IM Monthly Report



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Mississippi Public Service Commission Kemper IGCC Project

June, 2016



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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 prudency 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 June, 2016, and review of the project status reported by MPC for the period from April, 2016 to June, 2016 (EPC Status Production Meeting Reports May 23 and June 23, 2016, April and May 2016 PSC Reports, and Kemper County IGCC Weekly Executive Summary, Metrics and Control Meeting Reports through July 5, 2016).

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

- June, 2016 Accounting audit of financial records from end of March, 2016 through end of April, 2016 held at MPC offices in Gulfport, MS (Appendix C).
- June, 2016 Daily monitoring of on-going site construction and startup activities at the jobsite (Appendix E).
- Week of June 13, 2016 Review of gasifier startup activities held at the jobsite (Section 1.10).
- June 13 and 14, 2016 Review of project EPC status held at the jobsite (Appendix D).
- June 14, 2016 Review of draft Process and Technology RFI responses held at the jobsite (Section 1.10, Appendix B and Appendix D).
- June 29, 2016 Teleconference with MPC and SCS to discuss status of open RFI's (Appendix B).

Project Status through May, 2016 (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, remained at 99% complete. All major Revision 0 design packages have been issued for construction. Remaining effort will be focused on resource pool and scope addition activities, including:

- Resource pool activities.
- Support to construction on key contracts emergency notification, heat tracing, and fire protection systems.
- E&CS and MPC Management of Change (MOC) process implementation and training.
- Design revisions from PHA, support requests, updated vendor information, and scope additions.
- Supporting Startup in turnover package checkouts.

Addressing PSSR functional turnover punchlist items.

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Procurement - All major equipment and commodity orders have been placed. Major equipment deliveries are complete. Remaining effort will be focused on final construction and startup needs including procurement of miscellaneous items as identified (scope additions). During June, two new awards were issued for Chemical Product Lab fans and Lignite Dryer pressure relief valve modifications, and five vendor recommendations were accepted for Transport Air and CO2 Compressor instrument air conditioners, Startup scaffolding and insulation support, and Chemical Product Lab inlet filter silencer and hood, inline duct heaters, and centrifugal blower.

Construction (through June 26, 2016) – Plant construction is complete for the combined cycle unit, nitrogen plant, water plant, water storage pond, ash storage, buildings, lignite delivery facilities, piling and caissons, underground utilities, mass grading, concrete, structural steel, equipment, piping, instrumentation, cable tray, cable, terminations, conduit, tubing, and heat tracing. Plant work in progress includes equipment insulation (98% complete, about 15,000 SF remaining), and pipe insulation (98% complete, about 21,000 LF remaining), plus ongoing punchlist and scope addition activities. Overall plant construction remained at 99% complete (through May, 2016).

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.

Pipelines – 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), Air Liquide (nitrogen supply from onsite Air Separation Unit), and Martin Product Sales (sulfuric acid and ammonia sales by truck).

CO2 contracts originally specified CO2 delivery dates have been exceeded. On June 3, 2016, MPC cancelled its contract with Treetop Midstream Services, LLC for the purchase of 30% of the CO2 to be captured at the Kemper IGCC plant. On that same day, the Company revised its contract with Denbury Resources, Inc. to provide for the purchase of 100% of the captured CO2. The revised contract provides for termination by Denbury at its discretion if CO2 deliveries do not occur by July 1, 2017.

Liberty Mine - Current land control is 100% complete for the initial five year permit area. Construction activities are complete. Mine is operating and stockpiling lignite. Total actual spending for the mine development through May, 2016, including mine Allowance for Funds Used during Construction (AFUDC), was unchanged at \$232.2M, which is the forecast final cost.

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 May, 2016, contracts totaling \$2.013 billion have been awarded to MS companies, and total MS spending is \$1.998 billion (about 30% of the total, including uncapped costs). MS workforce contributed 368



construction jobs and 341 plant/mine jobs in May. A total of 558 MS Companies have provided construction, equipment, material or professional services for the Project.

Key Concerns

The following Project Execution related concerns have been reported with associated resolution status:

- Differential settlement and/or slope movement during initial loading of lignite stockpile in the storage dome Survey benchmarks will be monitored for settlement and slope stability during initial stockpile placement. IM suggests MPC consider development of mitigation plans in the event excessive settlements and/or slope movements are discovered, and staging of the initial placement of the lignite stockpile.
- System testing has discovered numerous pressure leaks due primarily to inadequate installation, quality control, and quality assurance of flanged and welded connections (bolt torqueing, gaskets, seals, pipe alignment, missing or inadequate welds) – MPC is repairing the leaks when identified. Key concerns are noted below:
 - Extraction Air Compressor *trim cooler gaskets on EAC-1 being replaced; commissioning on hold.*
 - Syngas cooler leaks leak repairs and hydrotest completed on both Trains; IM has concerns with future leaks under operating conditions.
 - Coal mill loop leak rate exceeding maximum leak testing and repairs achieved on all six trains.
 - Multiclone bottom hoppers weld repairs completed; insulation being reinstalled.
 - Anhydrous ammonia pumps seal leaks repairs in progress.
- Train 2 venturi scrubber pumps cavitation issues *continue to be evaluated during the lignite feed tests.*
- Venturi scrubber solids carryover issues (4 scrubbers/train) back flush system for the strainers will be installed on all 6 trains (3 of 6 complete).
- Recovered water filters plugging testing the new set of filter elements in two of the 3 Recovered Water Candle Filters (FL-0001A/B) from Pall is being monitored during the limited lignite runs; plugging and extended back flushing durations continue.
- Gasifier refractory repairs refractory repairs and dry out is complete in both Gasifier A and B; Gasifier A still requires cure out.
- Coal dryer rotary air lock valves plugging new internals with larger nitrogen cannons have been installed in the inlet and HP discharge Rotary Air Lock valves on all 6 trains.
- Particulate Control Devices the blow back pots on all four PCD's have been replaced.
- Ash moisturizer system modifications in progress for all 4 trains, including new baffles, larger rotary feed motors, new pneumatic slide gate valves, and new rotary feeders on the discharge chutes; Ash Moisturizer D issues continue with matching the feed rate with the coal and water mixture; modifications to Ash Moisturizer C failed testing; more modifications will be required.
- Wastewater treatment pumps minimum water circulation could not be achieved on the Wastewater Ammonia Purifier Bottoms Pumps; larger motors were installed; testing continues.



