

RECEIVED

AUG 07 1995

OSTI

DOE/MC/25140 -- 4079
(DE95009725)

Power Systems Development Facility

**Quarterly Report
January - March 1995**

May 1995

Work Performed Under Contract No.: DE-FC21-90MC25140

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

By
Southern Company Services, Inc.
Birmingham, Alabama

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

This report has been reproduced directly from the best available copy.

Available to DOE and DOE contractors from the Office of Scientific and Technical Information, 175 Oak Ridge Turnpike, Oak Ridge, TN 37831; prices available at (615) 576-8401.

Available to the public from the National Technical Information Service, U.S. Department of Commerce, 5285 Port Royal Road, Springfield, VA 22161; phone orders accepted at (703) 487-4650.

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

Power Systems Development Facility

Quarterly Report January - March 1995

Work Performed Under Contract No.: DE-FC21-90MC25140

For
U.S. Department of Energy
Office of Fossil Energy
Morgantown Energy Technology Center
P.O. Box 880
Morgantown, West Virginia 26507-0880

By
Southern Company Services, Inc.
800 Shades Creek Parkway
P.O. Box 2625
Birmingham, Alabama 35202-2625

May 1995

POWER SYSTEMS DEVELOPMENT FACILITY
QUARTERLY TECHNICAL PROGRESS REPORT
JANUARY 1 - MARCH 31, 1995

TABLE OF CONTENTS

1.0 INTRODUCTION AND SUMMARY.....	1-1
2.0 REVIEW OF TECHNICAL PROGRESS.....	2-1
2.1 Project Management.....	2-1
2.2 Phase 1 - Conceptual Design Activities.....	2-1
2.2.1 Task 1.4 Transport Reactor Development Unit.....	2-1
2.3 Phase 2 - Detailed Design Activities.....	2-1
2.3.1 Task 2.1 Detailed Design	2-1
2.3.1.1 MWK: PSDF Transport Train	2-1
2.3.1.2 FW Team Activities	2-2
2.3.1.3 Balance-of-Plant Activities.....	2-4
2.3.1.4 Process Hazard Review.....	2-8
2.3.2 Task 2.2 Facility Design Document	2-8
2.3.3 Task 2.3 Environmental Permitting and Compliance	2-8
2.3.4 Task 2.4 Particle Characterization and Collection	2-9
2.3.5 Task 2.5 Particle Control Technologies.....	2-11
2.3.6 Task 2.8 Experimental Test Plan	2-14
2.4 Phase 3 - Construction, Procurement and Installation	2-15
2.4.1 Task 3.1 Procurement	2-15
2.4.2 Task 3.3 Construction and Installation	2-17
2.4.3 Task 3.6 Preparations for Operations	2-19
3.0 PLANS FOR FUTURE WORK.....	3-1

APPENDIX A:	Balance-of-Plant Engineering and Construction Schedule.....	A-1
APPENDIX B:	Operations - Shakedown Schedule.....	B-1

1.0 INTRODUCTION AND SUMMARY

This quarterly technical progress report summarizes the work completed during the first quarter, January 1 through March 31, 1995, under the Department of Energy (DOE) Cooperative Agreement No. DE-FC21-90MC25140 entitled "Hot Gas Cleanup Test Facility for Gasification and Pressurized Combustion." The objective of this project is to evaluate hot gas particle control technologies using coal-derived gas streams. This will entail the design, construction, installation, and use of a flexible test facility which can operate under realistic gasification and combustion conditions. The major particulate control device issues to be addressed include the integration of the particulate control devices into coal utilization systems, on-line cleaning techniques, chemical and thermal degradation of components, fatigue or structural failures, blinding, collection efficiency as a function of particle size, and scale-up of particulate control systems to commercial size.

The conceptual design of the facility was extended to include a within scope, phased expansion of the existing Hot Gas Cleanup Test Facility Cooperative Agreement to also address systems integration issues of hot particulate removal in advanced coal-based power generation systems. This expansion included the consideration of the following modules at the test facility in addition to the original Transport Reactor gas source and Hot Gas Cleanup Units:

1. Carbonizer/Pressurized Circulating Fluidized Bed Gas Source.
2. Hot Gas Cleanup Units to mate to all gas streams.
3. Combustion Gas Turbine.
4. Fuel Cell and associated gas treatment.

This expansion to the Hot Gas Cleanup Test Facility is herein referred to as the Power Systems Development Facility (PSDF).

The major emphasis during this reporting period was continuing the detailed design of the facility and integrating the particulate control devices (PCDs) into structural and process designs. Substantial progress in construction activities was achieved during the quarter. Delivery and construction of the process structural steel continued at a good pace during the quarter. MWK and FW equipment are being set in the structure.

The detailed design of the PSDF continued with refinements to P&IDs, preparation of specification bid packages and a move towards freezing the balance-of-plant design. The

integration of PCDs and the sampling system in the MWK and FW portions of the process structure continued and detailed civil, electrical, instrumentation and controls, and mechanical design information were exchanged between the design teams. SRI continued with simplifying the design and casting of the particulate sampling system cyclone manifold for the PSDF, working with the engineering design teams to resolve interferences and preparing to issue drawings for construction. The skid mounts for the insertion sampling probes are being fabricated and other parts are being procured for assembly and functional testing.

Construction is progressing well at the site. Most of the construction activities at the beginning of the quarter concentrated on process structural steel erection. The MWK and FW motor control center (MCC) buildings have been erected. Final bolt-up on the completed portion of the coal handling structural steel was achieved. The process structure elevator is being installed incrementally as the structural steel is being erected.. The construction of the control/administrative building is being completed. Voice and data communications are being installed for a projected project management, operations and maintenance staff move to the site in April. The existing firewater storage tank was moved and the suction line from the tank to the diesel pumps was installed.

Procurement of all equipment in the FW train is progressing well. The fluid bed heat exchanger was delivered to the site and is being refractory lined. The alkali getters will be delivered early next quarter for refractory lining at the site. The action items from the Design and Operability Hazard Review (DHR) of the APFBC System have been reviewed and resolved. Detailed engineering design of the APFBC system is nearing completion.

The PCD equipment designs are complete. Purchase orders for equipment fabrication and procurement have been issued. MWK has completed their design and engineering and issued all drawings, databases and other material for construction. The operating instruction manual is scheduled for completion in the next quarter. Many of the 39 MWK train major components were delivered to the site, and procurement activity of the few remaining items is progressing.

It should be noted that this report includes accounts of progress made by Foster Wheeler (FW), M. W. Kellogg (MWK), Combustion Power Company (CPC), Industrial Filter & Pump (IF&P), Westinghouse, Southern Research Institute (SRI), Nolan MultiMedia, and Southern Company Services (SCS).

2.0 REVIEW OF TECHNICAL PROGRESS

2.1 PROJECT MANAGEMENT

The Continuation Application (CA) for Budget Period 4 was submitted to DOE in February. The budget was based on an updated schedule of achieving mechanical completion of the MWK train by October 1995. This will be followed by cold and hot shakedown activities and a coal test fire in mid-December. Much of the FW train should be complete mechanically by early 1996. The CA includes risk quantification estimates based on the process development allowance method, but these costs are not included in the budget request. The CA also includes projections for Budget Periods 5-7.

DOE visited the PSDF site to assess the construction progress. Following the visit, the PSDF test objectives, scheduling of tests and other issues were discussed. SCS met with FW to discuss increases in weights of some vessels and refractory-lined pipes and its effect on structural steel as the steel drawings are being issued for fabrication. Detailed design completion and equipment delivery schedules were also discussed at the meeting.

2.2 PHASE 1 - CONCEPTUAL DESIGN ACTIVITIES

2.2.1 Task 1.4 Transport Reactor Development Unit

The final report describing all the TRDU test runs, including the results of data analysis is being prepared by EERC. A draft copy of the report was reviewed and comments were provided to EERC.

2.3 PHASE 2 - DETAILED DESIGN ACTIVITIES

2.3.1 Task 2.1 Detailed Design

2.3.1.1 MWK: PSDF Transport Train

The detailed design is essentially complete. MWK was consulted about allowable water pressure in the cooling water jackets. All of the equipment on cooling water can be used at 100 psig except the water jacket on the sulfator air compressor which has a maximum design pressure of 75 psig. Three refractory spool pieces were modified so as to resolve interference between CPC granular bed filter and MWK refractory piping. Work continued on the operating and instruction manual. The draft report is expected to be completed by the end of March and will be internally reviewed before requesting

comments from SCS. A meeting with SCS was held to review electrical and instruments drawings; both electrical and instrument work flows were presented and specifics of various drawings were discussed. Work on the PCD heatup task is near completion and a package of all affected drawings will be issued during the next quarter. The draft report of the maintenance and inspection manual is being completed for internal review.

2.3.1.2 FW Team Activities

The Phase II detailed engineering and Phase III procurement activities continued. The following activities occurred during the first quarter of 1995.

The refractory-lined pipe connecting the carbonizer cyclone to the IF&P filter vessel was heavier than the initial design. This was because the refractory vendor was unable to install the double lining originally specified and had to resort to a single lining that was around 10 percent heavier. The thermal conductivity of the single layer was also higher so the shell temperature was slightly higher resulting in increased thermal expansion. Design checks were carried out on the structural steel and on the vessel connection stubs. All the resulting stress was taken up by reinforcement, and some redesign, of the steel work. The screw cooler below the IF&P filter was calculated to thermally expand more than originally expected and would have placed additional stress on the vessel and its supports. SCS accommodated this by installing bearings between the cooler and the slide plate.

Although there was considerable uncertainty in the calculations, structural analysis indicated that the process flows in the combustor could induce excessive vibration in the steelwork. If such vibration did exist it could be accommodated by installing spring dampeners between the vessels and the structural supports. Two options were identified. The first was to retrofit them when the extent of the vibration is known and the dampeners can be accurately designed. This approach was likely to take three months, given time required for structural analysis, dampener specification, purchase, and installation. This period could be extended if the dampeners were not immediately available. During this time plant operations would be restricted to those conditions at which vibration was not a problem. Actual installation could take two to three weeks. The second option was to install dampeners, of a conservatively high design, during construction to avoid operational downtime. This option was considered to be the least-cost option overall and dampeners have been ordered. Their installation may introduce a number of interferences with pipework and structural steel but these are expected to be readily accommodated.

Because of the large number of structural changes being requested, at the beginning of February SCS put a hold on ordering and detailing the steelwork until such time that the design work was completed. Drawings were eventually released for detailing in mid-March and the steel will be delivered to site towards the end of June, approximately 6 weeks later than expected at the beginning of the year.

Design review meetings were held in Wilsonville and Birmingham on February 13 and 14, respectively, to discuss various construction and design issues. Representatives from DOE-METC, FWEC, FWUSA, and SCS were in attendance. Discussions in Wilsonville focused on issues related to the refractory lining of the FBHE and alkali getter vessels. It was agreed to be less costly and speedier to have them lined and cured on site. Various civil engineering issues, mainly associated with steel work, were discussed. Mechanical engineering issues included the status of piping isometric drawings and the suitability of these drawings for use by fabricators. Electrical/instrumentation issues centered mainly on finalization of material requisitions. To ensure their completion, the Action Items from the minutes of the meeting were incorporated into the weekly Needs List meeting.

The FBHE was delivered to site at the end of February and stood vertically in readiness for refractory installation. J.T. Thorpe commenced the installation early in March and was almost finished by the end of the month. SCS and FW are to meet in April to determine how best to cure the refractory: on the ground; in the structure using a contractor; or in the structure using the startup burners. The latter option represents cost savings of approximately \$65,000 but its practicality remains to be assessed. The alkali getters are expected to be delivered to site early in April and refractory lined during May.

Foster Wheeler provided process startup and operational information to Westinghouse in support of the MASB. The orientation of the vitiated-air pipework entering the topping combustor was altered from inclined to perpendicular to better accommodate mechanical stresses. A design meeting was held on March 13 and 14 at METC, with DOE, SCS and Westinghouse attending, to discuss the design of the MASB. Concern had been expressed that although the rest of the advanced PFBC train may be available in March, 1996, the MASB was not expected to be delivered until the following July. One suggestion was to use the burner used for testing at UTSI as it had the same thermal capacity as the one to be designed for use at the PSDF. Westinghouse explained that as the UTSI burner required a number of design changes it was unlikely to be available any earlier than a new burner. Westinghouse said that they may be able to deliver earlier than July but they will only know this once vendor quotes are available in, or around, September, 1995. The prospect of obtaining a backup propane burner is to be

investigated to allow for an earlier startup and to cater for a premature failure of the MASB. During the meeting a design modification to the pressure shell was proposed to better facilitate maintenance of the burner.

2.3.1.3 Balance-of-Plant Activities

Significant progress on several on the balance-of-plant systems was made during the last quarter. A summary of the balance of plant design, engineering and construction support activities arranged by engineering disciplines follows, and a detailed schedule of design and construction activities is given in Appendix A.

