern District of Alabama and one case pending before the American Arbitration Association which was originally filed in Gwinnett County, Georgia.

In this November 2017 report, the IM will discuss the status of the litigation referenced above. No new leases or acquisitions were discovered during the IM's visit to the Lauderdale and Kemper County Courthouses on November 28, 2017.