- Ammonia storage deluge containment temporary system installed to contain overspray; redesign of permanent solution in progress.
- PDAC testing temporary nitrogen supply installed on Train 5 to provide required testing pressure; scope addition approved to install permanent solution.
- Lignite dryer solids accumulation material testing and evaluation in progress.

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 (June, 2016).

A summary of the twenty five (25) claims received to date and their status, including corrective actions taken, is included in Appendix I.

Project Document Status

The overall status of the project document reviews are summarized in Appendix B to this monthly report. Most of the RFI's have been posted, reviewed and closed (17 open items remaining). Primary concerns noted by the engineering disciplines are summarized below:

- Scope Additions MPC has posted updated list through April, 2016 for approved items (\$121M) and through June 7, 2016 for pending items; weekly updates are being provided to the IM Site Team for all FCR's, OCR's and Resource Pool Listings.
- PHA Action Items MPC has posted updated list through June 5, 2016 (only 5 open items remaining). This RFI will be closed.
- Vendor Recommendations there are 32 open items, mostly certified budget amounts; MPC responded these original budget amounts are not available (refer to Appendix F).
- Process and Technology IM had additional questions on some of the posted responses (new RFI's were created); draft responses to several of these items were reviewed at the site on June 14; all remaining responses were posted in June (refer to Section 1.10, Appendix B and Appendix D).

Project Cost and Schedule

In the May 2016 PSC Report, MPC reported no change in forecast completion date in third quarter of 2016, and an increase in forecast capped cost of \$9.8 million to \$5.376 billion, including a decrease in base contingency of \$5.8 million to \$36.1 million and no change in Schedule Risk at \$35 million. Forecast uncapped costs increased by \$1.5 million in May to \$1.376 billion.

Total capped spending for the plant through May, 2016, with deduction for Department of Energy (DOE) funding, was \$5.171 billion. Overall plant EPC remained at 99% complete.



Uncapped spending through May was \$1.277 billion. Refer to Appendix G for the PSC Report Summary.

As of June 26, 2016, the current working schedule indicates TOD of 8/26/16, which is a 289 day slip from the November 2014 rebaseline date, and a 5 day slip from the 5/29/16 report. The critical path to First Syngas Production - Train 'B' scheduled to begin July 7 is through installation of manways, conduct 650 psi leak test, Return to Temperature Gasifier 'B', First Syngas Production Train 'B', and Reliable/Clean Syngas – Train 'B' (currently scheduled to be achieved by July 27), Testing and Tuning of CTs on Syngas, and TOD. The Target Operations Date is currently scheduled to be achieved by August 26.

The second critical path through Gasifier 'A' is through Gasifier 'A' Refractory work, Return to Temperature on Gasifier 'A', Refractory Cure Gasifier 'A', First Syngas Production Gasifier 'A', Reliable/Clean Syngas Gasifier 'A', Testing and Tuning of CTs on Syngas, and TOD on August 21.

Key drivers on secondary path include:

First Syngas Production - Train 'B'

- Sour Water System Readiness (1 day off top path), driven by test package completion, currently scheduled for July 05.
- Operational Readiness for First Coal Feed Gasifier 'B' (1 day off top path), driven by completion of HAZOP action items and finalization of PSSR. Operational readiness is scheduled to be achieved by July 06, 1 day prior to First Syngas.
- Operation Readiness for HP Flare B (5 days off top path), driven by hanging the final car seals.
- Lignite Dryer Ready for First Lignite Feed (7 days off top path), driven by completion of Multi-Clone insulation.
- 2 scope additions (5 days off top path): Ash Conditioner Water Supply Relocation, PDAC control valves.

Gasifier 'A'

- Gasifier 'A' Refractory Repairs (5 days off critical path), driven by the 3rd gasifier dry out and final inspections. All repairs and inspections are scheduled to be completed by July 09, followed by leak checks, return to temperature, and Refractory Cure.
- WSA System Readiness (5 days off critical path), driven by completing catalyst loading. Catalyst loading will be completed by July 08, followed by leak tests and loading of sulfuric acid; with WSA at Hot Standby July 16.
- Lignite Dryers Ready for First Coal Feed Test 2 Gasifier 'A' (5 days off critical path), driven by Dryers #1 & #2 commissioning activities.
- AGR 'A' System Readiness (6 days off critical path), driven by AGR 'B' Flash Gas Compressor commissioning, Selexol fill of 'B', and Selexol fill of 'A'. AGR 'A' will be ready to support Reliable/Clean Syngas Available Train 'A' by July 31.
- Lignite Dryers Ready to support First Coal Feed Gasifier 'A', Reliable/Clean Syngas Gasifier 'A' (6 days off critical path), driven by commissioning of Dryer #2 for First Coal Feed Test, and Dryer #1 for Reliable/Clean Syngas.