BOP Engineering - Mechanical

Nitrogen System: The technical evaluation of the bids received was completed in January with a recommendation. The nitrogen system commercial evaluation continued as clarifications to the bids and options which required technical review were addressed and resolved. The contract was signed on April 4, 1995. The high pressure compressor, storage tubes, and accumulator tank were sized and the P&ID's are being developed. Bids were received for the high pressure storage tubes.

Ash Handling Systems/Dense Phase Conveying Systems: Engineering completed its preliminary design and released the inquiry package on February 6, 1995. The detail design of the ash handling system, along with the other pneumatic conveying systems (ground coal and limestone, coke, LASH and other feed materials) will be performed by a vendor based on specifications developed by SCS. The bids were received on February 24, 1995 and Clyde Pneumatic Conveying was selected on March 21, 1995 to provide the ash handling and dense phase conveying systems.

Fire Protection: All design activities for the fire protection system are complete with the exception of the riser systems within the process structure. The designs are scheduled to be performed during April, 1995.

Miscellaneous Utilities: Design of the potable water system is complete. The potable water booster pump system was released for bids during late February. The potable water booster pump is on order.

Final Gas Cleanup: The bids for the stacks were evaluated and a recommendation given during January. The fabrication and erection of the stacks were awarded during early February. The first issue of the stack drawings were received in April and reviewed. The baghouse bids were received during mid February. The baghouse purchase

recommendation has been made and an award will be made when final commercial issues are settled. Bids for the dilution air fan were evaluated and a purchase recommendation was sent to purchasing. A P&ID for the final gas cleanup has been completed and reviewed.

Coal and Limestone Systems: The bids for the mill systems were reviewed during January. Performance tests were conducted in early February. The results were forwarded to both MWK and FW for their approvals. The evaluation and recommendation were developed and completed in late February with a project award during March.

Tanks, Hoppers and Silos: The design of the miscellaneous tanks, silos and hoppers continues. The dimensional designs of the crushed coal and limestone silos and the pulverized coal and limestone silos are complete.

Steam and Condensate Systems: The P&ID's for the SCS portion of the cooling water and the steam/condensate systems were completed during February. The heat exchanger bids, which were received in late January, were evaluated during February. The shell and tube heat exchangers were purchased and drawings have been reviewed and approved. The pump inquiry package was nearing completion during February for an early April release to bid.

Cooling Water and Service Water Systems: Detail design of the cooling water system continued. The bid package for the cooling towers was released at the end of March, 1995. The design of the raw water system was completed during February. The design of the 400,000 gallon service water tank was completed and issued for bids. The tank bids were received on February 28 and was awarded in early March. An application for permit for the raw water crossing beneath the railroad was submitted to the railroad during early February for approval, but is still pending for a permit to bore under the railway.

Auxiliary Fuel: The propane system bid package was completed in January. The projected release to bid is mid-April, 1995. A decision was made during late February to relocate the existing 7,000 gallon diesel storage tank to the utility island. At this location it will serve as the primary fuel storage for the auxiliary generator as well as the rolling stock for the coal and limestone storage area.

Wastewater: The site wastewater study was reviewed during February. Discussions were held and a preliminary design of the implementation was begun. Completion of the preliminary design is expected in April.

Service Air/Instrument Air: Inquiry for the compressors, tanks, dryers and aftercoolers were issued February 23. Bids were evaluated and an award is expected in early April.

BOP Engineering - Civil

SCS completed the review of Sequence 6 (MWK and common bay to roof) structural steel shop drawings. The contract drawings for Sequences 5 and 7 were revised in January. The review of the Sequence 6 grating drawings continues, and will be completed in March. The Process Structure steel contract drawings were revised and issued in February. The temporary access system to the overhead crane was completed in March. The revised drawings will be issued in April. The temporary access was necessary because the original access platform to the crane was located on the FW side of the building. SCS continues to make steel modifications to eliminate equipment and piping interferences and changes. Also continuing to review and revise the shop drawings for the steel grating in the process structure. SCS is changing the Process Building structural steel to accommodate the addition of the dampening system for the FW combustor system. The proposed configuration of the spring system is being revised in detail to resolve potential construction/installation problems.

Preliminary drawings for the coal storage concrete were sent to construction during January. This was to allow the site to begin preparing the area prior to receipt of the final drawings. The coal and limestone storage silos inquiry package was issued to bidders in the pre-bid meeting. The package contained only basic information on the physical dimensions of the silos. The detailed design drawings will be issued in April to the successful bidder.

SCS continued the bid evaluation for the overhead crane. Due to the evaluation of the exceptions, the contract was not awarded in February as anticipated. This contract was awarded in March. The pre-award meeting for the Process Structure elevator was held in January. Additional information obtained from these bidders required additional evaluation by SCS. The Process Structure elevator contract was awarded to EMSCOR, and the erection of the elevator is in progress.

Work continued on the Ash Handling Building structural steel computer model. The detailed steel drawings were started, and are approximately 90% complete. Review of the model is in the final stage. The design activities will be completed in April.

The concrete drawings for the coal storage area were released for construction with a "hold" on the piers for the building columns. These portions of the design were

completed and released in March. Other design work included the reinforced concrete drawing for the Control/Administration building equipment room, the detailed foundation drawing for the 40 foot diameter Service Water tank, and the detailed drawings for the Thermal Oxidizer foundations. The sulfator start-up burner design was put on hold to work on higher priority design packages. The design should resume in March.

The preliminary design of the stack foundations continued in February. Final loads and drawings were received from the vendor in March. The design of the reinforced concrete foundations is in progress. SCS will issue a construction package that contains drilled piers for both the FW and MWK stacks, the column foundation for the nitrogen plant and the Ash building column foundations. This will reduce the mobilization costs for the drilling crew.

BOP Engineering - Electrical & Controls

Assembly of the DCS configuration and graphics design lab for the PSDF project continued with the addition of the second configuration work station. Configuration continued and graphics development was initiated on the second station. SCS completed the DCS factory acceptance test.

The specification for instrument transmitters and for the essential engine generator was completed and issued to procurement for inquiry. The engine generator procurement has been awarded. Prospective gas analysis vendors were queried with regard to the SCS scope addition. Design was completed on the fiber optic network for the DCS field bus communication as well as the voice and data communications infrastructure. The materials were also specified for this area. Preparation of DCS wiring diagrams continued.

Two-hundred-fifty eight new raceways were designed and added to the cable routing database. Fifty-eight new circuits were added and 43 were routed. Updated motor and load lists resulting from design evolution were obtained again. Elementary diagrams were prepared for several medium voltage starters.

The data and phone network at the Control/Administration building, in preparation for PSDF staff move to Wilsonville on April 21, has been designed and the field work is being tracked. Design of the Control/Administration building Electrical Equipment room was completed. The cable tray design drawings have been completed for the room. MWK's cable tray drawings were reviewed and a cable tray material take off was performed. Together with completion of the Electrical Equipment room, material

take off was performed and a major bill of material cable tray order was transmitted. Six drawings have been completed for the Electrical Equipment room. The drawings cover the building's electrical embed requirements, 4 KV switchgear foundation, cable tray plan and sections, lightning protection, lighting plan and power cable routing drawings. Most of the material take off was performed on the electrical design of the coal/limestone material handling area drawings. FW database files have been received and design checking and preparation for field release of the information is in progress.

2.3.1.4 Process Hazard Review

FW has reviewed the suggestions made by the DHR and some alternative suggestions made. These were discussed with SCS and a final set of recommended design changes were agreed upon. These changes are being incorporated into the final version of the P&IDs, expected to be issued early next quarter.

2.3.2 Task 2.2 Facility Design Document

Updates of the PSDF design documents for the BOP will be issued next quarter. Modified information from FW and MWK are also expected.

2.3.3 Task 2.3 Environmental Permitting and Compliance

Regular site visits were made to the PSDF construction site for environmental inspection purposes. Stormwater runoff samples for compliance purposes were collected on March 5 and submitted to the Alabama Power Environmental Test Laboratory for analysis. After the results are obtained, a Discharge Monitoring Report will be submitted to the Alabama Department of Environmental Management (ADEM). The National Pollutant Discharge Elimination System (NPDES) Permit Application was submitted to ADEM on March 7 for review. The review process takes from three to six months.

Federal Aviation Agency (FAA) Forms 7460-1 "Notice of Proposed Construction or Alteration" were submitted to the FAA on February 6 for review. These forms notify the FAA of the construction of the PSDF emission stacks and allows the FAA to make a determination regarding stack markings and lighting. A reply was received from the FAA on February 28 and the information regarding lighting was give to SCS Engineering to incorporate into the design specifications of the stacks.

During this quarter internal meetings were held to discuss the final design of the PSDF wastewater treatment unit. Several modification to an existing concrete yard drainage basin were recommended in order for this basin to serve the anticipated needs of the

PSDF wastewater discharges. An extra wall will be added to facilitate solids settling and a new flowmeter will be installed for flow monitoring compliance. An oil and water separator will be installed adjacent to the basin to receive potentially oil contaminated streams from the PSDF process area. The water discharge from the separator will flow to the basin for additional treatment. A utility shed will be constructed next to the basin to store water treatment chemicals.

2.3.4 Task 2.4 Particle Characterization and Collection

SRI's work this quarter focused on

- Coordination with SiCAM and with Howmet on the casting of the cyclone manifold
- Coordination with Santek Engineering on fabrication and assembly of sampling system components
- Coordination with SCS on the layout of platforms for SRI's particulate sampling systems and the testing of particulate samplers in the SRI combustor
- Coordination with Nolan Multimedia on training videos
- Wiring and assembly of control cabinets
- Preparation of the construction issue of P&IDs
- Revision of electrical wiring diagrams
- Procurement of impactor shells, electric heaters, pressure switches and gauges, control valves, heat transfer coils, and filters for instrument protection

In January, SiCAM produced the first wax pattern of the cyclone manifold. The first pattern was made with plastic rods inserted in the interconnecting tubes to assist Howmet in the production of alumina cores. In February, Howmet received the first wax pattern and made the alumina cores for use in the subsequent patterns. The alumina cores were shipped to SiCAM, and in March, SiCAM produced three wax patterns with the cores inserted at the proper locations. The three finished patterns were shipped to Howmet in late March. Ceramic casting molds are now being made, and the casting will take place in April. Delivery of the prototype manifold is currently scheduled for April 21.

Santek Engineering continued to work on the fabrication and assembly of the sampling system components. Layout drawings of the local control panels and electrical wiring diagrams were delivered to Santek in January. The fabrication work was essentially complete in February. A review of the assembly work was held at Santek on March 20, with participants from SCS, SRI, and Santek. The review revealed several minor problems with the assembly, which are now being addressed. It now appears that the

assembly work will be delayed by the late shipments of two critical items: the Thomson linear actuators (now scheduled to ship on April 13) and the Marpac high-temperature ball valves (now scheduled to ship on April 19). Because of these delays, the assembly will not be completed until the end of May, and the testing will not be finished until the end of June.

On February 9, SRI representatives met with SCS engineers to review the layout of platforms for SRI's sampling systems located in the FW process structure. As a result of the review, two of the platforms were enlarged to provide space for the sampling system control panels and to increase the working area around the insertion mechanisms. The revised layout drawings were reviewed at a follow-up meeting on March 9, in which SRI and SCS also reviewed the layout of platforms in the MWK process structure. No changes were recommended in the MWK platforms, but space restrictions made it necessary for SRI to redesign one of the local control panels for the sampling systems. The electrical enclosure containing the push-button controls was removed from the control panel and relocated so that the panel would fit within the available space.

Plans for testing the five-stage cyclone assembly and bauxite cartridge in SRI's combustion facility were submitted to SCS in February. The original plan was based on operating the combustor at a reduced load to provide the required gas velocity of 20 ft/sec. Subsequent discussions at SRI revealed that the reduced gas velocity could be obtained by doing the tests in a slipstream, eliminating the need for special combustor operating conditions. The test plan was modified accordingly. The testing will be done after the cyclone manifold is received, and the cyclone manifold receptacles are machined to match the cyclones. The machining should be finished by late May, making it possible to do the combustor tests in June.

On February 21, SRI met with Nolan Multimedia and SCS to discuss the training video for SRI's sampling systems. As suggested in the meeting, SRI prepared written procedures for bolting the sampler onto the sampling probe, for bolting the packing gland flange onto the outer casing flange, and for unbolting the packing gland flange and retrieving the sampler. These procedures were submitted to Nolan on March 13, and Nolan submitted a draft script for the training video on March 24. SRI is now reviewing the draft script and will submit comments to Nolan in April.

In January, SRI initiated discussions with several system integrators concerning the assembly and wiring of the control cabinets for SRI's sampling and monitoring systems. Three system integrators expressed interest in the assembly and wiring as well as the programming of the insertion mechanism controllers. Preliminary cost estimates

suggested that the system integrators could do this work more cost effectively than it could be done internally at SRI. Therefore, a request for bids on this work was issued in February, and the three bidders were invited to SRI to review the operation of the probe motion controllers. The bids were received in February, and, in March, SRI awarded the system integration and programming work to In-Control, Inc. of Pelham, Alabama.

