DIRECT TESTIMONY

OF

SAMUEL G. SUMNER, JR.

On Behalf of

MISSISSIPPI POWER COMPANY

BEFORE THE MISSISSIPPI PUBLIC SERVICE COMMISSION

DOCKET NO. 2013- UN-____

Q. Would you please state your name, position and business address?

A. My name is Samuel G. Sumner, Jr. I am the Plant Manager, Kemper County IGGC Plant (Plant) for Mississippi Power Company (MPC or the Company). My business address is 2992 West Beach Boulevard, Gulfport, Mississippi 39501.

Q. Please describe your education and professional experience.

A. I received my degree in Mechanical Engineering from the University of Alabama Birmingham in 1993. I have been an employee of the Southern Company for a cumulative sixteen years and have served in a variety of positions of increasing responsibilities in the areas of plant engineering, plant management, finance and enterprise asset management. From 1989 – 1993, I was an engineering co-operative education student at Alabama Power Company plants Gorgas and Miller. From 1993 – 2001, I was a field engineer, project manager and Six Sigma manager for GE Power Systems executing gas and steam turbine construction, startup and maintenance projects. From 2001 – 2002, I was the maintenance manager at Georgia Power Plant Bowen. In 2003, I was assistant to the Chief
Production Officer for Southern Company. In 2004, I was a financial manager in Southern Company Finance. From 2005 – 2006, I was plant manager at Mississippi Power for plants Watson, Eaton and Sweatt. From 2007 – 2010, I was the project director for the implementation of the enterprise asset management and financial systems for Southern Company. Since October of 2010, I have been at Mississippi Power where I am the plant manager for the Kemper Plant.

Q. What is the purpose of your testimony?
A. My testimony will describe the proposed operation plan for the Kemper Plant and provide a summary of the non-fuel operation and maintenance (O&M) expense and maintenance capital estimates contained within the proposed 7-year plan described in the direct testimony of Mr. Feagin. The estimates provided in my testimony are totals and are not reduced to reflect the allocation to SMEPA or the wholesale jurisdiction. The rate allocations of these O&M estimates to the retail jurisdiction are contained in Mr. Feagin’s testimony.

Q. Do you sponsor any exhibits with your testimony?
A. Yes. I am sponsoring two exhibits:

Exhibit (SGS-1) Kemper Plant Organization Chart
Exhibit (SGS-2) Projected O&M Expense and Maintenance Capital Estimates for the Kemper Plant

Q. Were these exhibits prepared under your supervision and control?
A. Yes.
Q. Please provide a brief description of the operational characteristics of the Kemper Plant.

A. The Kemper Plant will be fueled with Mississippi lignite which is surface mined at the mine site adjacent to the Plant. The lignite will be delivered to the Plant over conveyors, through crushers, into silos, and then into dryers where the lignite is dried to approximately one-half of its original moisture content. The lignite is then pulverized and fed into the gasifier. Inside the gasifier, a chemical process similar to fluid catalytic cracking heats the lignite and extracts the syngas.

After the syngas is cooled, it goes through the processes necessary to remove particulates, sulfur, nitrogen oxides (NOx), carbon dioxide (CO2) and mercury contained in the syngas. During the process of cleaning the syngas, marketable sulfuric acid and ammonia products are produced, transported and sold. The captured CO2 is compressed, delivered and sold to the off-takers for sequestration via an enhanced oil recovery process.

The cleaned syngas is then used to fuel a combined cycle generating plant similar to Plant Daniel Units 3 and 4. This combined cycle configuration consists of two gas turbines (GTs) with associated generators, two heat recovery steam generators (HRSG) and a single steam turbine generator. The syngas powers the two GTs and the gas turbine exhaust provides heat to the HRSGs to produce steam that is then supplemented with steam from the gasifier system to drive the steam turbine. The combined net output of the three generators is delivered to the electrical grid.
The Plant is a zero liquid discharge facility—no process water will be discharged into any rivers or streams. Process wastewater streams will be treated and evaporated by the cooling towers. To provide makeup supply water to the cooling system to replace water lost through evaporation, reclaimed treated municipal wastewater from two publicly owned treatment works in Meridian, Mississippi, will be used. This treated effluent will be transported to the site via pipeline from a dedicated pumping station located at the Meridian treatment facility. Because the flow of reclaimed water from the Meridian facility varies seasonally and to provide for weather related events, MPC has constructed an approximately 1,500 acre-foot pond on the plant site to manage the supply of makeup water.