- Operations Ready for First Coal Feed Gasifier 'A' / PSSR Sign Off (7 days off critical path), driven by estimated completion date of remaining punch list items and finalization of PSSR.
- AGR Refrigeration Readiness (7 days off critical path), driven by completion of ammonia fill and compressor testing. The AGR Refrigeration system is scheduled to be complete July 12.
- 1 scope addition: Installation of Instrument Air accumulator tanks at each backpulse valve (8 days off critical path); accumulator tanks are scheduled for delivery Jun 28, with installation complete Jul 13 to support Gasifier 'A' Return to Temperature on Jul 16.

Overall project execution status was reviewed on June 14, 2016 at the jobsite. Refer to Appendix D for detailed meeting notes. Primary concern is additional schedule slippage and associated cost increases, and unknown startup and technology risks.

- Additional schedule slippage MPC has reported a delay in COD to third quarter of 2016. MPC will continue to evaluate startup schedule and remaining risks, and has included \$35 million for schedule risk in the May cost forecast, equivalent to September 30, 2016 COD; however, recent trends in startup progress (1.1% per month over the last six months, 0.7% in June) will have to improve to meet the forecasted COD. Schedule risks remain for completion of punchlists and PSSR action items, and on-going issues with the lignite preparation and ash removal systems have yet to be resolved. IM believes remaining process risks are being under estimated, and results of the latest Quantitative Risk Assessment (QRA 11) indicate current COD of end of September is about 30% probable (P30 is 10/7/16). P90 date is early December. And completion of performance testing on CTA will add about 7 weeks to the QRA dates for CTA instrumentation, inspection and validation.
- Associated cost increases While increases in the indirect project costs due to schedule delays are capped and therefore being absorbed by the MPC shareholders, the rate payers are also at risk for alternative power generation and AFUDC costs, to the extent these are allowed by the MPSC.
- Unknown startup and technology risks key concerns include premature equipment failures, coal feed, ash removal, refractory reliability, overall plant process control integration, chemical product quality and off taker performance. Issues associated with several of these concerns (equipment failures, coal feed, ash removal, refractory reliability), have already been reported and are still being addressed.

Accounting

Topp McWhorter Harvey, PLLC (formerly known as Nicholson & Company, PLLC and hereinafter referred to as TMH) has completed the accounting audit of the special-purpose Historical Schedules of Capped and Uncapped Plant Costs of the Project for the historical project-to-date and month-to-date periods ended April 30, 2016, and the examination of special-purpose Forecasted Schedules for the period beginning June 1, 2016, through the completion of the Project.

On July 1, 2016, the Company filed their May, 2016, monthly Form 8K with the SEC which increased its Capped Plant Cost Current View (forecast) for the Kemper IGCC Project to approximately \$5.376 billion, net of DOE grants and Cost Cap Exceptions. The Company's Monthly Status Report through May, 2016, increased its Current View (forecast) of Total Exemptions and Exceptions (Non-Capped Cost) by \$1.5 million to approximately \$1.376 billion.

The Company has revised its cost estimate subject to the cost cap for the Kemper IGCC to include approximately \$9.8 million related to operational readiness and challenges in start-up and commissioning activities. These amounts include estimated costs through September 30, 2016, and is based on information available through the filing date (July 1, 2016) of this report.

On June 3, 2016, the Company cancelled its contract with Treetop Midstream Services, LLC for the purchase of 30% of the CO2 to be captured at the Kemper IGCC plant. On that same day, the Company revised its contract with Denbury Resources, Inc. to provide for the purchase of 100% of the captured CO2. The revised contract provides for termination by Denbury at its discretion if CO2 deliveries do not occur by July 1, 2017.

On June 9, 2016, Treetop Midstream Services, LLC; Greenleaf CO2 Solutions, LLC; Tenrgys, LLC; Tellus Energy, LLC; WCOA, LLC; and Tellus Operating Group, LLC filed a Complaint against the Southern Company, Southern Company Services, Inc., and Mississippi Power Company in the State Court of Gwinnett County, Georgia. The Plaintiffs allege that the Southern Company Defendants concealed and misreported the Start Date of the Kemper Project, and that Treetop relied upon those misrepresentations while building a roughly \$100 million pipeline and conducting other work necessary to take CO2 from the Kemper Project. The Plaintiffs assert claims of fraudulent misrepresentation, fraudulent concealment, and civil conspiracy with respect to the Southern Company Defendants, and breach of contract with respect to MPC. The Plaintiffs seek compensatory damages and punitive damages as well as costs and interest. The Southern Company Defendants will vigorously defend the matter, and the final outcome of this matter cannot now be determined.

On February 25, 2016, Greenleaf C02 Solutions filed a notice of appeal in the Mississippi Supreme Court regarding the decision in Mississippi Public Service Commission docket 2015-UN-80. On February 29, 2016, the Company filed a Motion to intervene as a party in the appeal. The appeal seeks to reverse the Commission's In-Service Asset Order and Temporary Rate Order awarding rate relief to the Company related to the Kemper Project. On March 3, 2015, the Commission, as appellee, filed a Motion to Dismiss the Appeal. On May 5, 2016, the Mississippi Supreme Court granted the Mississippi Public Service Commission's Motion, dismissed Greenleaf's appeal, and assessed all costs of the appeal to Greenleaf. On May 19, 2015, Greenleaf filed a Motion for En Banc Reconsideration, which requests that the full Court reconsider the three-judge panel's decision to dismiss the Greenleaf Notice of Appeal. The Company will vigorously defend the matter, and the final outcome of this matter cannot now be determined.