In March, SRI finished the final round of revisions on the P&IDs. The construction issue of the P&IDs was released on March 31, 1995. SRI will also submit the AutoCAD files containing the P&IDs, so that SCS can incorporate any changes made after the installation of SRI's systems. The construction issue of the electrical wiring diagrams will be released in April.

2.3.5 Task 2.5 Particle Control Technologies

The following presents a summary of progress made in the last quarter in the design, engineering and procurement of the Particulate Control Devices (PCDs) for the PSDF.

Combustion Power Company PCD for the MWK Transport Gasifier

Programmable Logic Controller (PLC) components were received in December, 1994. Some components were assembled for check out and two quotes from panel vendors were received and CPC is waiting for one more quote. Two panels are needed: one for field mounting the components that collect information from local transmitters and thermocouples, and the other for housing the computer control components in the motor control center. Work on routing of interconnecting piping for filter components has been delayed pending receipt of vendor drawings. Drawings received from MWK have defined the locations for interfaces for utilities.

A factory acceptance test by SCS is planned for the control system at the Foxboro Company in Massachusetts. Arrangements are being made to include check-out of a replica of the CPC control system. The communications module for CPC's computer control system has been sent to Foxboro for programming and check-out in conjunction with GE-FANUC personnel. This communication module will be sent back to CPC for installation in CPC's control rack to assure compatibility with the Foxboro DCS.

The new schedule with updates shows the most recent estimates on equipment deliveries. Equipment will arrive in Wilsonville in March, 1995 through June, 1995. Filter material is scheduled to arrive June, 1995.

Pressure vessels and refractory lined pipe have been shipped from Memphis to Houston for installation of refractory. Refractory installation started in February, 1995. Some refractory lined pressure vessels will arrive on site in Wilsonville in mid-April, 1995.

Design revisions were requested by CPC on the baghouse and recuperative heat exchanger and the air-cooled heat exchanger. This has affected delivery. Vendor engineering on the boost blower is ongoing. An inspection trip is scheduled that includes refractory inspection, recuperative heat exchanger inspection and review of the boost blower vendor status.

Industrial Filter & Pump PCD for the FW Carbonizer

IF&P has been working with Oak Ridge National Laboratory (ORNL) to determine the physical and mechanical properties of IF&P's ceramic tubesheet material. IF&P received test data from ORNL on the physical properties of the Fibroplate II ceramic tubesheet material envisioned for use in the IF&P PCD. ORNL provided precise specific heat, thermal conductivity, diffusivity, and thermal expansion data which will allow for the calculation of heat transfer and other properties within the tubesheet area of the PCD.

IF&P met with Mallett Technology to refine the design of internal components. Both met with ORNL to optimize the internal material selection through the evaluation of additional candidates.

Nozzle stress values for the IF&P PCD changed slightly as a result of a refractory material change in the FW piping connection to the PCD. IF&P's outside consultant reviewed the revised nozzle load data supplied by FW and determined that no changes in PCD metal thickness will be required. Resultant changes in the foundation loadings were sent by IF&P to SCS and FW.

Westinghouse PCDs for the MWK Transport Gasifier and FW CPFBC

Westinghouse is under contract to SCS to design and supply two particulate control devices (PCDs). One PCD (FL0301) is to be located in the MWK transport reactor train and was delivered on March 23, 1995. The second PCD (FL0352) is to filter gases from the combustor of the FW APFBC process. The delivery schedule has been adjusted by SCS to provide delivery of FL0352 by July 30, 1995. Other elements of the Westinghouse project include qualification testing of alternate filter media, for future insertion into the PCD being designed to operate with the MWK transport reactor

(FL0301), and some companion programs which serve to augment the technology base for Westinghouse design and engineering.

The detail designs for the two PCDs is complete. Design of heat tracing for the accumulator tanks has been completed. Each accumulator tank should be maintained at 165°F to ensure that the pulse gas temperature does not fall below 0°F. To accomplish this, each tank should be provided with a uniform heat input of 1.2 kW with a 3 inch fiberglass wool ($K \sim 0.022$ Btu/hr-ft-°F) insulation around it. This kind of heat input can be provided by 120 ft of Chromalox SRM-10 (10 w/ft) heating cable or equivalent, controlled by a Chromalox type RTBC-EP controller (for Div 2 hazardous areas) or equivalent.

Control system database layout was completed and sent to SCS for both PCD301 and PCD352. Westinghouse is currently working on the pulse control logic specifications.

Representatives from Westinghouse visited the PSDF construction site to discuss storage and installation of equipment. Westinghouse studied the issue of providing a nuclear ash level detector for FL0352 and FL0301. Based on the experience at AEP-Tidd, a density gauge for FL0352 was recommended to be procured by SCS. The issue of providing a level detector for FL0301 is open because it would have to have a much larger source (due to high density insulation on the inside wall of FL0301) and would cost much more. Specifications and quotes for both, with recommendations, have been forwarded to SCS.

Westinghouse also evaluated the availability of used candles for PCD 301 and perhaps also for PCD 352 for use during shakedown for the MWK Transport Reactor and FW APFBC, respectively. If a sufficient inventory of used candles is available they will be used for shakedown. Cleanup and inspection costs will be a small fraction of new candle costs.

2.3.6 Task 2.8 Experimental Test Plan

MWK train test plan: Further iterations of the test plan were prepared in response to suggestions from the sponsors. The issues, mainly concerning test sequencing and duration, were resolved satisfactorily and to the benefit of the test plan. There will now be six test campaign through to the end of 1997, three each in combustion and gasification modes. Further, the course of hot commissioning was revised to allow for an earlier start to gasification operation. Some detailed issues remain to be discussed after which the final draft will be prepared.

FW train sampling requirements: An effort was undertaken to define the gas and solid sampling requirements for the FW train. Foster Wheeler's proposed sampling list was matched against the requirements for plant operation and process investigation. Samples were identified on the basis of their contribution to the overall operation of the train, their contribution to test plan objectives, and the physical difficulty and safety of obtaining a given sample. The number of gas sample locations was reduced from the twelve proposed by FW to three. These will be used to sample from the fuel gas and vitiated air streams entering the topping combustor and from the flue gas stream leaving the gas turbine. There was a sample location between the gas turbine and the MASB that used a rake to sample across the cross section. If this failed mechanically and passed through the gas turbine it would cause considerable damage and so it was eliminated. Any additional gas-phase reactions occurring will influence the emissions so sampling after the turbine is probably more representative from a complete system standpoint. All three locations will have a sample conditioning train to remove any residual dust, and to condense out water and ammonia compounds prior to analysis. Continuous gas analyzers will be used for CO, CO₂, O₂, NO_x, and SO₂, with batch samples being taken for hydrocarbon concentration determination by chromatography. The batch samples will be taken three or four times per day. Specialized analysis will be required to determine the ammonia content of the fuel gas and to complete a nitrogen balance across the MASB. Specialized analysis may also be required if H₂S, COS, and chlorine content are required.

The number of solid sample locations was reduced from the thirteen proposed by FW to five. Solid samples will be taken from the inlet coal and sorbent feed streams, the PCD ash stream, the PFBC ash stream, and the oversized char stream. These are adequate to support plant operation and test program objectives. In selecting these locations consideration was given to the physical difficulty, safety, and cost of the sample. This resulted in all samples being removed from low pressure, low temperature locations. Although accepted as being beneficial to process understanding, samples were not taken from high temperature, high pressure locations such as the char transfer line and the combustor recycle line. Several sampling devices were studied, but none was considered acceptable. A maximum of 400 to 500 samples per week will be sent to the laboratory for analysis from the FW train.

MWK train sampling requirements: An evaluation of alternative methods for collecting solid samples from the MWK train was initiated. The solid samples identified are feed coal, sorbent feed, PCD spent solids, and reactor spent solids. Sulfator ash will also be sampled when operating in gasification mode. The alternatives will be evaluated on the basis of their ability to minimize the hazards to which a person collecting the sample would be exposed, and to provide representative measures of the flowing solids without

disrupting the flow. Their cost in terms of equipment, system modifications required to accommodate the method, and technician and maintenance requirements are also taken into account in evaluation. Automatic and manual means of sampling are being considered.

2.4 PHASE 3 - CONSTRUCTION, PROCUREMENT AND INSTALLATION

2.4.1 Task 3.1 Procurement

MWK Advanced Gasifier train

Several pieces of equipment from MWK arrived at the site in February. All of the coal/limestone/ash transport devices (FD0210, FD0220, FD0510, FD0520, FD0530 and FD0610) arrived. The last two heat exchangers (HX0402 and HX0601) were delivered to the site. Five of the refractory lined pipe spools were received. Only a few items remain to be shipped. These are the analyzer shelter and analyzers, the shutdown relay system, the refractory lined slide valve and the cyclones (primary cyclone and disengager).

Combustion Power Company

Pressure vessels, internals, and refractory lined pipe were ordered in September, 1994 from Plant Maintenance Service Corporation (PMSC) in Memphis, TN. There was considerable activity in January, 1995 as the pressure vessels and refractory lined piping were completed and pre-assembled for a dimensional check. Inspection by CPC and SCS was completed during the dimensional check. Anchors for refractory were installed in mid-January, and hydrotest was completed in late January, 1995.

Items to be refractory lined arrived in late January, 1995 at J.T. Thorpe Company in Houston for refractory installation, thermal drying (to 700 - 750°F), and painting. CPC inspected the refractory lining of the vessels at J.T. Thorpe on February 15, 1995. Critical points on the installation were discussed and errors noted for correction with another inspection completed in early March, 1995. CPC completed refractory pour, partial cure, and painting of three major vessels (the granular bed filter, the de-entrainment vessel, and the media makeup hopper). The filter vessel was shipped to the site the last week of March 1995, with other equipment scheduled to arrive through May 15, 1995.

The recuperative and gas/air heat exchanger were ordered as a unit in September, 1994 from Phoenix Metallurgical in Houston. Preliminary drawings were received in mid-

November, 1994. Design details dealing with expansion joints, support, and guides were discussed in January, 1995. Revised drawings were received by CPC in early February, 1995 and reviewed.

The boost blower was ordered in December, 1994 from Susquehanna Valley Systems, Inc. (SVS) in Berwick, PA. Submittal drawings were received in February, 1995 from the new owners of SVS, Hy-Bon Engineering Company of Midland, TX. The new owners have experience in designing and manufacturing oil refinery equipment. SVS engineers are still involved. This alliance increases the engineering and manufacturing expertise available to produce a suitable piece of equipment. Submittal drawings received in mid-February, 1995 included only a general arrangement which was satisfactory.

The water-cooled heat exchanger, FL0302-HX03, was placed on order in January, 1995. Vendor drawings have been received and approved. Shipment is expected in late April, 1995. The cooling air fan, FL0302-FN01, was placed on order in January, 1995. Vendor drawings have been received and approved. Shipment is expected in early May, 1995.

Industrial Filter and Pump

IF&P's PCD material procurement and fabrication is well under way. A refractory lining contractor has been selected and is scheduled to pour the Resco lining shortly after completion of the pressure vessel fabrication.

Westinghouse Filters

FL0301: The filter vessel for the MWK train, FL0301, was delivered to the PSDF site on March 23. The remaining items such as erection hardware, instrumented flange cover assemblies and gasket sets. These have been procured and are being held at Westinghouse STC till the PSDF construction crew is ready to erect the vessel (FL0301).

FL0301-ME01 and ME02: The back pulse skids have been assembled. They will be plumbed, wired and tested by May 1. They will be ready for shipment to the PSDF site by May 7, but can be held back at vendor's site if that is convenient for the construction crew.

FL0301 Internal Metal Structures: The tubesheet and cluster assembly are nearing completion of fabrication. They will be insulated and be ready for shipment to the

PSDF site by May 7. We have asked the vendor to package these for outdoor storage and therefore they will be shipped when completed.

FL0352: Final vessel drawings of the PCD vessel in the FW train, FL0352, have been sent to SCS and FW. Fabrication is proceeding with a schedule for completion by 7/30.

FL0352-ME01, ME02 and ME03: The back pulse and instrument skids are in the final stages of assembly. They will be plumbed, wired and be ready for testing by May 7. They will be ready for shipment to the PSDF by May 15, but can be held back at the vendor's site if necessary.

SRI Particulate Sampling

During the past quarter, SRI completed the procurement of all components needed for the initial assembly of the sampling systems. The items that were ordered during the past quarter included: impactor shells, electric heaters, pressure switches and gauges, control valves, orifice plates, heat transfer coils for the sampling system condensers, and filters for instrument protection. A purchase order was issued to In-Control for the assembly and wiring of the control cabinets, and a change order was issued to Santek to incorporate various changes in mechanical details. All remaining components of the sampling systems will be ordered in the next quarter. The remaining components include the impactor stages and substrates, the ceramic liners for the bauxite cartridges, and the additional cyclone manifolds.

2.4.2 Task 3.3 Construction and Installation

Construction - Civil

The construction civil work at the site continued with support activities associated with Mechanical and Electrical installations. Roof and HVAC installations for the FW and MWK MCC buildings were completed.

