

Tampa Electric Company - IGCC Project

**Quarterly Report
July - September 1995**

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October 1995

Work Performed Under Contract No.: DE-FC21-91MC27263

For
U.S. Department of Energy
Office of Fossil Energy
Morgantown Energy Technology Center
Morgantown, West Virginia

By
Tampa Electric Company
P.O. Box 111
Tampa, Florida 33601-0111

MASTER

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Morgantown Energy Technology Center
P.O. Box 880
Morgantown, West Virginia 26507-0880

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October 1995



October 20, 1995

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Mr. Nelson Rekos
Coal Projects Management Division
U.S. Department of Energy
Morgantown Energy Technology Center
P.O. Box 880
Morgantown, WV 26507-0880

RE: Tampa Electric Company
IGCC Project
Quarterly Report for July - September 1995

Dear Nelson:

As of the end of the third quarter of 1995, engineering is essentially complete; construction is about 50% complete. We are on schedule for our Target Project Completion Date of September 15, 1996. The work force at the site now stands at 1,300 people. Recently the project was recognized for reaching one (1) million man-hours without a lost time injury.

Engineering Issues and Accomplishments

The resident engineering group located at the Polk Power Station site is completing the last of the detailed engineering designs. The Houston office is providing specific project support on an as needed basis, and the document control center is microfilming documentation and vendor drawings. The document control function in Houston will be complete in the fourth quarter and its responsibilities will be transferred to the site.

Some of the major activities during this quarter were:

- ▶ Supported erection/installation of the Radiant Syngas Cooler (RSC)
- ▶ Completed preparation and review of the Data Book
- ▶ Issue final Design Basis Document
- ▶ Finalized Continuous Emission Monitoring System design and nozzle locations in HRSG stack

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- ▶ Completed design modifications to slag fines area drainage
- ▶ Resolved plant integrated control issues
- ▶ Completed design of Chemical/Used Oil Facility
- ▶ Completed plastic analysis of RSC
- ▶ Completed HP steam drum depressurization design modifications
- ▶ Prepared specification for Liquid Propane Storage tank and reviewed bids
- ▶ Completed preliminary engineering on RSC Temperature Monitoring System
- ▶ Continued RSC Overpressure Protection analysis
- ▶ Continued reviews of vendor prints to achieve Code 1 status
- ▶ Continued support of construction effort

Project Management Issues and Accomplishments

During this period of time, the Project Management (PM) Team was consolidated at the site.

This team includes the following personnel:

TECO Power Services (TPS)

Project Manager
Deputy Project Manager
Senior Cost Engineer

Tampa Electric (TEC)

Deputy Project Manager

Bechtel (BEC)

Project Manager
Deputy Project Manager
Project Secretary

The PM group has devoted most of its time to identifying and resolving problems dealing with MAN GHH, with the late deliveries of steel and pipe, and with the HGCU system. While the change order with MAN GHH was signed off during the last quarter, the resolution of the amount owed to MAN GHH was finally resolved. However, major technical issues (plastic analysis, as-built drawings, final documentation, design errors and modifications to pumps, piping and pipe supports) continue to require constant PM attention.

A major point of discussion has been with the choice of sorbent for the HGCU system. The PM group brought together representatives from TEC, TPS, BEC, GEESI, GE, DOE/METC, and Phillips to discuss the sorbent development program. At this point in time, there has not been a sorbent identified that meets the attrition rate and other project requirements. While bench scale and pilot scale tests have continued, a clear conclusion was made: the HGCU process itself is developed to the point to support the Polk Power Station Project; however, the sorbent development has not reached that level.

During the meeting, the group did decide on the sorbent for the first fill at Polk. Due to continued problems with testing and availability, there may not be a sorbent available for the second fill, which should occur at about the Commercial Operation Date. TEC is concerned that HGCU performance and schedule are at risk, since there is no clear choice for the sorbent. Another major issue was the potential for patent problems arising out of METC's own sorbent development program.

The PM team has closely followed the problems with steel and pipe delivery. At this point of time, almost all of the steel has been delivered. Except for some piping for HGCU, all piping has been delivered.

Due to the extreme interest in the project around the world, several site visits were made during the quarter by groups from China and Japan. The PM team coordinates these visits to assure compliance with site insurance and confidentiality requirements. METC's Director toured the site during September.

METC scheduled the 40% construction review during the quarter. The PM team assembled engineering and construction plans and documents to support this effort. Questions were answered and two site tours were given to provide the METC team with information to assure them that the engineering has been performed on a sound basis, the 40% construction milestone was met, and that the DOE funding has been prudently spent. Part of the team is expected to return in early to mid-October for further review of proprietary data.

The PM team gave presentations at the DOE Clean Coal Technology Conference and the Pittsburgh Coal Conference. TEC will host next year's DOE conference.