As reported in the Form 10Q for the first quarter ended March 31, 2016, Mississippi Power Company disclosed that the Securities Exchange Commission (SEC) is conducting a formal investigation of Southern Company and Mississippi Power Company concerning the estimated costs and expected in-service date of the Kemper IGCC Project. Southern Company and Mississippi Power Company believe the investigation is focused primarily on periods subsequent to 2010 and on accounting matters, disclosure controls and procedures, and



internal controls over financial reporting associated with the Kemper IGCC Project. As of the date of this report, July 7, 2016, Southern Company and Mississippi Power Company are still in the document production stage and continue to cooperate with the SEC. The ultimate outcome of this matter cannot be determined at this time; however, it is not expected to have a material impact on the financial statements of Mississippi Power Company.

Discipline Summaries

Environmental / Permitting

CCE has completed its review of additional environmental/permitting documentation provided by MPC since October 2015.

All documents provided by MP for Plant Ratcliffe and Linear Facilities are summarized in this monthly report. The documents summarized in this monthly report include two (2) semi-annual and two (2) annual monitoring report for wetland mitigation areas as required by the Section 404 (Wetlands) permit, two (2) Discharge Monitoring Reports for permits issued for the lignite pile runoff and Plant Ratcliffe permitted outfalls (three), and a quarterly monitoring report as required under the Record of Decision (ROD) and Mitigation Action Plan (MAP) for the Department of Energy.

There were no exceedances of Section 404 (Wetlands) permit conditions, Section 401 (Water Quality) permit conditions or ROD/MAP conditions reported.

A complete listing of documents reviewed as of June 2016 for Plant Ratcliffe and Linear Facilities are shown in Table 1.3.1 and for the Liberty Mine in Table 1.3.2.

No representative attended the Site Visit or monthly project meeting in May or June 2016.

The IM's review of these documents has not identified any major concerns or issues. However, there will be additional monitoring reports (Mitigation Action Plan, Wetlands Mitigation and Water Quality and Macroinvertebrate Monitoring Reports) prepared by MPC and LF for the MDEQ and the Corps of Engineers. 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.

IM is monitoring status of approvals for the two (2) remaining plant permits:

- Title IV Acid Rain Permit Application was submitted 10/13/11; MDEQ issued draft permit on 2/11/14; Public comments have been received.
- Title V Operating Air Permit Modification Application was submitted on 8/22/14; MDEQ issued draft permit.



Process and Technology

Implementing site monitoring plan for gasifier startup by IM gasification technology specialist. Last site visit was conducted week of June 13 (see Section 1.10). Next visit will be conducted week of July 11. IM had additional questions on some of the posted RFI responses (new RFI's were created); draft responses to several of these items were reviewed at the site on June 14; all remaining responses were posted in June (refer to Section 1.10, Appendix B and Appendix D).

Lignite Delivery Facility

LDF construction is 100% complete. Coal will be maintained and monitored in silos 2, 4, 5, and 6 for lignite coal runs. In Silo 2 a hot spot was discovered with water being added to prevent any smouldering as it is being de-inventoried from the manway above the cone section. Approximately 10,000 tons of coal is being maintained in the dome to support lignite testing. Mobile coal screening equipment continues to screen the coal at the coal storage pile before it is sent to the truck dump.

Procurement

Initial IM reviews of Vendor Recommendation Forms are complete. Most known key Contracts and Purchase Orders, including construction and Liberty Mine facilities, have been included, totaling about 500 items (excluding O&M Service Contracts, MS Tier II contractors, and Transmission). Refer to IM September 2014 Monthly Report (Appendix F) for the last update of completed reviews.

IM conducted closeout audit of procurement packages and prepared a listing of over 200 additional items not reviewed. From this list, the IM identified and requested about 75 items for review. There are 32 open items, mostly certified budget amounts; MPC responded these original budget amounts are not available (refer to Appendix F).

Site Activities (Plant metrics through June 19, 2016)

The following activities are **ahead of or on schedule** – Steel, Pipe, Instruments, Cable Tray, Tubing, Cable, Terminations, Conduit, Process Heat Tracing, Freeze Protection Heat Tracing, Equipment Insulation, and Pipe Insulation. The following activities are **behind schedule** with the percentage behind; include Startup (9%).

Mechanical work has been proceeding in the following areas - Area 210 - Waste Water & Selexol Storage Area, Area 140 – Tankage Area, Area 150A/250A - Coal Prep Area, Area 120/220 – Gas Cleanup, Area 150/250 - Gasifier Area, Area 160 – Wet Sulfuric Acid Area, Area 230 – Selexol Area (North), Area 130 – Selexol Area (South), Area 105 – Train 1 Gas Clean Up Area, Area 110 – Compressor Area, Area 180 – CO_2 Compression and Dehydration Area, and Area 260 – Sulfuric Acid Recovery Area.

Electrical & Instrumentation work has been proceeding in the following areas - Area 105 – Train 1 Gas Clean Up Area, Area 110 – Compressor Area, Area 120/220 - Gas Cleanup Area, Area 130/ 230 – Selexol Area (South & North), Area 140 – Tankage Area, Area 150/250 - Gasifier 1 & 2, Area 150A/250B – Coal Feed 1 & 2, Area 160 – Wet Sulfuric Acid Area, Area 170 – Pipe rack, Area 180 – CO₂ Compression/Dehydration Area, Area 200 - Main Electrical Building, Area 210 - Waste Water Treament Area, and Area 260 – Sulfuric Acid Recovery Area.

Gas Clean - Up (Areas 105, 120, and 220) – RSI completed catalyst loading in the Mercury Adsorbers RX-1106 and RX-1206. Inspection on the Mercury Adsorbers was completed with a nitrogen cap on both vessels being maintained. COS Hydrolysis Bypass valve XV-14522 is on site, installation is scheduled for July. Installing the new filters for Micron Filters FL-1010 and FL-2010 is complete. Working punch list and items continue in the area.