The final bolt-up on the completed portion of the coal structure was performed (structure cannot be completed until silos are installed). The coal storage structural materials were received and unloaded. The concrete work on the coal storage foundation was continued. The pipe trench access platform and roadway crossings were completed. The MWK and FW equipment that were received were unloaded and prepared for short-term storage. All grade level MWK equipment within the process structure was set. The MWK Sulfator was set in the structure on 2/03/95. Steel City completed setting of the structural steel in Sequence 2 (MWK first tier), Sequence 3

(FW to 152 ft) except for leave-out steel, and Sequence 8 (stairway) to the 152 ft level. Sequence 4 (MWK and common bay to 218 ft) steel erection was started and have continued setting grating in Sequence 2.

Existing fire protection tank was relocated to the PSDF site on 2/03/95. Process structure elevator was installed to the 152 ft elevation. Process structure equipment will continue to be set in conjunction with structural steel sequence. The FBHE from FW was delivered 2/25/95 and is being refractory lined at the site by J.T. Thorpe.

Construction - Electrical

The temporary power board for the process structure was energized and motor space heaters for the installed equipment was re-energized on temporary power. The work on yard lighting, embedded conduits, light pole foundations and grounding grid is being continued. The duct run into the Control/Administration building is complete and temporary power installed and energized.

The equipment pads in MWK and FW MCC buildings was poured in order to receive the Foxboro DCS cabinets. The installation of cable tray in MWK MCC building continued during the quarter and work on cable tray in FW MCC building begun. The work to install duct runs to E.C. Gaston Steam Plant was started and continued for controls on raw water, demineralized water pumps and ground wires to tie the PSDF ground grid to the E.C. Gaston ground grid. The work on duct run to electrical building resumed. Sewage lift stations and potable water booster pumps were energized and tested. The fiber optic cable between existing and new Control/Administration and Maintenance/Warehouse/Lab buildings was pulled for telephone and computers. The work in the new Control/Administration building on telephone and cubicle power requirements is being started.

Construction - Mechanical

The suction line from storage tank to diesel pumps at the fire protection pump house was installed. The process water and demineralized water line installation from E.C. Gaston plant has been on hold, and will start again pending approval to bore under the railway tracks. The installation of wash-down water system was completed. The drain line from the building sump to the yard sump was installed. The base slab drainage for the coal and limestone storage was also installed. The permanent potable water tie to the Wilsonville main line is complete. The potable water booster pump is on order. The sewage system is 100% complete mechanically. Equipment storage and maintenance program for MWK and FW equipment is on-going. The main air

compressor, the heat transfer fluid equipment, the recycle gas booster compressor and the sulfator air compressor (all MWK equipment) were set in their final positions.

Control/Administration Building: Sunbelt Builders continued work on the building. The work is concentrated on interior with walls, floors, ceiling, and electrical work in progress. The completion of contract work is projected for mid-April.

2.4.3 Task 3.6 Preparations for Operations

Wilsonville Interactive Learning System (WILS)

WILS will contain a series of Technology Resource Modules to provide highly usable, visually-based information on each technology at the Wilsonville facility. WILS will also contain a series of Interactive Video Training (IVT) modules on a variety of tasks. The Tech Transfer and Training modules are being developed concurrently with construction of the facility using 2D and 3D graphics and animation. Training modules will be completed prior to commissioning of each train to allow time for operator training; they will be revised and augmented with video following the shakedown period. WILS is being developed for delivery via a series of Windows-based interactive CD ROMs.

Significant progress on the WILS project was made this quarter in a number of key areas. Nolan's February trip to SCS helped to accelerate progress.

- Graphics production on the Advanced Gasifier/MWK Transport Reactor (K-train) Technology Resource module, which had been started at the end of last quarter, continued. Paper prints (greyscale) of graphic screens for the Feed Prep, Flare and Sulfator systems proved very useful for a review during Nolan's visit to SCS. Later, Nolan incorporated SCS's comments on the graphics for these 3 systems, and they are now ready to go on to the next step -- image processing in preparation for integration (programming). Concurrent with these graphics, some 38 K-train tables and formulas (for chemical reactions) were also produced, reviewed by SCS on paper, and revised.
- Development of the HGCU modules also made good progress this quarter. Storyboards for the two PCDs in the K-train, i.e. Westinghouse and CPC PCDs, were prepared first and graphics production got started. Script revisions from SCS on the HGCU A-train modules, i.e. Westinghouse and IF&P PCDs, were received and incorporated into the database. Storyboards for these two PCD modules were then prepared. Graphic screens for the HGCU Overview and CPC

PCD module were the first to be produced. These screens were sent to SCS for review.

- As graphics development occurred and new information from SCS was received, some script changes became inevitable. New narration for a number of scenes in the K-train module will be re-recorded next month, along with narration for the HGCU Overview and CPC PCD modules. Audio was digitized for most of K-train narration.
- The CD version of the Realtime Monitors and Sampling module revealed navigational and performance issues in the authoring code. The CD performance is being optimized and the program navigational issues are being resolved.
- A CD ROM installer for the PC has been developed. The installer copies the WILS "projector" onto the users' hard drive. It provides necessary messages for a successful installation. The installer also creates a program folder for grouping all WILS files together.
- During a meeting with SCS and SRI, probe insertion and retraction procedures were discussed in detail to kick-off development of a training module. SRI later submitted detailed procedures for the following operator training tasks: bolting the sampler and the packing gland and retrieving the sampler.
- Images from still photographs of the equipment on the ground at Wilsonville and the process structure are being used in the Technology Resource module for the K-train; they can be augmented with additional still photos later.
- A visit to ModelVision in Madison, Alabama, yielded the first in the series of images derived from the 3D Intergraph model. These images will be used for the "You Are Here" feature within the Technology Resource modules, which allows the user to see where particular pieces of equipment are located within each train. Additional images, such as plan and cross-sectional views and other internal views will be created for inclusion in the K-train training module.
- Development of the APFBC or A-train, was also started this month. A rough draft script was prepared from an outline that was submitted to SCS. This new script contains a level of detail similar to the K-train. Progress was halted, however, pending final receipt of all design and drawing information from FW and SCS.

Operation and Maintenance

Work began on specifying the operations and maintenance labor brokers. A bid was prepared for the Instrumentation Technicians of two levels of expertise: the first is the typical Technician class who calibrates transmitters, loops, and control processors; and the second is knowledgeable in gas analysis equipment repair, calibration and troubleshooting. Specific job descriptions, duties, and the number of various operator and mechanic positions are being written, and evaluated.

Most of the Operations supervisory staff have joined the project, and the Coordinator's have begun developing the background understanding of the project, its two process trains, and the specific equipment involved in order to develop the detailed operating procedures manual for use when the journeyman operators arrive later this year.

Work has begun in identifying and refurbishing the essential Machine Shop and Maintenance Tools that are available from other SCS/DOE projects for use by the PSDF maintenance staff. The Maintenance Coordinator was selected and has joined the project. Both the Maintenance Supervisor and Coordinator will be assisting the project Construction force, until equipment commissioning begins.

Commissioning Related Activities

Work continued in detailing the start-up activity plan for scheduling purposes. This entails identifying specific activities required to assure proper equipment operation, and to integrate equipment into operating subsystems capable of maintaining control of the system's parameters (flow, temp, pressure, ratio). The tested sub-systems will be combined resulting in process operation and control. This activity is an input useful in defining the project critical paths and priorities. This work is continuing with updates due to system/ equipment design changes. A cold/hot shakedown schedule is attached in Appendix B.

3.0 PLANS FOR FUTURE WORK

1. Complete work on the TRDU final report and orderly closure of the contract with UND/EERC.
2. Work on the MWK operating instruction manual and maintenance and inspection manual will continue and draft copies will be issued early in the next quarter for review and comments. The final report on the MWK train design hazard review will also be issued.
3. For the next reporting period, FW will continue to close the detail design of the process with finalization of the P&IDs and logic diagrams/descriptions, and drafting of plant & piping layouts. A design hazard review of the topping combustor and the gas turbine sections of the process will be conducted in the next quarter.
4. SCS will continue with construction activities at the site. Steel City (steel erectors) will continue on the MWK and common bay steel and set equipment. The process structure elevator erection is in progress. Continuing electrical work will involve work on the yard lighting, duct runs, grounding cable tray in MWK and FW MCC buildings. Mechanical will lay the process water and de-mineralized water lines from Plant E.C. Gaston. The Foxboro DCS system will be energized and further configuration activities will continue with the DCS system.
5. SCS engineering will continue to work on the balance-of-plant design and specifications. The wastewater design will be completed in April. DCS configuration will continue for the MWK portion. SCS will continue to make steel modifications to eliminate equipment and piping interferences and changes. Design of raceways and cable routing continues. P&IDs for all balance-of-plant areas will be updated and issued in the next quarter.
6. CPC will continue to fabricate and ship major equipment in its system. CPC plans for the next quarter include installation of internals in the filter vessel, begin manufacture of panels with instrumentation and update schedule. The installation manual will be revised to include more vendor information. As part of the installation manual, the drawings for the top assembly will be issued. The recuperative heat exchanger will be delivered in early May, followed by the baghouse and boost blower in June. Other auxiliary equipment delivery is on schedule. IF&P plans for the next quarter include completion of shakedown

sequence and discussions with SCS on the need for a PLC. Westinghouse plans for the next quarter include construction support during installation of the filter vessel in the MWK train and delivery of internals and the backpulse skid.

7. In the coming quarter, Howmet will deliver the prototype cyclone manifold, and SRI will machine the manifold's receptacles to match the cyclones. The cyclones will then be match lapped to the receptacles. The complete assembly should be ready for testing in the combustion facility in June. Assembly and testing of the insertion mechanism will be done in June because of delays in receiving the linear actuators and the high-temperature ball valves. Major deliverables including the P&IDs, electrical wiring diagrams, DCS loop descriptions and drawings of particulate sampling systems will be completed in the next quarter, and with that the design phase of the project will be complete.
8. SCS will continue preparation of an integrated test plan for the Advanced Gasifier train components and system for shakedown, characterization and normal operations. The development of operation procedures for the MWK train will start upon completion of operation and maintenance instructions manual that is being written by MWK. The number of samples and required analysis as well as the frequency of sampling and analysis will be defined in order to estimate the needs for the laboratory at the site.

APPENDIX A

BALANCE-OF-PLANT ENGINEERING AND CONSTRUCTION SCHEDULE

1995												1996																	
D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D					
Activity ID	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	EAD																							
100101 COAL & LIMESTONE																													
ERECTION SEQUENCE																													
DCE08130A	10		10/28AUG95	13SEP95	3	NFK	SET EQUIPMENT COAL STRUCTURE																						
COAL SILO																													
GS046	6		6/07APR95	14APR95	44	DLE	Prepare Coal/Limestone System Silo Drawings																						
GS047	5		5/17APR95	21APR95	44	DLE	Prepare Coal & Limestone Silo Bill of Material																						
CE07730	24		24/02AUG95	13SEP95	3	NFK	ERECT COAL SILOS																						
COAL HANDLING CONVEYOR																													
SE080102	20		20/02MAR95A	04MAY95	-1	DLE	PREP CONCRETE & STEEL DESIGN FOR COAL CONVEYOR																						
GS028	11		11/13APR95A	21APR95	0	GAM	Receive/Review Belt Conveyor System Vendor Dwg's																						
CGS031	20		20/28SEP95A	29AUG95	-1	NFK	VENDOR Install Belt Conveyor System																						
SEEMBED3	10		10/07APR95	20APR95	9	WKK	COAL CONVEYOR ELECTRICAL EMBED DESIGN/BM																						
SMCC2	10		10/07APR95	20APR95	27	GAM	GET CONVEYOR MCC LOAD INFO TO ELECTRICAL																						
GS030	64		64/24APR95	24JUL95	0	GAM	Fabricate/Deliver Belt Conveyor System																						
CE080302	24		24/22MAY95	03JUL95	-1	NFK	ERECT STEEL & POUR CONCRETE FOR COAL CONVEYOR																						
COAL HANDLING CONCRETE																													
SE080101	60		60/31JAN95A	04MAY95	-18	DLE	PREP CONCRETE DESIGN FOR COAL STRUCTURE																						
SE080301A	28		28/10APR95	25MAY95	9	DLE	DESIGN BUILDING FOR CH & ASH MCC's																						
CE080301	28		28/22MAY95	11JUL95	-15	NFK	POUR CONCRETE FOR COAL STRUCTURE																						
CE080301A	28		28/12JUL95	29AUG95	-15	NFK	ERECT BUILDING FOR CH & ASH MCC's																						
DENSE PHASE SYSTEMS																													
GS041	22		22/24MAR95A	08MAY95	-25	GAM	Receive/Review Pneumatic Conv Sys Vendor Dwg's																						
SMCC1	10		10/07APR95	20APR95	27	WKK	RECEIVE DENSE PHASE MCC LOAD INFO																						
GS043	82		82/09MAY95	01SEP95	-25	GAM	Fab/Deliver Pneumatic Conveying Sys (MWK/SCS)																						
SE080104	20		20/09MAY95	06JUN95	23	DLE	PREP CONCRETE & STEEL DESIGN FOR DENSE PHASE																						
SEEMBED1	10		10/09MAY95	22MAY95	33	WKK	DENSE PHASE ELECTRICAL EMBED DESIGN/BM																						
CE080304	20		20/21JUN95	26JUL95	18	NFK	ERECT STEEL & POUR CONCRETE FOR DENSE PHASE																						
GS021	20		20/05SEP95	02OCT95	-25	GAM	Prepare Crushed Coal and Lime Silo DESIGN																						
DENSE PHASE MW KELLOGG																													
CGS044	0		0/05SEP95		5	NFK	Start Installing the Pneumatic Conveying Systems																						
CT000KLIME	16		16/06SEP95	03OCT95	10	NFK	Install MWK's Lime Pneumatic Conveying System																						
CT000COKE	16		16/14SEP95	11OCT95	5	NFK	Install the Coker/Bed Ash Pneumatic System																						
CT000KCOAL	16		16/14SEP95	11OCT95	5	NFK	Install MWK's Coal Pneumatic Conveying System																						
CT500BAGH	16		16/14SEP95	11OCT95	5	NFK	Install Baghouse Ash Pneumatic Conveying System																						
CT500K	16		16/03OCT95	30OCT95	32	NFK	Install MWK's Ash Pneumatic Conveying System																						
CGS044Z	0		0/0	03OCT95	10	NFK	Finish Installing the Limestone Pneumatic System																						
CGS044ZA	0		0/0	11OCT95	5	NFK	Finish Installing Coal/Coke/Ash MWK's System																						
CGS044ZB	0		0/0	30OCT95	32	NFK	Finish Installing Sulfator Ash Pneumatic System																						
DENSE PHASE FOSTER WHEELER																													