Q. How was MPC's overall O&M strategy for the Kemper Plant developed?
A. MPC and Southern Company have extensive experience in operating, maintaining and optimizing electric generating facilities. MPC has leveraged this experience and knowledge in developing the overall O&M strategy for the Plant. Given that a significant portion of the Plant consists of chemical processes and equipment, existing and well-developed best practices from the chemical industry have also been used to develop the overall Kemper Plant O&M plan.

Q. What efforts did MPC undertake to ensure a robust O&M strategy for the Kemper Plant?
A. Southern Company Generation has a set of best practices designed to provide consistent management for all aspects of power plant safety, operations, maintenance, engineering, compliance and support. All applicable Southern
Company guidelines are implemented in the Kemper Plant strategy to ensure consistency with current Southern Company best practices and to take advantage of economies of scale efficiencies. The scope of the strategy includes staffing organization and level, outsourcing of key plant activities and maintenance plans. The Plant O&M strategy was supplemented by visiting and discussing this topic in great detail with several petro-chemical refinery facilities, one operating IGCC plant, the Southern Company Power Systems Development Facility (PSDF) where the TRIG™ technology was developed and deployed as a demonstration plant, Southern Company Gasification Technology personnel, outside chemical consultants and several Southern Company combined cycle and fossil plants.

The O&M plans for the combined cycle process and the plant support staff were developed from visits and discussions with existing Southern Company plants. The Southern Company Generation staffing organization model was implemented as applicable to the TRIG™ technology in the areas of safety, compliance & support, maintenance, planning and engineering. The results of these meetings and visits are the basis upon which the final combined cycle and support O&M plans were developed.

Q. Has MPC contracted with third-parties to operate any portion of the Kemper Plant?

A. Yes. Consistent with MPC’s existing management and operation philosophy, smaller ancillary and support activities are expected to be contracted out to various third-parties when appropriate. Examples would include HVAC

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maintenance, pipeline maintenance, ash hauling, grounds keeping and janitorial services.

Based on the visits to the petro-chemical refinery facilities and power plants, MPC has also contracted with third-party experts to be the primary operator of certain processes. This strategy will allow MPC to concentrate on optimizing the operation of the Kemper Plant in the first several years of operation. MPC has also solicited advice from several original equipment manufacturers in the development of the Kemper Plant O&M plan. For example, for the Siemens combustion turbines and generators, MPC has executed a long-term parts and services contract, similar to our long-term service agreement for Plant Daniel that will govern the O&M plan for these critical assets in the combined cycle island.

Southern Company has considerable experience with water plant O&M, but limited experience with operating a waste water plant. A decision was made to entertain a proposal from Aquatech International Corp. (Aquatech) to evaluate the viability of an outsourcing strategy. Upon analyzing the proposal, MPC determined that O&M services from a third-party would be comparable in cost to a self-perform option. Therefore, a decision was made to have Aquatech operate and maintain the water treatment and wastewater systems located at the Kemper Plant. An operations contract has already been executed with Aquatech.

MPC is currently in discussions with Air Liquide Large Industries U.S. LP (Air Liquide) for Air Liquide to supply the nitrogen needs of the Kemper Plant
pursuant to a full requirements contract still being negotiated. The air separation unit (ASU) produces nitrogen which is a key input to the TRIG™ IGCC process.

The O&M estimates discussed in my testimony assume these contractual arrangements are in place.

Q. What is the O&M responsibility of MPC with respect to the lignite mine and linear facilities?

A. The lignite mine is owned by MPC, but will be operated by Liberty Fuels, LLC, a subsidiary of North American Coal. Pursuant to the lignite mining agreement between MPC and Liberty Fuels, Liberty Fuels is responsible for mining and transporting the lignite to one of three specified storage areas on the Kemper Plant site. Liberty Fuels will also operate the lignite delivery facility (LDF) up to the tripper floor. Liberty Fuels is responsible for maintaining all of the equipment and facilities utilized at the lignite mine and all equipment in the LDF upstream to the tripper floor.

MPC is the owner of the treated effluent pipeline up to the point of interconnection between the pumping station and the Meridian wastewater treatment facility. MPC is the owner of the CO₂ pipeline from the plant site to the designated metering points for the two off-takers. Finally, MPC is the owner of the natural gas pipeline from the Plant site to the point of interconnect with the Tennessee Gas Pipeline network. MPC is responsible for the operation and maintenance of these pipeline facilities up to the various points of interconnect described above.
Q. Please describe MPC’s staffing plan for the Kemper Plant.