Process Air (Area 110) – Pressure testing the shell side of the exchanger (HX-1019) was completed Friday (6/3) to determine why the cooling water safeties were lifting which are set to lift at 150 psi. The pressure test proved the safeties are working properly. Hydro testing each of the tubes began Thursday (6/23) to determine which tube/tubes are leaking. The hydro confirmed none of the tubes have leaks. After consulting with the vendor it was determined to install new gaskets and retest the system. The new gaskets will be installed when manpower is available. Running the Recycle Gas Compressor CO-1008 with the Elliot rep on site Friday (6/3) was completed with no issues to test the repairs that were completed in November 2015 due to vibrations.

Selexol (Areas 130 and 230) - In the 130 area installing the cathodic protection isolators/gaskets on the vessel and equipment drains to the Closed Selexol Drum in train A is complete. Crews have erected the green snow fence around the perimeter of the 130 and 230 areas in preparation for filling the Ammonia Refrigeration system. Friday (6/24) the Ash Moisturizer pump PU-6102A piping was disconnected so the pump could be relocated and installed northwest of the Gasifier and south of Pipe Rack "H" at the road crossing. In the 230 area crews completed the installation of the cathodic protection isolators/gaskets to the Closed Selexol Drum in train B. Restoration on the CO₂ Recycle Compressor (CO-2066) piping is complete. During the CO₂ Recycle Compressor (CO-2066) commissioning with the Elliot rep on site Friday (6/3) decreased discharge pressure was noted during the compressor run. Crews removed the inline check valve to inspect for damage or blockage with no issues noted. Surge testing and trip testing Tuesday (6/14) was completed successfully, the compressor and system is fully commissioned. AGR B Flash Gas Compressor (CO-2065) uncoupled run for vibration checks Wednesday (6/22) was successful. Selexol fill in train B began Tuesday (6/28) in the Regenerator and by Thursday (6/30) all three CO₂ Absorbers and the four CO₂ Flash Drums were filled. A total 438,000 gallons of Selexol was used to fill the system in train B. Signing in and out of these units is now required. Another attempt to run AGR B Flash Gas Compressor (CO-2065) Wednesday (6/29) resulted in tripping due to vibrations. The last few punch list items are being completed in preparation for removing the inlet blind at the Syngas Scrubber on train B. Removing the blind will allow pressure testing on Gasifier B through the Syngas Scrubber to reach 450 to 650 psi.

Tankage Area (Area 140) – The temporary containment was completed last week around the perimeter of the Ammonia Storage Drums to contain deluge water in the event the system is activated. The first Ammonia truck arrived Saturday (6/4) to begin sweeping the system of nitrogen and venting to the Ammonia flare. The last Anhydrous Ammonia truck was off loaded Wednesday (6/15) into the Ammonia Storage Drums. The two Anhydrous Ammonia Loading Pump 53A and B will be test run today (6/16). Pump seal leaks on the Anhydrous Ammonia Rerun Pumps (PU-54A and B) and Anhydrous Ammonia Reflux Makeup Pumps (PU-59A and B) still have not been repaired.

Gasifier (Areas150 and 250) – The following activities are in progress or complete:

- Gasifier A Thorpe completed installing the forms in the lower barrel section of the Standpipe and poured the hard face refractory in this section Wednesday (6/8) which required a 24 hour cure time. The remainder of the forms was installed, refractory poured, and the forms in the Standpipe were removed Monday (6/20). Scaffolding was installed and detailing on the hard face refractory completed. Bolt Tech is on site prepping for the dry out now scheduled for Sunday (6/26) or Monday (6/27).
- Gasifier B During the inspection one area of concern on the inlet to the J-leg from the Standpipe that was not removed previously was found. This 20 square foot section of hard face refractory was removed, replaced, and dried out using electric blankets. Insert installation and scaffold removal was completed followed by torquing and restoration.
- Train A and B PCD's Lavender was back on site Monday (6/6) and completed the installation of the new blow back pots and reinstalled the back pulse piping in FL-2106 and FL-2206. Scaffolding was installed to complete the flange make up and torquing. After a final inspection both PCD's were closed. Saturday (6/10) Lavender completed the installation of the blow back pots and reinstallation of the back pulse piping in train A. These PCD's (FL-1106 and 1206) will be closed in early July.
- All Syngas Cooler tubes have been cleaned of sand.
- PDAC offline testing on train 6A and 6B will continue during the lignite runs this month. An OCR (scope add) has been approved to purchase and install valves to handle the initial startup differential pressure. All the valves on both trains have been installed along with the wiring. Temporary tubing and valves for offline PDAC test was installed on trains 4 and 5.
- Trains 4, 5, and 6 Removing the manual slide gate valves off the deinventory lines of these Gasifier Coal Feed Storage Bins and replacing them with pneumatic slide gate valves was completed. These valves will be used to control the feed rate to the Ash Moisturizers by allowing the operators to control the position of the valves locally to increase or slow down the feed rate to the Ash Moisturizer. This is part of the next phase of modifications to ensure the operation of the Ash Moisturizers. (Trains 4, 5, and 6 are complete.)
- Material to complete the gasket change out on the two 3-way valves on train A was ordered and arrived Monday (6/27). Installation will begin the first week of July.
- The construction elevator (north elevator) continues to serve as the primary elevator.