Project Start
01JAN91

Project Finish
25JUL96

Data Date
07APR95

Plot Date
25APR95

Progress Bar
Critical Activity

Early Bar

PSR1

SOUTHERN COMPANY SERVICES
POWER SYSTEMS DEVELOPMENT FACILITY
ENG & CONSTRUCTION ACT BY AREA/STEP

Sheet 1 of 30

					1996																	
					D	J	F	M	A	M	J	J	O	N	D	S	A	S	O	N	D	
Activity ID	Dur	Start	Finish	Float	Fabricate/Deliver Pneumatic Conveying System FW																	
					◆ Start Installing the Pneumatic Conveying Systems	■ Install the Coal Pneumatic Conveying System (FW)	■ Install FW's Limestone Pneumatic System	■ Install FW's (2) Ash Pneumatic Conveying System	◆ Finish Installing the Pneumatic Conveying System													
GS043A	65	05SEP95	06DEC95	-16	GAM																	
CGS044F	0	07DEC95		-12	NFK																	
C100FW	16	11DEC95	10JAN96	203	NFK																	
C101FW	16	11DEC95	10JAN96	203	NFK																	
C500FW	16	11DEC95	10JAN96	12	NFK																	
CGS044ZF	0	0	10JAN96	203	NFK																	
I&C WIRING FOR COAL HANDLING																						
SE340T1	20	20JUL95	01AUG95	-16	WKK																	
SEC300011A	20	02AUG95	29AUG95	-16	WKK																	
SE340TA1	20	30AUG95	27SEP95	-16	WKK																	
SE340TB1	20	30AUG95	27SEP95	-16	WKK																	
SE340TC1	10	21SEP95	04OCT95	-16	WKK																	
SE340TD1	8	05OCT95	18OCT95	-13	NFK																	
SE340TE1	8	12OCT95	25OCT95	-13	NFK																	
SE340TF1	4	26OCT95	01NOV95	-13	NFK																	
ELECTRICAL FOR MILLS																						
SE300T1	20	20MAY95	13JUN95	3	WKK																	
SEC300	20	20JUN95	12JUL95	3	WKK																	
SE300TA	20	20JUL95	09AUG95	3	WKK																	
SE300TB	20	20JUL95	23AUG95	3	WKK																	
SE300TD	8	31AUG95	14SEP95	2	NFK																	
SE300TE	8	18SEP95	28SEP95	2	NFK																	
SE300TF	4	09NOV95	15NOV95	-21	NFK																	
ELECTRICAL FOR COAL BELT CONVEYOR																						
SE300T1	20	20APR95	19MAY95	2	WKK																	
SEC300B	20	20MAY95	19JUN95	2	WKK																	
SE300TA1	20	20JUN95	18JUL95	2	WKK																	
SE300TB1	20	20JUL95	01AUG95	2	WKK																	
SE300TD1	8	09AUG95	18AUG95	2	NFK																	
SE300TE1	8	15AUG95	24AUG95	2	NFK																	
SE300TF1	4	26SEP95	29SEP95	-19	NFK																	
ELECTRICAL FOR COAL'S DENSE PHASE																						
SE300T2	20	20MAY95	06JUN95	26	WKK																	
SEC300A	20	20JUN95	05JUL95	26	WKK																	
SE300TA2	20	20JUL95	02AUG95	26	WKK																	
SE300TB2	20	20JUL95	16AUG95	26	WKK																	
SE300TD2	8	8AUG95	07SEP95	20	NFK																	
SE300TE2	8	31AUG95	14SEP95	20	NFK																	
SE300TF2	4	12OCT95	18OCT95	5	NFK																	
COAL & LIMESTONE MILL SYSTEM																						
GS006	5	50APR95	13APR95	440	GAM																	
SEEMBED2	10	07APR95	20APR95	-8	WKK																	
SMCC	10	07APR95	20APR95	-27	GAM																	

										1996																											
										D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D			
Activity ID	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	EAD																															
GS016	11	11	01MAY95	15MAY95	-27	GAM																															
GS018	119	119	01MAY95	17OCT95	-26	GAM																															
CGS019	13	13	18OCT95	08NOV95	-21	NFK																															
COAL RAMP DESIGN																																					
SE080103	10	10	10/APR95	20APR95	4	DLE																															
CE080303	28	28	08MAY95	26JUN95	3	NFK																															
I&C COALLIMESTONE																																					
SG090010	61	61	28MAR95A	03JUL95	-16	JLH																															
SG090020	45	45	01MAY95	03JUL95	-16	JLH																															
SG09030	20	20	02MAY95	30MAY95	58	JLH																															
SG09030A	24	24	31MAY95	12JUL95	46	JLH																															
200-400 PROCESS STRUCTURE																																					
STRUCTURAL STEEL DESIGN																																					
SD013C	37	16	26DEC94A	28APR95	410	DLE																															
SD0012B	76	76	07APR95	25JUL95	47	DLE																															
SD0012A	19	19	01MAY95	25MAY95	410	DLE																															
STRUCTURAL STEEL MATERIAL																																					
SD01930	215	125	29SEP94A	03OCT95	-2	NFK																															
ERECTION SEQUENCE																																					
DCD0210	41	29	20MAR95A	30MAY95	-2	NFK																															
DCD0235	68	60	27MAR95A	25JUL95	3	NFK																															
CD01930F	4	4	01MAY95*	04MAY95	14	NFK																															
DCD0250	0	0		11MAY95	81	NFK																															
DCD0265	12	12	31MAY95	20JUN95	-2	NFK																															
CD01930E	4	4	01JUN95*	06JUN95	86	NFK																															
DCD0230	0	0		08JUN95	66	NFK																															
DCD0240	0	0		08JUN95	66	NFK																															
DCD019BC	0	0		15JUN95	316	NFK																															
CD01930G	3	3	22JUN95*	26JUN95	132	NFK																															
DCD019AB	0	0		27JUL95	19	NFK																															
DCD0225	20	20	31JUL95	31AUG95	19	NFK																															
DCD0260	0	0		27JUL95	39	NFK																															
DCD0255	48	48	05SEP95	28NOV95	19	NFK																															
DCD0220	0	0		20SEP95	72	NFK																															
DCD0270	16	16	29NOV95	28DEC95	19	NFK																															
REFRACTORY PIPING																																					
DCD019ADA	64	64	27MAR95A	11OCT95	-23	NFK																															
DCD019AD	40	40	10APR95*	19JUN95	-23	NFK																															
DCD019ADM	40	40	31MAY95	09AUG95	13	NFK																															
PIPEWAY PIPING																																					
CD019CC	60	46	26DEC94A	12JUN95	-8	NFK																															
REMAINING PIPING																																					
CD019CEM	143	70	26DEC94A	03APR95A		NFK																															

												1995												1996											
		D	J	J	F	M	A	M	J	J	A	S	O	N	D	J	J	F	M	A	M	J	J	A	S	O	N	D							
Activity	Ongr Dur	Kem Dur	Early Start	Early Finish	Early Float	Total Float	EAD																												
DCD019DC	87	82	30MAR95A	01SEP95A		NFK		ERECT PIPE TO ALL REMAINING MWK OF P.S.																											
DCD019DCM	114	114	31MAY95	20DEC95	18	NFK		ERECT PIPE TO ALL REMAINING FW USA OF P.S.																											
F.W. CT & TOPPING COMBUSTOR SLAB																																			
SD019G1	20	20	07APR95	04MAY95	174	DLE		DESIGN SLAB FOR CT & TOPPING COMBUSTOR																											
CD019G1	12	12	22MAY95	03APR95A	138	NFK		POUR SLAB FOR CT & TOPPING COMBUSTOR																											
CD019G2	12	12	08JUL96	25JUL96	-67	NFK																													
MWK THERMAL OXIDIZER PAD																																			
CD019S1	12	12	10APR95	27APR95	-6	NFK		POUR SLAB FOR THERMAL OXIDIZER																											
CD019S2	12	12	22MAY95	12JUN95	-6	NFK		INSTALL THERMAL OXIDIZER (mwk)																											
STACK ERECTION																																			
CD02230A	16	16	10APR95	04MAY95	148	NFK		CONTRACTOR ERECT FW'S PROCESS STACKS																											
OVERHEAD CRANE																																			
SD02030	70	56	06MAR95A	26JUN95	39	DLE		CONTRACTOR FAB & DELIVER OVERHEAD CRANE																											
CD02030	20	20	27JUN95	01AUG95	31	NFK		CONTRACTOR INSTALL OVERHEAD CRANE (MWK & COMMON)																											
ELECTRICAL FOR MWK AIR COMPRESSOR																																			
SE300197A	20	20	07APR95	04MAY95	425	WKK		CIRCUIT INPUT FOR MWK AIR COMPRESSOR FEED																											
SE3001F97	1	1	17JUL95	17JUL95	52	NFK		TERMINATE CONNECTIONS FOR MWK AIR COMPRESSOR																											
ELECTRICAL FOR P8 CRANE																																			
SE300198	20	20	07APR95	04MAY95	40	WKK		WIRING DESIGN FOR OVERHEAD CRANE																											
SE300198A	20	20	05MAY95	02JUN95	40	WKK		CIRCUIT INPUT FOR OVERHEAD CRANE																											
SE3001A98	20	20	05JUN95	30JUN95	40	WKK		RACEWAY DESIGN FOR OVERHEAD CRANE																											
SE3001B98	20	20	05JUN95	30JUN95	40	WKK		CABLE ROUTING DESIGN FOR OVERHEAD CRANE																											
SE3001D98	8	8	11JUL95	24JUL95	32	NFK		INSTALL RACEWAYS FOR OVERHEAD CRANE																											
SE3001E98	4	4	25JUL95	31JUL95	32	NFK		PULL CABLES FOR OVERHEAD CRANE																											
SE3001F98	1	1	20SEP95	20SEP95	4	NFK		TERMINATE CONNECTIONS FOR OVERHEAD CRANE																											
ELECTRICAL FOR ELEVATOR																																			
SE3001A99	20	20	10APR95A	04MAY95	31	WKK		RACEWAY DESIGN FOR THE ELEVATOR																											
SE3001B99	20	20	10APR95A	04MAY95	31	WKK		CABLE ROUTING DESIGN FOR THE ELEVATOR																											
SE300199	20	20	07APR95	04MAY95	16	WKK		WIRING DESIGN FOR THE ELEVATOR FEED																											
SE300199A	20	20	05MAY95	02JUN95	16	WKK		CIRCUIT INPUT FOR THE ELEVATOR FEED																											
SE3001D99	4	4	05JUN95	08JUN95	13	NFK		INSTALL RACEWAYS FOR THE ELEVATOR																											
SE3001E99	4	4	12JUN95	15JUN95	13	NFK		PULL CABLES FOR THE ELEVATOR																											
SE3001F99	1	1	20SEP95	20SEP95	-39	NFK		TERMINATE CONNECTIONS FOR THE ELEVATOR																											
ELECTRICAL LIGHTING TO THE STACKS																																			
SE3001910	20	20	17APR95	12MAY95	72	WKK		STACK LIGHTING DESIGN																											
SE3001A910	20	20	30MAY95	26JUN95	72	WKK		RACEWAY DESIGN FOR STACK LIGHTING																											
SE3001B910	20	20	30MAY95	26JUN95	72	WKK		CABLE ROUTING DESIGN FOR STACK LIGHTING																											
SE3001D910	4	4	05JUL95	10JUL95	72	NFK		INSTALL RACEWAYS FOR STACK LIGHTING																											
SE3001E910	4	4	11JUL95	14JUL95	72	NFK		PULL CABLES FOR STACK LIGHTING																											
SE3001F910	4	4	08NOV95	13NOV95	-9	NFK		TERMINATE CONNECTIONS TO STACK LIGHTING																											
PROCESS STRUCTURE ANALYSIS																																			
SD01811A	21	17	03APR95A	01MAY95	428	DLE		FINALIZE STRUCTURE ANALYSIS DWGS																											
RACEWAY DESIGN																																			