Project Management has also coordinated the solution to the GE 7F combustion turbine space problem. Attendance at GE's 7F Users Group Conference has helped us stay on top of combustion turbine problems, solutions, and development. GE is expected to complete combustion hardware testing early next quarter to insure that adequate hardware for our syngas operation will be provided to support our startup schedule.

Construction Issues and Accomplishments

The site development contractor, Johnson Brothers, is over 90% complete. This work includes earthwork, paving, drainage structures, and highway improvements. Earthwork in the cooling reservoir is complete. The berm at the intake structure was removed, allowing that area to be flooded. Johnson Brothers is continuing the creation of the wetland areas and will be complete with this work soon. Planting will follow.

The coal truck unloading ramp is almost complete.

TIC, the contractor for the gasification area, is about 20% complete. Their work has experienced some delays due to the late deliveries in steel and pipe. However, TIC has put together a schedule to complete their work to meet the overall project goals. Following the installation of the RSC, ancillary piping and equipment installation began in the gasification structure. Some of the major pieces of equipment installed were:

- ▶ RSC sootblowers, gasifier, and steam drums
- ▶ Convector Syngas Coolers and Gas/Gas Exchangers
- ▶ HP steam piping
- ▶ Coal grinding mills, day bins, and slurry tanks/pumps
- ▶ Coal conveyers
- ▶ Ammonia Stripper, Water Wash Column, Amine Stripper for Cold Gas Cleaning System
- ▶ Carbon Scrubbers, Condensate Heaters, Sootblowing Drum
- ▶ Industrial Waste Treatment equipment

TIC is also responsible for the contract that includes HGCU, Brine Concentration and Slag Handling. TIC's work in this area is 9% complete. With resolution of problems with GEESI's HGCU engineering, equipment fabrication proceeded and most of the HGCU equipment was delivered and installed during this quarter. TIC also began setting the pipe rack in the Brine area. The Thermal Oxidizer for the HGCU system was erected and will be completed soon.

Considerable progress has occurred in the Power Block area. H.B. Zachry is 52% complete with their work in that area. Zachry has also been delayed by the late deliveries in pipe and steel, but is expected to be able to complete work to support the Commercial Operation Date. Some of the major activities during this period were:

- ▶ Completion of Distributed Control System (DSC) and turnover to Start-Up
- ▶ Setting of cooling water and circulating pumps at the Intake Structure

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- ▶ Completion of several substations
- ▶ Erection of steam turbine bridge crane
- ▶ Installation of pipe in piperacks
- ▶ Setting of Auxiliary Boiler
- ▶ Continued installation of Combustion Turbine, Steam Turbine, and HRSG
- ▶ Completion of Water Treatment Facilities

The next period will see completion of the intake structure, more substations, and continued work to complete the Power Block. Turnover of systems to Start-Up will increase significantly as they are completed.

All of the water wells are in service. Other construction milestones that occurred were erection of the flare stack and energization of the main switchyard. The Control Room Building is complete. Some modifications to the laboratory will follow. American Marietta has completed their work on the two coal silos.

Air Products and Chemicals is 79% complete with the Air Separation Unit. They are very far along in their turnkey contract, and plan to energize their equipment in mid-November. Highlights of the past quarter include:

- ▶ Setting companders
- ▶ Completing the electrical/instrumentation building
- ▶ Setting the 28,000 gallon liquid nitrogen tank
- ▶ Completing all large bore piping and some small bore piping
- ▶ Starting installation of insulation
- ▶ Completing the cold box

Monsanto Enviro-Chem has also made considerable progress in their turnkey contract for the Sulfuric Acid Plant. During this quarter, Monsanto attained 54% completion. They have done the following:

- ▶ Set the stack
- ▶ Commenced placing insulation in the converter area
- ▶ Installed tank lining and a containment dike for the 98% sulfuric acid product
- ▶ Set the main compressor
- ▶ Set the Reverse Jet Quencher
- ▶ Completed walls and roughed in the roof of the Electrical Building

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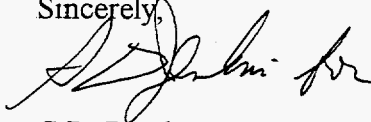
The Start-Up Group's responsibilities have been growing quickly as plant systems are being completed. This group has been testing the DCS System, energizing electrical systems, and writing procedures for pre-commissioning and start up. Twenty-one systems have been turned over to the Start-Up group. Eleven more have been partially turned over. Additional work is scheduled in these areas prior to final sign-off, but the partial turnovers will help maintain schedule.

The following data highlight the construction progress:

- ▶ Installation of over 50,000 feet of pipe
- ▶ Over 25,000 feet of conduit above ground
- ▶ About 40,000 cubic yards of concrete

If you need additional information or have a question concerning the project's activities during the third quarter of 1995, please feel free to contact D.E. Pless or myself.

Sincerely,



C.R. Black
Vice President
Tampa Electric Company

CRB:SDJ:jm

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cc: D.E. Pless
S.D. Jenkins
R.N. Howell
File M11.8.1
File R2.1.2
Trimco