Area 150A/250A - Coal Prep Area: The following activities are in progress or complete:

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- Train 6 dryer The new Inlet and HP Discharge Rotary Air Locks that were sent off to be modified have been received and reinstalled with the new nitrogen cannons. This dryer continues to experience plugging issues as the feed rate is increased. During an inspection inside the dryer Tuesday (6/21) a smaller amount of the rock type material that was found in train 5 was discovered. This material was located mainly in the feed section (between the 3rd and 4th tempered water coils) of the dryer. The material was removed before the manways were closed, to restart the lignite run. During this run between 6/25 and 6/28 some plugging issues occurred as the coal feed rate was increased again.Wednesday morning (6/29) the PRV off the FBD (Fluid Bed Dryer) lifted and remained opened (stuck open) causing them to suspend the lignite run until another one can be removed from another train and installed while this one is sent off for repair. A clearance on this train is underway for the PRV removal.
- Train 5 dryer Plugging issues on both the Inlet and HP Discharge Rotary Air Lock • valves continued this month with some extended runs with lower feed rates. Train 5 Coal Storage Silo and FBD (Fluid Bed Dryer) were deinventoried ahead of the outage on Friday (6/17) because of fluidization problems. Entry was made inside the dryer to determine why the coal was not fluidizing. The entire bottom bed of the dryer weir troughs (rails) from the 3rd set of tempered water coils east were filled with a rock type material from 1/2" to 6" in size. The center section of material was baked together and had to be broken up with metal bars while the last section at the east end of the dryer was loose material. This material was preventing the hot nitrogen gas from flowing upward through the weirs and fluidizing the bed. Plugging on the Inlet Rotary Air Lock and the solenoid malfunctioning (stuck in the open position) on the nitrogen cannon on the HP Discharge Rotary Air Lock over the weekend (6/5 and 6/26) suspended the lignite testing. Restarting the lignite run on Tuesday (6/28) and Wednesday (6/29) resulted in some additional plugging on the Inlet Rotary Air Lock and the testing was suspended again. Unplugging the Rotary Air Lock is underway.
- Train 4 dryer The first lignite run on train 4 resulted in the Roll Crusher, Rotary Inlet, and HP Discharge Rotary Air Locks plugging. While the system was down modifications to the Ash Moisturizer C were completed. Train 4 lignite testing was restarted Thursday night (6/30) but was suspended due to Ash Moisturizer C mechanical issues.
- The last of the Inlet Rotary Air Locks and HP Discharge Rotary Air Locks for train 2 and 3 that were sent out for modifications have been received and will be reinstalled.
- Train 2 dryer Train 2 Coal Storage Silo was finally deinventoried due to a hot spot detected in the cone section. Crews had trouble vacuuming the coal out from the manway above the cone section due to heat from the hot spot melting the hoses. An attempt to cool off the coal using water was successful and the vacuuming was completed.
- Acceptable mill fan leak testing continues on train 4 as resources are available. The acceptable leak rate is 150 SCFM's. (5 of 6 mills completed, trains 1, 2, 3, 5, and 6).

- Recovered Water Candle Filter B elements were installed Tuesday (6/21). Monitoring these new filter elements in the Recovered Water Candle Filter A and B will continue during the lignite runs on trains 5 and 6. A possible tear or breach on the new filter elements on Recovered Water Candle Filter B was investigated Tuesday (6/28). The head of the vessel was removed along with the tube sheet for inspection. Monitoring the new filter elements in Recovered Water Candle Filter A will continue during the lignite run on trains 5 and 6.
- Pipe fabrication for the new Venturi Scrubber duplex strainers continues on trains 4, 5, and 6. These new strainers will allow the system to run while one strainer is in operation and the other strainer is back flushing.

Ash Removal System (Area 150A/250A) – The following activities are in progress or complete:

- Ash Moisturizer D with the modifications complete has had some success with a feed rate at around 130,000 lb's/hr which appears to be a sweet spot. Plugging issues and proper mix of water and coal persists. The next phase of modifications is being made to Ash Moisturizer C with a new pneumatic slide gate valve being installed in the discharge of the Ash Moisturizer. This valve will be closed to allow time for the proper mix of coal and water before the slide gate is opened and released to the truck below for disposal. The new pneumatic slide gate valve was installed on the discharge of Ash Moisturizers C Thursday (6/16). Weirs were added to slow down the mixing period on Thursday (6/23) and the system tested but failed resulting in the system being shut down on Thursday (6/30). Crews will be looking at the modifications that were made on Ash Moisturizer D later today to determine what changes will be made to Ash Moisturizer C.
- Crews are running two 6" HDPE pipes this week that will supply water from the Sedimentation pond to one of the Ash Moisturizers for Gasifier B. PCI will tie into the existing 6" line from the Sedimentation pond that is located northwest of the Gasifier and south of Pipe Rack "H" at the road crossing. The two 6" HDPE pipes will run from this tie-in point to the north side of the Gasifier. Carbon steel pipe that is being fabricated will tie into the underground HDPE piping and be routed through the Gasifier and tie into the existing Ash Moisturizing header. Over the weekend crews began building forms for the new pump foundation for the existing Ash Moisturizing Booster pump PU-6102A that will be relocated after this foundation is poured Friday (7/1). The current water supply for the moisturizers is being supplied from the Reclaim Sump. Currently the permit for the GMAU (Gasification Ash Management Unit) allows water containing ash from the Sedimentation Pond (which is dewatered from the ash) to mix with the ash in the Ash Moisturizer which is then disposed of on the GMAU and dewatered and the cycle will repeat itself.
- As part of the new dust suppression system in the Mill Alleyway a new containment system with spray nozzles has been installed under Ash Moisturizer C to suppress the coal/ash dust when dumping into the haul trucks. This system will be tested later today during train 4 lignite run.