							1996													
							D	J	J	F	M	A	M	J	J	A	S	O	N	D
Activity ID	Orig Dur	Kell Dur	Early Start	Early Finish	Total Float	EAU	FINALIZE DESIGN OF RACEWAY DWG													
SF04591	328	67	03OCT94A	12JUL95	-8	WKK														
CF04590A	98	98	15OCT95A	06NOV95	-22	NFK	PULL CABLES IN PROCESS STRUCTURE (MWK)													
CF04590B	59	59	01NOV95A	20NOV95	-11	NFK	TERMINATE CABLES IN THE PROCESS STRUCTURE (MWK)													
SF0459J	20	20	13JUL95	09AUG95	-8	WKK	REVIEW RACEWAY DWG & BM													
CF04590	44	44	31JUL95*	16OCT95	-13	NFK	INSTALL RACEWAYS IN THE PROCESS STRUCTURE (MWK)													
SF04590	0	0	31JUL95*		0	WKK	DELIVER RACEWAY DWG/BM TO SITE													
HEAT TRACE - FREEZE PROTECTION																				
SF04595	40	40	10MAR95A	02JUN95	46	WKK	PREP BOP FREEZE PROTECTION DWG/BM													
SF04597	0	0	05JUN95		46	WKK	DELIVER BOP FREEZE PROTECTION DWG/BM TO SITE													
CF04597	48	48	12SEP95	05DEC95	-2	NFK	INSTALL FREEZE PROTECTION (BOP & P.S. - MWK)													
HEAT TRACE - P.S. TEMP MAINT.																				
SF04595D	173	89	22NOV94A	11AUG95	-10	WKK	PREP P.S. FREEZE PROTECTION DWG/BM													
CO4597D	0	0		11AUG95	-3	WKK	DELIVER P.S. FREEZE PROTECTION DWG/BM TO SITE													
OPS - KELLOGG TRANSPORT REACTOR to PCD's																				
RDYFIREK	0	0	07APR95		62	C_P	KELLOGG REACTOR READY FOR COAL													
MATERIAL																				
FAH0252	0	0	07APR95*		182	NFK	AH0252 CARBONIZER AIR PREHEATER DELIVERY													
FAH0253	0	0	07APR95*		144	NFK	AH0253 COMBUSTOR AIR PREHEATER DELIVERY													
FAH0254	0	0	07APR95*		182	NFK	AH0254 COMBUSTOR ABOVE GRID AIR PREHEATER													
FAH0255	0	0	07APR95*		144	NFK	AH0255 "HX0253's" AIR PREHEATER													
FCO0252P	1	1	07APR95	07APR95	290	NFK	PULL CABLE TO CO0252 TRANSPORT AIR COMPRESSOR													
FCY0251	0	0	07APR95*		268	NFK	CY0251 CARBONIZER CYCLONE DELIVERY													
FCY0252	0	0	07APR95*		268	NFK	CY0252 COMBUSTOR CYCLONE DELIVERY													
FFD0251P	1	1	07APR95	07APR95	290	NFK	PULL CABLE TO FD0251 SORBENT FEEDER													
FFD0252P	1	1	07APR95	07APR95	290	NFK	PULL CABLE TO FD0252 CARBONIZER COAL FEEDER													
FFD0253P	1	1	07APR95	07APR95	290	NFK	PULL CABLE TO FD0253 COMBUSTOR COAL FEEDER													
FFD0256P	1	1	07APR95	07APR95	290	NFK	PULL CABLE TO FD0256 FINES COOLING SCREW FEEDER													
FFL0254	0	0	07APR95*		268	NFK	FL0254 COAL SURGE HOPPER FILTER DELIVERY													
FFL0255	0	0	07APR95*		182	NFK	FL0255 SORBENT SURGE HOPPER FILTER DELIVERY													
FFN0251P	1	1	07APR95	07APR95	625	NFK	PULL CABLE TO FN0251 CHAR COOLER FAN													
FXH0253	0	0	07APR95*		292	NFK	HX0253 FLUIDIZED BOTTOM ASH COOLER DELIVERY													
FLP0601	0	0	07APR95*		268	NFK	LP0601 CARBONIZER OVERHEAD LINED PIPE													
FLP0613-1	0	0	07APR95*		182	NFK	LP0613-1 CARBONIZER CHAR LINED PIPE													
FLP0613-2	0	0	07APR95*		182	NFK	LP0613-2 CARBONIZER CHAR LINED PIPE													
FLP0613-3	0	0	07APR95*		627	NFK	LP0613-3 CARBONIZER CHAR LINED PIPE													
FLP0803-1	0	0	07APR95*		268	NFK	LP0803-1 CARBONIZER CYCLONE BOTTOMS LINED PIPE													
FLP0803-2	0	0	07APR95*		182	NFK	LP0803-2 CARBONIZER CYCLONE BOTTOMS LINED PIPE													
FLP0803-3	0	0	07APR95*		292	NFK	LP0803-3 CARBONIZER CYCLONE BOTTOMS LINED PIPE													
FLP0910	0	0	07APR95*		144	NFK	LP0910 COMBUSTOR PRI HOT START-UP AIR LINED PIPE													
FLP0913	0	0	07APR95*		182	NFK	LP0913 COMBUSTOR ABOVE GRID START-UP AIR L PIPE													
FLPT334	0	0	07APR95*		144	NFK	LP1334 HX0253 HOT AIR LINED PIPE													
FFG0252	1	1	07APR95	07APR95	143	NFK	RECEIVE PG0252 FUEL GAS AIR BYPASS QUENCH PRG													
KBL0401P	1	1	07APR95	07APR95	197	NFK	PULL CABLE TO BL0401 THERMAL OXIDIZER BLOWER													

[illegible]

1993							1996												
ACTIVITY	ORIG	ITEM	START	FINISH	EDITY	EAU	D	J	F	M	A	M	J	J	A	S	O	N	D
FFD0252	1	1	28APR95*	28APR95		122 NFK													
FFD0253	1	1	28APR95*	28APR95		122 NFK													
FFD0251S	1	1	29APR95	29APR95		268 NFK													
FFD0252S	1	1	29APR95	29APR95		268 NFK													
FFD0253S	1	1	29APR95	29APR95		268 NFK													
F100INST	0	0	05MAY95*			0 NFK													
FAG0253	0	0	05MAY95*			264 NFK													
FAG0254	0	0	05MAY95*			264 NFK													
FINSETS	0	0	05MAY95*			0 NFK													
FINSWCELL	0	0	05MAY95*			0 NFK													
FLP0921	0	0	12MAY95*			257 NFK													
FLP1102	0	0	12MAY95*			257 NFK													
FLP1103	0	0	12MAY95*			147 NFK													
FLP1133	0	0	12MAY95*			147 NFK													
FLP0612	0	0	20MAY95*			139 NFK													
FLP0804-1	0	0	20MAY95*			139 NFK													
FLP0804-2	0	0	20MAY95*			249 NFK													
FLP0806-1	0	0	20MAY95*			139 NFK													
FLP0806-2	0	0	20MAY95*			139 NFK													
FLP0815-1	0	0	20MAY95*			101 NFK													
FLP0815-2	0	0	20MAY95*			249 NFK													
FLP0815-3	0	0	20MAY95*			139 NFK													
FFD0256	1	1	27MAY95*	27MAY95		131 NFK													
FFD0256S	1	1	30MAY95	30MAY95		168 NFK													
FLP0801-1	0	0	03JUN95*			212 NFK													
FLP0801-2	0	0	03JUN95*			212 NFK													
FLP0801-3	0	0	03JUN95*			212 NFK													
FLP0801-4	0	0	03JUN95*			212 NFK													
FLP0802-1	0	0	03JUN95*			126 NFK													
FLP0802-2	0	0	03JUN95*			126 NFK													
FLP0802-3	0	0	03JUN95*			126 NFK													
FLP0802-4	0	0	03JUN95*			126 NFK													
FCO0251	1	1	09JUN95*	09JUN95		81 NFK													
FCO0252	1	1	09JUN95*	09JUN95		81 NFK													
FLP1001-1	0	0	09JUN95*			206 NFK													
FLP1001-2	0	0	09JUN95*			206 NFK													
FLP1001-3	0	0	09JUN95*			206 NFK													
FLP1001-4	0	0	09JUN95*			206 NFK													
FLP1002-1	0	0	09JUN95*			206 NFK													
FLP1002-2	0	0	09JUN95*			206 NFK													
FLP1002-3	0	0	09JUN95*			120 NFK													
FLP1002-4	0	0	09JUN95*			120 NFK													

1995											
D	J	F	M	A	M	J	J	A	S	O	N
D	J	F	M	A	M	J	J	A	S	O	N
Activity ID	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	EAD					
GS259	2	2	18JUL95	19JUL95	-16	GAM					
CGS273Z	20	20	03AUG95	07SEP95	270	NFK	I Revise Ash Handling System P&ID's (D-M-D0800) Install Ash Handling Equipment & Piping FW				
CGS273	20	20	05SEP95	09OCT95	15	NFK	Install Ash Handling Equipment & Piping MWK				
ASH HANDLING SILO											
SJT3230	32	32	03JUL95	28AUG95	24	GAM	CONTRACTOR FAB & DELIVER ASH HANDLING SILO				
CJT3230	20	20	30AUG95	04OCT95	23	NFK	CONTRACTOR ERECT THE ASH HANDLING SILO				
ASH HANDLING CONCRETE											
SJT3330	30	5	24MAR95A	13APR95	62	DLE	FINAL CONCRETE & STEEL DSN FOR ASH HANDLING SYS				
SEEMBED4	10	10	07APR95	20APR95	62	WKK	ASH HANDLING ELECTRICAL EMBED DESIGN/BM				
CJT3330	20	20	08MAY95	12JUN95	49	NFK	POUR THE ASH HANDLING CONCRETE				
ASH HANDLING STEEL											
CGS273S	32	32	05JUL95	29AUG95	23	NFK	Install Ash Handling Steel (Seq #9)				
I&C WIRING DESIGN FOR ASH HANDLING											
SE3001B3A	20	20	31AUG95	28SEP95	-14	WKK	I&C CABLE ROUTING DESIGN FOR ASH HANDLING				
SE3401	10	10	05SEP95	18SEP95	-16	WKK	I&C WIRING DESIGN FOR ASH HANDLING				
SE3401BA	10	10	19SEP95	02OCT95	-16	WKK	I&C CIRCUIT INPUT FOR ASH HANDLING				
SE3401BB	10	10	29SEP95	12OCT95	-14	WKK	I&C CABLE ROUTING DESIGN FOR ASH HANDLING				
SE3401A	10	10	03OCT95	16OCT95	-16	WKK	I&C RACEWAY DESIGN FOR ASH HANDLING				
SE3401B	10	10	17OCT95	30OCT95	-16	WKK	I&C CABLE ROUTING DESIGN FOR ASH HANDLING				
SE3401C	10	10	24OCT95	06NOV95	-16	WKK	I&C BM FOR ASH HANDLING				
SE3401D	8	8	07NOV95	20NOV95	-13	NFK	INSTALL I&C RACEWAYS FOR ASH HANDLING				
SE3401E	8	8	14NOV95	28NOV95	-13	NFK	PULL I&C CABLES FOR ASH HANDLING				
SE3401F	4	4	29NOV95	05DEC95	-13	NFK	TERMINATE I&C CONNECTIONS FOR ASH HANDLING				
ELECTRICAL FOR ASH HANDLING											
SE30013	20	20	06JUL95	02AUG95	-14	WKK	WIRING DESIGN FOR ASH HANDLING				
SE30013A	20	20	03AUG95	30AUG95	-14	WKK	CIRCUIT INPUT FOR ASH HANDLING				
SE3001A3	20	20	31AUG95	28SEP95	-14	WKK	RACEWAY DESIGN FOR ASH HANDLING				
SE3001B3	20	20	29SEP95	26OCT95	-14	WKK	CABLE ROUTING DESIGN FOR ASH HANDLING				
SE3001D3	8	8	06NOV95	16NOV95	-12	NFK	INSTALL RACEWAYS FOR ASH HANDLING				
SE3001E3	8	8	13NOV95	27NOV95	-12	NFK	PULL CABLES FOR ASH HANDLING				
SE3001F3	4	4	28NOV95	04DEC95	-12	NFK	TERMINATE CONNECTIONS FOR ASH HANDLING				
BAGHOUSE & DUCTWORK											
GS259B	5	5	07APR95	13APR95	51	GAM	REVISE FINAL GAS CLEANUP P&ID's (D-M-D0700)				
I&C ASH HANDLING											
SG09160	10	10	20JUL95	02AUG95	-16	JLH	I&C'S REVIEW OF THE P&ID'S OF ASH & FINAL GAS				
SG09040	12	12	03AUG95	18AUG95	-16	JLH	DEV INST INSTALLATION DETAILS (\$-500)/ASH				
SG09160A	10	10	03AUG95	16AUG95	21	JLH	CREATE A BM FOR I&C MATERIAL FOR ASH HANDLING				
SG09050	10	10	21AUG95	01SEP95	-16	JLH	DEV INST LOCP DRAWINGS (\$-500) ASH				
CG09160A	12	12	18SEP95	05OCT95	-16	NFK	INSTALL I&C MATERIAL FOR ASH HANDLING				
OPS - SYSTEM COMPLETE											
FIN500	0	0		09DEC95	-23	NFK	COMPLETE SYSTEM 500 MWK				
700 FINAL GAS CLEANUP											
STACK FOUNDATION											