A. The Kemper Plant non-fuel O&M estimates assume an initial Company staffing of 167 positions to operate and maintain the Plant and related facilities subject to the scope of responsibilities described above. Exhibit (SGS-1) provides an organizational chart developed by MPC for the management and operation of the Kemper Plant.

The Kemper Plant organization will consist of the Plant Manager and four primary departments: (1) Environmental, Health & Safety; (2) Operations; (3) Maintenance, Planning and Engineering; and (4) Chemical Products, Compliance and Support. The overall staffing level assumes contract employees will perform the bulk of the work during scheduled maintenance in the combined cycle island. This approach is consistent with MPC’s maintenance strategy at all of its existing generating plants. In addition, because the Plant consists of petro-chemical processes and equipment, MPC’s hiring effort has focused on hiring personnel with prior experience in the petro-chemical industry.

Q. What is MPC’s outage strategy for the Kemper Plant?

A. The Plant’s planned outage schedule will largely be dictated by the operating hours of the combustion turbines. Similar to MPC’s existing fleet, the Plant’s O&M estimates are largely driven by the scope and schedule of planned outages. It is MPC’s intent to complete other equipment maintenance activities during the combustion turbine outage window.

After consultation with Siemens, MPC developed an expected planned outage schedule for the entire Plant. MPC’s outage strategy is also largely...
dependent upon plant availability. The O&M estimates contained in my testimony assume the same availability ramp assumed during the Certificate proceedings. Therefore, depending upon the extent to which the Kemper Plant availability deviates from the assumed availability ramp, the outage schedule may require revising to accommodate accelerations or delays in major maintenance activities.

For all of the above reasons, MPC believes it is reasonable to track the variations in O&M annually to allow for an overall review of any variances that may arise at the end of the 7-year plan as explained further by Mr. Feagin.

Q. What other O&M cost and schedule drivers are unique to the Kemper Plant?
A. The Kemper Plant will use more catalysts, sorbents and solvents than is typical in MPC’s existing generating fleet. MPC’s goal is to optimize the catalyst life by balancing the performance of the catalyst with the outage cycle in order to favorably impact both O&M cost and schedule.

Q. What are the Company’s O&M estimates for the proposed 7-year Plan?
A. Exhibit___(SGS-2) provides detailed O&M expense and capital maintenance estimates for the 7-year Plan beginning in 2014. As explained earlier in my testimony, the estimates in Exhibit___(SGS-2) represent the total amount required to operate and maintain the Plant. Mr. Feagin’s testimony explains the revenue requirements associated with these estimates and the allocation of these costs to the retail jurisdiction.
Q. In your opinion, are the O&M estimates reasonable?
A. Yes. We have taken advantage of available expertise and knowledge in developing the Kemper O&M estimates. These estimates reflect, to the greatest extent possible, the current design and operational philosophy necessary to operate the Kemper Plant.

Q. Does this conclude your testimony?
A. Yes, it does.
BEFORE THE MISSISSIPPI PUBLIC SERVICE COMMISSION

MISSISSIPPI POWER COMPANY
EC-120-0097-00

IN RE: NOTICE OF INTENT OF MISSISSIPPI POWER COMPANY FOR A CHANGE IN RATES TO ESTABLISH A RATE MITIGATION PLAN IN CONNECTION WITH THE KEMPER COUNTY IGCC PROJECT

AFFIDAVIT OF SAMUEL G. SUMNER, JR.

PERSONALLY appeared before the undersigned officer authorized to administer oaths, SAMUEL G. SUMNER, JR., who being duly sworn, deposes and says; that the foregoing direct testimony was prepared by him or under his supervision; that said testimony was prepared for use as direct testimony on behalf of Mississippi Power Company in the captioned proceeding; that the facts stated therein are true to the best of his knowledge, information and belief; and that if asked the questions appearing therein, his answers, under oath, would be the same.

Dated at Gulfport, Mississippi, the 26th day of February, 2013.

SAMUEL G. SUMNER, JR.

Sworn to and subscribed before me this the 26th day of February, 2013.

MARSHA MOORE
Notary Public

My Commission Expires: December 3, 2013