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Wet Acid (Area 160) – The MP (900 psi) steam blow was successfully completed from the WSA to the Steam Turbine Sunday (6/12). Catalyst loading began Thursday (6/16) with the lower bed (bed #3) of the SO₂ Converter completed Friday (6/24). Loading the middle bed (bed #2) has been hampered by the weather with 148 bags out of 208 loaded by Wednesday (6/29). Crews have begun fabricating and running natural gas lines, water lines, and steam lines for the two Wabash package boilers that were set west of the unit. These package boilers will be used to supplement medium pressure steam (325#) for the upcoming Combustion Turbine B outages and later if one of the HRSG's goes down during syngas testing due to unreliable syngas to the turbine. The 24" lined tee that was sent off for repair arrived Tuesday (6/28) and was leak tested successfully and will be reinstalled by the end of the month.

Pipe Rack & BOP (Area 170) – Construction is complete.

CO₂ Compression / Dehydration (Areas 180 and 260) – The dry out and restoration was completed on the CO_2 product line (in fence) early this month. The CO_2 product line was recharged with nitrogen then pigged all the way to Denbury. During the pigging, the system was charged with 40 lb's of CO₂ which pushed the pig through the line replacing the nitrogen with CO_2 as it went through the line. Installation of the supports and coupling guard on train B CO₂ Compressor is complete. Crews have installed the surge valve and will continue to install the other 3 valves for the different stages of the compressor this month as resources are available. RSI completed loading the catalyst in train A CO₂ Mercury Adsorbers RX-1080 Friday (6/17) and RX-2080 Saturday (6/18). These reactors were inspected, manways closed, and nitrogen capped. The Refrigeration Chiller oil recovery and return flush was completed in preparation for the Ammonia fill. Airgas was on site Friday (6/24) to begin the initial fill of the Ammonia Refrigeration system. Startup began by pulling a vacuum on the refrigeration system and broke the vacuum with the ammonia vapor during the day Friday (6/24). They began building pressure with ammonia vapor in the 180 area, once they have achieve the designated pressures in the 180 area they began pressuring up the ammonia systems in the 130 and 230 areas.

Flare (Area 190) – The nitrogen sweep on the Ammonia flare to purge the header was successfully completed ahead of lighting pilots on Tuesday (5/31). The ultrasonic flow meter was installed in the Acid Gas Flare and the system purged Saturday (6/4) and the pilots were successfully lit on Wednesday (6/8). The LP Acid Gas and Ammonia flares are now operational.

Waste Water Treatment (Area 210) – In the Sour Water area final scope adds were addressed and the system air free in preparation for loading 19% Aqueous Ammonia in the Wastewater Tank. Loading the 19% Aqueous Ammonia into the Sour Water/Waste Water Tank was completed with the solution in the tank reaching 5%. Circulating the Aqueous Ammonia solution between the Wastewater tank and the Wastewater Drum will continue in preparation for the process test packages in the Sour Water system, eventually purifying the ammonia out of the solution and loading into the Product Storage Drums. The new motor on Wastewater Ammonia Purifier Bottoms Pump PU-0057AM was installed Friday (6/24) after the machined coupling arrived. Piping modifications were completed on the temporary fill lines to the Selexol Tank. The final



connection will be completed as the date for filling the tank approaches now scheduled for July.

Acid Storage Tanks and Off Spec Acid Tank (Area 260) – Hauling TSP loaded water from Acid Storage Tank TK-0072A for disposal was completed early this month. Crews then flushed the lines from the Product Acid Tank A to the unloading station. Startup will be bringing in a crew to remove the scales on the walls inside Acid Storage A at the end of the month.

Nitrogen Plant (Area 260) – The nitrogen plant continues to support the plant and startup this month.

Combined Cycle HRSG's and CT's (Areas 510, 520, 530, and 540) – Power Block outage will begin Friday July 1 for 14 days. Major items to be accomplished during the outage are:

- HRSG B yearly inspection
- Reinstall the 8 valves on train B Siemens fuel skid (nitrogen and syngas valves) that were removed during the last outage for the combustion turbine that were leaking.
- Install limited instrumentation on CTB for Syngas testing

Steam Turbine & Auxiliary Boiler Area (Area 550) – Construction is complete.

Water Treatment (Area 570) – Construction is complete.

Cooling Towers (Areas 580 and 590) – Construction is complete.

Main Gate Security (Area 700) – Construction is complete.

Sewer Plant and Ash Storage Pond (Area 800) – Evaporating water from the above ground modular storage tanks is still on hold due until the steam line have been relocated and a new road crossover is constructed. Once this is complete evaporating water from the modular storage tanks will resume. Trucks continue to haul water containing TSP and oil from the above ground modular tanks for disposal with around 25 to 30 loads/day being hauled off. Crews have begun cleaning these modular tanks and will fill them with 6 inches of rain water to keep the liners from lifting. Two of the modular tanks will have new liners installed and will be used to store demin water which will be produced by processing water from the north pond through the GE trailers. This demin water is for the two temporary Wabash package boilers which will supply 325# steam for startup.

Process Water Reservoir (Area 900) – Construction is complete.

<u>Safety</u>

Project Safety Summary: Since the beginning of the project, there has been 84 reportable incidents at the site with 39,302,676 man hours worked. This year, the site has worked 2,261,019 man hours with 2 reportable incidents. The project RIR stands at 0.18 for the year and 0.43 for the Project Total to Date.

Schedule

The construction schedules for remaining base scope dated 6/26/16, and the schedule for scope additions dated 6/26/16, are included in Appendix E.