1995							1996											
D J J F M A M J J A S O N D							D J J F M A M J J A S O N D											
Activity	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	EAU												
PLANT CONTROLS (DCS)																		
SG06035	241	7	02JUN94A	17APR95	19	JLH	VENDOR FAB & DELIVER PLANT CONTROLS											
SG06030A	179	5	03JUN94A	13APR95	440	JLH	VENDOR ENGINEERING OF DCS											
SG06031	0	0	07APR95		154	JLH	VENDOR DELIVER PLANT CONTROLS DRAWINGS											
SG06031A	10	10	07APR95	20APR95	154	JLH	REVIEW VENDOR PLANT CONTROLS DRAWINGS											
CG06030	35	35	02OCT95	30NOV95	34	NFK	INSTALL PLANT CONTROLS MWK											
CG06030A	33	33	02OCT95	31OCT1995A	34	NFK	INSTALL PLANT CONTROLS FW USA											
DATABASE DEVELOPMENT & CONFIGURATION																		
SG06110A	273	128	28AUG94A	08OCT195	-10	JLH	DEVELOP SOFTWARE											
SG01020	152	53	01NOV94A	21JUN95	-10	JLH	PREPARE CONTROL SYSTEM DRAWINGS											
SG06F	100	89	03FEB95A	11AUG95	-10	JLH	DEVELOP DATABASE FINAL											
SG01029	6	6	07APR95	14APR95	10	JLH	CONTROL SYSTEM ACCEPTANCE TEST											
SG01020A	15	15	22JUN95	13JUL95	-9	JLH	FINALIZE CONTROL SYSTEM DRAWINGS											
I&C BULK MATERIAL																		
SG06310	215	105	17OCT94A	05SEP95	-10	JLH	PREPARE FINAL BOM'S FOR I&C BULK MATERIAL											
SG06330	117	117	19APR95	03OCT195	69	JLH	VENDOR FAB & DELIVER I&C BULK MATERIAL											
CG06330	86	86	29JUN95*	30NOV95	34	NFK	INSTALL PLANT BULK MATERIAL MWK											
VENDOR DRAWING REVIEW																		
SG1040BB	154	48	21OCT94A	14JUN95	-10	JLH	VENDOR DRAWING REVIEW'S											
SG01040B	212	149	26DEC94A	08NOV95	-4	JLH	VENDOR's bulk procurement											
VENDOR COORDINATION																		
SG01050E	103	60	03OCT94A	30JUN95	-44	JLH	VENDOR COORDINATION											
PCD LOOP DRAWINGS																		
SG01061	176	113	26DEC94A	15SEP95	10	JLH	PCD LOOP DRAWINGS											
AUTO GAS DETECTION ACT																		
SG01060	113	113	07APR95	15SEP95	10	JLH	AUTO GAS DETECTION ACT											
BOP - WATER ANAL. SPEC																		
SG01100	27	27	16MAY95	22JUN95	0	JLH	RECEIVE/REVIEW THE BOP - WATER ANAL. SPEC BIDS											
SG01100A	0	0		29JUN95	0	JLH	AWARD THE BOP - WATER ANAL. SPEC											
I&C DATA SYSTEMS																		
SG090X	168	105	26DEC94A	05SEP95	-1	JLH	DEV DATA SYS INSTR INSTALLATION DETAILS (MASTER)											
SG090Y	109	109	07MAY95	03OCT195	107	JLH	DEV INST LOOP DRAWINGS (MASTER) DATA SYS											
Uncategorized																		
CG06330A	84	84	23MAY95	19OCT195	55	NFK	INSTALL PLANT BULK MATERIAL FW USA											
2000 BOILERISTEAMCONDENSATE																		
CONDENSATE PUMPS																		
GS299	20	20	07APR95	04MAY95	44	GAM	Red/Rev Feedwater Condensate Pump Vendor Drawings											
SMCC5	10	10	07APR95	20APR95	27	GAM	GET FEED/COND PUMP MCC LOAD INFO TO ELECTRICAL											
GS301	51*	51*	05MAY95	18JUL95	44	GAM	FAB & DEL CONDENSATE PUMPS PU2000A&B / PU2001A&B											
CK13830	2	2	19JUL95	20JUL95	39	NFK	B SET CONDENSATE PUMPS PU2000A&B (MWK)											
CK13830F	2	2	19JUL95	20JUL95	35	NFK	B SET CONDENSATE PUMPS PU2001A&B (FW)											
CONDENSATE PIPING																		
SK13932	20	20	21APR95	18MAY95	72	GAM	PROCURE & DELIVER (MWK) CONDENSATE PIPING											

						1995												1996																
						D	J	J	M	A	M	J	J	F	M	A	M	J	J	A	S	O	N	D	J	A	S	O	N	D				
Activity ID	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	EAD																												
CONDENSATE STORAGE TANK							PROCURE & DELIVER (FW) CONDENSATE PIPING																											
SK13932F	20	20	21APR95	18MAY95	78	GAM																												
CONDENSATE STORAGE TANK																																		
SK14030A	30	30	10APR95	18MAY95	237	NFK	FIELD INSTALL FW's CONDENSATE TANK (EXISTING)																											
CR17730A	12	12	10APR95	27APR95	67	NFK	CLEAN & MOVE DEMIN & CONDENSATE STORAGE TANKS																											
SK14030	2	2	20JUN95	21JUN95	49	NFK	MOVE MWK's CONDENSATE TANK (EXISTING) TK2000																											
SK14030F	2	2	22JUN95	23JUN95	67	NFK	MOVE FW's CONDENSATE TANK (EXISTING) TK2001																											
CONDENSATE PUMPTANK FOUNDATION																																		
CK14030	28	28	10APR95	25MAY95	39	NFK	POUR CONC FND FOR CONDENSATE PUMPS/TANK																											
AUX BOILER																																		
GS503	27	27	10APR95	15MAY95	-27	GAM	Modify & Review AUX BOILER System Specifications																											
GS506	20	20	16MAY95	13JUN95	-27	GAM	Evaluate AUX BOILER System Bids																											
GS509	30	30	14JUN95	26JUL95	-27	GAM	Review AUX BOILER System Vendor Drawings																											
GS511D	0	0		26JUL95	53	GAM	DEL AUX BOILER System Detail Drawings to SITE																											
SEEMBED6	10	10	27JUL95	09AUG95	3	WKK	ELECTRICAL EMBED DESIGN/IBM FOR AUX BOILER																											
SK14745	22	22	27JUL95	25AUG95	31	GAM	CONTRACTOR FAB & DELIVER AUX BOILER																											
SK14750	10	10	27JUL95	09AUG95	-7	DLE	PREP CONC FND FOR AUX BOILER																											
SK14750D	0	0		09AUG95	-7	DLE	DEL CONC FND DWGS FOR AUX BOILER																											
CK14760	12	12	11SEP95	28SEP95	-6	NFK	POUR CONC FND FOR AUX BOILER																											
CK14755	8	8	23OCT95	02NOV95	-6	NFK	ERECT AUX BOILER SYSTEM																											
HEAT EXCHANGER																																		
SL15130	59	59	10APR95	29JUN95	-5	GAM	VENDOR FAB & DELIVER CONDENSATE HEAT EXCHANGER'S																											
CL15130	1	1	10JUL95	03JUL95	33	NFK	ERECT CONDENSATE HX2002, HX2003, HX2004 (MWK)																											
CL15130F	1	1	10JUL95	03JUL95	37	NFK	ERECT CONDENSATE HX2001 (FW)																											
I&C WIRING FOR FEEDWATER/CONDENSATE																																		
SE340T2	10	10	18JUL95	31JUL95	-12	WKK	I&C WIRING DESIGN FOR FEEDWATER/CONDENSATE																											
SE340TB2A	10	10	10AUG95	14AUG95	-12	WKK	I&C CIRCUIT INPUT FOR FEEDWATER/CONDENSATE																											
SE340TA2	10	10	15AUG95	28AUG95	-12	WKK	I&C RACEWAY DESIGN FOR FEEDWATER/CONDENSATE																											
SE340TB2	10	10	29AUG95	12SEP95	-12	WKK	I&C CABLE ROUTING DSGN FOR FEEDWATER/CONDENSATE																											
SE340TC2	10	10	29AUG95	12SEP95	-12	WKK	I&C BM FOR FEEDWATER/CONDENSATE																											
SE340TD2	8	8	19SEP95	02OCT95	-9	NFK	INSTALL I&C RACEWAYS FOR FEEDWATER/CONDENSATE																											
SE340TE2	8	8	26SEP95	09OCT95	-9	NFK	PULL I&C CABLES FOR FEEDWATER/CONDENSATE																											
SE340TF2	4	4	10OCT95	16OCT95	-9	NFK	TERMINATE I&C FOR FEEDWATER/CONDENSATE																											
ELECTRICAL FOR AUX BOILER																																		
SE300T6	20	20	27JUL95	23AUG95	-27	WKK	WIRING DESIGN FOR THE AUX BOILER																											
SE300TB6A	20	20	24AUG95	21SEP95	-27	WKK	CIRCUIT INPUT FOR THE AUX BOILER																											
SE300TA6	20	20	22SEP95	19OCT95	-27	WKK	RACEWAY DESIGN FOR THE AUX BOILER																											
SE300TB6	20	20	06OCT95	02NOV95	-27	WKK	CABLE ROUTING DESIGN FOR THE AUX BOILER																											
SE300TD6	8	8	13NOV95	27NOV95	-22	NFK	INSTALL RACEWAYS FOR THE AUX BOILER																											
SE300TE6	8	8	20NOV95	04DEC95	-22	NFK	PULL CABLES FOR THE AUX BOILER																											
SE300TF6	4	4	05DEC95	11DEC95	-22	NFK	TERMINATE CONNECTIONS TO THE AUX BOILER																											
ELECTRICAL FOR FEEDWATER/CONDENSATE PUMPS																																		
SE300T7	10	10	05MAY95	18MAY95	55	WKK	WIRING DESIGN FOR FEED/COND PUMPS																											
SE300TB7A	5	5	19MAY95	25MAY95	55	WKK	CIRCUIT INPUT FOR FEED/COND PUMPS																											