Key construction metrics reported through June 26 are summarized below:

- Equipment insulation installation was on schedule overall. Work in the Gasifier area is complete. The remaining quantity is in Gas Cleanup and is scheduled to restart in July, subject to startup activity.
- Pipe insulation installation was 1% behind plan overall. Most of the remaining quantity is in the Gasifier and is expected to resume in August. Remaining work in Gas Cleanup resumed in June and should be completed in July.
- Construction to Startup punchlist summary for base scope (excluding scope additions) shows a slight reduction in remaining open items from 378 on May 29 to 374 on June 26.
- Overall, turnover packages from construction to startup are on schedule as 966 are received out of a plan of 966 to date (99% complete, 2 of 968 packages remaining). The only remaining packages are Gasifier Structure Personnel Elevator that will be turned over on July 16 (delays are due to electrical issues and timing of inspections), and Potable Water (turn over date under review). Cathodic Protection was turned over on June 24.

Startup

- At the end of May, total startup employee staffing was at 267, including 24 SCS startup employees, 236 supplemental, and 7 OPCO's staff; plus 416 startup supplemental craft support and 47 I&C field technicians (grand total of 730 – a decrease of 37 from end of April).
- Through June 26, startup progress was 91% complete overall (0.7% increase from May 29) vs. planned 100%.
 - 949 TOP's have been commissioned out of a total of 968 (98% complete). Of the 19 remaining, 9 are complete for commissioning with the exception of completing all I/O loop checks. 33% (318 of 968) have been turned over from startup to operations (mostly CC and associated BOP).
 - Startup test packages are 67% complete (64 of 96 complete). Of the remaining 32 test packages, 16 are currently in progress.
 - Overall, I/O checks are 1% behind plan (99% complete, 333 of 31,850 remaining). New scope accounts for approximately 265 points of the 333 points

that require testing. Scope additions will potentially continue to change the total point count over the coming weeks as loops are added or deleted. These changes will be incorporated into the plan. The majority of the remaining loops are not available to be checked due to needed design, construction, or release from clearance. A plan is in place to address and expedite the availability of this I/O. There is no impact to test package execution or milestone completion.

- Startup to Operations punchlist summary for base scope (excluding scope additions) shows a decrease in remaining open items from 13,870 on May 29 to 11,491 on June 26 (671 of these are high priority).
- MPC reported the following startup achievements in June:
 - Ammonia Storage PSSR sign off completed.
 - Completed post dryout inspections of Gasifier 'B' hardface layer refractory.
 - Began filling anhydrous ammonia storage drums.
 - HP Flare 1 PSSR sign off completed.
 - Began filling Wastewater Storage Tank with Aqueous Ammonia.
 - Completed PCD work on Gasifier 'A'.
 - Completed final WSA steam blow.
 - Sour Water PSSR signoff completed.
 - o Completed Gasifier 'B' post-cure out refractory inspection.
 - o Began WSA catalyst loading.
 - Gasifier 'B' Recycle CO2 Compressor run-in.
 - AGR Refrigeration PSSR signoff completed.
 - Began testing of Anhydrous Ammonia pumps.
 - Began testing of Lignite Dryer #4.

Operations and Maintenance

Overall 268 of the planned 309 permanent employees are on staff (323 of 309 including contractors). Current supplemental contract staff will be considered for remaining 41 permanent positions.

Process Safety Management (PSM) program development:

- GT board operator training complete can provide trained operators to support any test package.
- Overall Risk Management Plan (RMP) is complete and will be filed with EPA prior to implementation RMP for HRSG ammonia system was approved by EPA.
- There are 14 PSM elements 12 of the 14 are complete (ready for chemicals).
- Executing PSM consultants' recommendations for the remaining 2 elements Process Hazard Analyses and Pre Startup Safety Review.



- <u>Process Hazard Analysis</u> all eight PHA's requiring updates are complete, working through recommendations (>99% complete). MPC has posted updated PHA Action List through June 5, 2016 (5 open items of 3413 total items).
- Pre-Startup Safety Reviews Initial Equipment Walkdowns using PSSR checklist are complete for all 14 required systems (346 TOPs walked down out of 346, 100% complete). 8 of 14 PSSR's are complete. As of 6/26/16, there are 136 open high priority punchlist items (significant improvement from 406 items on 5/29/16), and 6 open high priority action items (significant improvement from 21 items on 5/29/16).

Land

IM Review of Documents and Purchases from the Kemper County Courthouse, Lauderdale County Courthouse and Update on the Lawsuit Concerning the Kemper IGCC Power Plant Site and Liberty Mine, Kemper County, Mississippi

In the May 2016 report, the IM reported that there were eight new land purchases of mining land during the month, discussed information gathered by the IM and updates provided by Mississippi Power Company (MPC) regarding land purchases in Kemper and Lauderdale Counties, MS. and the status of the Kemper County lawsuit.

In the June 2016 report the IM will discuss four new purchases of mining land in Kemper County located during a June 27, 2016 visit to the Kemper County Courthouse, no new land purchases in Lauderdale County were located in a June 28, 2016 visit to the Chancery Clerk's Office, and developments in the Kemper County lawsuit.

The IM has reviewed information about the purchase of new mining land for the Kemper County IGCC Power Plant and Liberty Mine and the status of the Kemper lawsuit and determined the following:

- MPC made four new purchases of coal mining land in Kemper County, MS. in the last month covering over 609.49 acres, more or less.
- There were no purchases of coal mining land in Lauderdale County, MS. in the last month.
- MPC has purchased 4.06 net acres, more or less, in Kemper County in 68.6 surface acres in the Crogman W. Wooten Estate. The Crogman W. Wooten Estate covers 83.4 surface acres in Kemper County, MS. MPC has purchased a total of 32.96 net acres out of the 83.4 surface acres in the Estate to date or 39.5% of the Estate property.



Mississippi Public Service Commission

• The parties to the Barham versus Mississippi Power Company lawsuit are still waiting for a decision from the Judge dealing with the Summary Judgment Motions filed by both parties and argued at a court hearing held August 27, 2015 in the Chancery Court in Philadelphia, MS.