										1996															
										1995															
										D	J	J	F	M	A	M	A	M	J	J	A	S	O	N	D
										O N D J F M A M J J A S O N D															
Activity	ID	Qty	Dur	Rem	Qty	Start	Finish	Units	Float																
										RACEWAY DESIGN FOR FEED/COND PUMPS															
SE300TA7		10	10		10	26MAY95	09JUN95	66	WKK	CABLE ROUTING DESIGN FOR FEED/COND PUMPS															
SE300TB7		10	10		10	05JUN95	16JUN95	66	WKK	INSTALL RACEWAYS FOR FEED/COND PUMPS															
SE300TD7		4	4		4	26JUN95	29JUN95	52	NFK	PULL CABLES FOR FEED/COND PUMPS															
SE300TE7		4	4		4	03JUL95	10JUL95	52	NFK	TERMINATE CONNECTIONS-PU2000A&B CONDENSATE PUMPS															
SE300TF7		2	2		2	20SEP95	21SEP95	12	NFK	TERMINATE CONNECTIONS-PU2001A&B CONDENSATE PUMPS															
SE300TF7F		4	4		4	20SEP95	26SEP95	2	NFK																
										BOILER/STEAM/CONDENSATE															
SG096D		10	10		10	10APR95	20APR95	72	GAM	REVIEW/DEL Feedwater/Condensate DWGS/BM TO SITE															
CGS130A		16	16		16	05JUL95	01AUG95	33	NFK	INSTALL CONDENSATE WATER PIPING SYSTEM (MWK)															
CGS130AF		12	12		12	05JUL95	25JUL95	37	NFK	INSTALL CONDENSATE WATER PIPING SYSTEM (FW)															
										I&C STEAM/CONDENSATE															
SG09180		5	5		5	10APR95	13APR95	-12	JLF	REVIEW & CRITIQUE THE STEAM/COND P&ID'S															
SG09060		31	31		31	14APR95	26MAY95	-12	JLF	DEV STM/COND INSTR INSTALLATION DETAILS (S-2000)															
SG09190		23	23		23	14APR95	16MAY95	90	JLF	CREATE AN I&C BM FOR SYSTEM 2000 STEAM/COND															
SG09070		34	34		34	30MAY95	17JUL95	-12	JLF	DEV INST LOOP DRAWINGS (S-2000) STEAM/COND															
										OPS - SYSTEM COMPLETE															
FIN2000		1	1		1	16DEC95	16DEC95	3/8	NFK	COMPLETE SYSTEM 2000 (MWK SIDE)															
										2100 COOLING SERVICE WATER															
										COOLING TOWER															
GS111		1	1		1	12APR95*	12APR95	-2	GAM	I Receive/Evaluate Cooling Tower Bldgs															
SMCC8		10	10		10	13APR95	26APR95	-2	GAM	GIVE COOLING TOWER MCC LOAD INFO TO ELECTRICAL															
GS114		30	30		30	28APR95	09JUN95	-40	GAM	Review Cooling Tower Vendor Dwg's															
GS115		90	90		90	12JUN95	17OCT95	-40	GAM	Fabricate/Deliver Cooling Tower															
CL13530		16	16		16	18OCT95	14NOV95	-32	NFK	ERECT COOLING TOWER															
										COOLING TOWER FOUNDATIONS															
SL13530		20	20		20	13APR95	10MAY95	11	DLE	PREP COOLING TOWER CONCRETE FOUNDATIONS															
SL13530D		0	0		0		10MAY95	11	DLE	DEL COOLING TOWER CONCRETE FOUNDATION DWGS															
CL13530		20	20		20	12JUN95	17JUL95	8	NFK	POUR COOLING TOWER CONCRETE FOUNDATIONS															
										INTAKE STRUCTURE MODS															
SL007		15	15		15	07APR95	27APR95	85	DLE	DESIGN INTAKE STRUCTURE MODS															
CL007		20	20		20	28APR95	25MAY95	85	DLE	ERECT INTAKE STRUCTURE MODS															
SL006		0	0		0		27APR95	67	DLE	DEL THE INTAKE STRUCTURE MODS DWGS TO SITE															
										PRIMARY COOLING WATER PUMPS															
CL14430		16	16		16	12JUL95	08AUG95	23	NFK	INSTALL CIRC WATER PUMPS PU2103A,B,C,D															
SMCC9		10	10		10	26JUL95	08AUG95	-61	GAM	GIVE CIRC WATER PUMP MCC LOAD TO ELECTRICAL															
										COOLING WATER PIPING															
GS104		24	24		24	10FEB95A	17APR95	27	GAM	Prepare Circ/Cooling Water Piping Design															
GS102		5	5		5	11APR95	17APR95	27	GAM	Prepare Circ/Cooling Water Piping P&ID's (4 DWG)															
GS2109		20	20		20	17APR95*	12MAY95	89	GAM	PREPARE CIRC WATER SYSTEM DWGS															
SL14532		20	20		20	18APR95	15MAY95	398	GAM	PROCURE & DELIVER COOLING WATER PIPING															
GS128		10	10		10	15MAY95*	26MAY95	79	GAM	Prepare Circ/Cooling Water Detail Design Dwgs															
										COOLING WATER PUMP FOUNDATIONS															
SEEMBED8		10	10		10	10APR95	20APR95	50	WKK	ELEC EMBED DESIGN CIRC WATER PUMP FND															

										1995												1996											
Activity		Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	EAD	D	J	J	F	M	A	M	A	M	J	J	A	S	O	N	D	J	J	A	S	O	N	D			
SE3001A9U		10	10	28APR95	11MAY95	85	WKK																										
SE3001B9U		10	10	12MAY95	25MAY95	85	WKK																										
SE3001D9U		4	4	05JUN95	08JUN95	68	NFK																										
SE3001E9U		4	4	12JUN95	15JUN95	68	NFK																										
SE3001F9U		2	2	20SEP95	21SEP95	16	NFK																										
ELECTRICAL FOR COOLING WATER PUMPS																																	
SE30019V		10	10	07APR95	20APR95	90	WKK																										
SE3001B9AV		5	5	21APR95	27APR95	90	WKK																										
SE3001A9V		10	10	28APR95	11MAY95	90	WKK																										
SE3001B9V		10	10	12MAY95	25MAY95	90	WKK																										
SE3001D9V		4	4	05JUN95	08JUN95	72	NFK																										
SE3001E9V		4	4	12JUN95	15JUN95	72	NFK																										
SE3001F9V		2	2	20SEP95	21SEP95	20	NFK																										
ELECTRICAL FOR CT MAKE-UP WATER PUMPS																																	
SE30019W		10	10	07APR95	20APR95	75	WKK																										
SE3001B9AW		5	5	21APR95	27APR95	75	WKK																										
SE3001A9W		10	10	28APR95	11MAY95	75	WKK																										
SE3001B9W		10	10	12MAY95	25MAY95	75	WKK																										
SE3001D9W		4	4	05JUN95	08JUN95	60	NFK																										
SE3001E9W		4	4	12JUN95	15JUN95	60	NFK																										
SE3001F9W		2	2	20SEP95	21SEP95	8	NFK																										
ELECTRICAL FOR RAW WATER PUMPS																																	
SE30019X		10	10	07APR95	20APR95	37	WKK																										
SE3001B9AX		5	5	21APR95	27APR95	37	WKK																										
SE3001A9X		10	10	28APR95	11MAY95	37	WKK																										
SE3001B9X		10	10	12MAY95	25MAY95	37	WKK																										
SE3001D9X		4	4	05JUN95	08JUN95	30	NFK																										
SE3001E9X		4	4	12JUN95	15JUN95	30	NFK																										
SE3001F9X		2	2	09AUG95	10AUG95	1	NFK																										
COOLING/CIRC WATER																																	
CGS130		16	16	19JUN95	17JUL95	300	NFK																										
CGS130CW		16	16	15NOV95	13DEC95	32	NFK																										
SERVICE WATER SYSTEM																																	
GS135		6"	7"	13JAN95A	17APR95	45	GAM																										
GS134		5	5	07APR95	13APR95	47	GAM																										
GS137		20	20	18APR95	15MAY95	45	GAM																										
SEEMBED9		10	10	16MAY95	30MAY95	55	WKK																										
SL74931		10	10	16MAY95	30MAY95	45	DLE																										
SL74931D		0	0		30MAY95	45	DLE																										
CGS139		2	2	26JUN95	27JUN95	22	NFK																										
CL74931		2	2	28JUN95	29JUN95	36	NFK																										
RAW WATER																																	
CI09130A		60"	12"	16JAN95A	27APR95	343	NFK																										
ERECT RAW WATER PIPE																																	

1996							1996														
							D	J	J	F	M	A	M	J	J	A	S	O	N	D	
Activity	ID	Orig Dur	Rev Dur	Early Start	Early Finish	Total Float															
CF04597C		16	16	26JUN95	24JUL95	-47	NFK														
SF04597C		0	0	26JUN95		-59	WKK														
2400 FIRE PROTECTION																					
FIRE PROT GEN ARRANGEMENT																					
DC0162COA		33	33	10APR95	06JUN95	-6	NFK														
DC0162055		2	2	10APR95	11APR95	24	NFK														
DC0162015		2	2	30MAY95	31MAY95	-2	NFK														
DC0162000		1	1	01JUN95	01JUN95	-2	NFK														
DC0162010		5	5	07JUN95	11JUN95	-12	NFK														
ELECTRICAL FOR FIRE PUMP HOUSE																					
SE3001D93		8	8	10APR95	20APR95	46	NFK														
SE3001E93		8	8	17APR95	27APR95	46	NFK														
SE3001F93		4	4	20SEP95	26SEP95	-33	NFK														
FIRE PROTECTION WATER SYSTEM																					
GS193		5	5	07APR95	13APR95	139	GAM														
FIRE PROTECTION PROCESS STRUCTURE																					
GS200		22	22	01MAY95	31MAY95	86	GAM														
GS199		0	0		31MAY95	86	GAM														
GS201		20	20	01JUN95	28JUN95	86	GAM														
GS201A		16	16	29JUN95	27JUL95	68	NFK														
GS201AA		16	16	31JUL95	24AUG95	68	NFK														
FIRE PROT PUMP CONTROL																					
SGF305		10	10	07APR95	20APR95	-2	NFK														
SGF0306B		10	10	24APR95	09MAY95	-2	NFK														
SGF0306C		10	10	10MAY95	25MAY95	-2	NFK														
2500 WASTE WATER TREATMENT																					
WASTE WATER GENERAL ARRANGEMENT																					
GS205A		10	6	24MAR95A	14APR95	31	GAM														
GS209		40	20	07APR95	04MAY95	-73	GAM														
GS205		5	5	10APR95	14APR95	31	GAM														
GS210		1	1	05MAY95	05MAY95	-73	GAM														
GS212		1	1	08MAY95	08MAY95	68	NFK														
OIL SEPARATOR																					
CP16930		12	12	14AUG95	31AUG95	-11	NFK														
CHEMICAL INJECTION PUMP																					
SST17930		65	65	08MAY95	08AUG95	-73	GAM														
CS17930		2	2	09AUG95	10AUG95	-58	NFK														
ELECTRICAL FOR WASTE WATER PUMPS																					
SE30019XA		10	10	07APR95	20APR95	70	WKK														
SE30019XB		5	5	21APR95	27APR95	70	WKK														
SE30019XC		10	10	28APR95	11MAY95	70	WKK														
SE30019XD		10	10	12MAY95	25MAY95	70	WKK														
IE30019XF		4	4	05JUN95	08JUN95	56	NFK														

Activity ID	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	EAD
I&C DEMIN						
SG09240	5		14APR95	20APR95	24	JUL
SG09120	20		21APR95	18MAY95	53	JUL
SG09130	10		27APR95	10MAY95	53	JUL
SG09250	33		04MAY95	20JUN95	24	JUL
CG09139	25		28JUN95	10AUG95	19	JUL
2800 SAFETY/SECURITY						
PROCESS & AREA LIGHTING						
CF04530B	71	16	03JAN95A	04MAY95	81	NFK
SF04510CA	37	37	07APR95	30MAY95	-10	WKK
SF04511	50	50	07APR95	16JUN95	-3	WKK
SF04510C	5	5	31MAY95	06JUN95	-1	WKK
SF04526C	1	1	07JUN95	07JUN95	-1	WKK
SF04530C	30	30	08JUN95	20JUL95	-1	WKK
CF04530	60	60	19JUN95	03OCT95	-2	NFK
CF04532	40	40	24JUL95	02OCT95	-1	NFK
FENCING						
CA02A045A	21	21	03JUN96	08JUL96	12	NFK
OPS - SYSTEM COMPLETE						
FIN2800	0	0		03OCT95	-5	NFK
2800 MISC UTILITIES						
PIPE TRENCH						
CE400	24	24	08MAY95	19JUN95	315	NFK
SPEC FOR MISC PUMP'S						
GS295D	20	20	07APR95	04MAY95	-61	GAM
GS297C	21	21	12MAY95	12JUN95	-61	GAM
GS299C	30	30	13JUN95	25JUL95	-61	GAM
GS299D	20	20	13JUN95	11JUL95	-38	GAM
POTABLE WATER SYSTEM						
SS18430	20	20	07APR95	04MAY95	-4	GAM
CS18430	16	16	08MAY95	05JUN95	-4	NFK
CE400A	8	8	12JUL95	25JUL95	-30	NFK
SANITARY WATER SYSTEM						
SS18630	82	10	28NOV94A	20APR95	435	GAM
I&C WIRING FOR MISC UTILITIES						
SE340133	10	10	26JUN95	10JUL95	25	WKK
SE3401B33A	5	5	17JUL95	17JUL95	25	WKK
SE3401A33	10	10	18JUL95	31JUL95	25	WKK
SE3401B33	10	10	07AUG95	14AUG95	25	WKK
SE3401C33	10	10	07AUG95	14AUG95	25	WKK
SE3401D33	4	4	27AUG95	24AUG95	20	NFK
SE3401E33	4	4	28AUG95	37AUG95	20	NFK
SE3401F33	2	2	05SEP95	06SEP95	20	NFK

										1996												
										1995												
										D	J	J	F	M	A	M	A	M	J	J	A	S
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												
										D												
										S												
										O												
										N												

										1995												1996																							
										D	J	J	M	A	M	J	J	F	M	A	M	J	J	A	S	O	N	D																	
Activity ID	Ong Dur	Rem Dur	Early Start	Early Finish	Total Float	EAD																																							
#4 480V SWITCHGEAR																																													
CFXA3024C	4	4	4/22JUN95	28JUN95	4	NFK																						■	INSTALL NO. 4 480 SWITCHGEAR - SWITCHGEAR BLDG.																
CFXF4-ASH	4	4	4/07SEP95	13SEP95	26	NFK																						■	PULL CABLE TO ASH MCC																
CFXF4-CH	4	4	4/07SEP95	13SEP95	-15	NFK																						■	PULL CABLE TO COAL HANDLING MCC																
CFXF4-ESS4	4	4	4/07SEP95	13SEP95	-1	NFK																						■	PULL CABLE TO ESS4 MCC																
CFXF4-ASHT	2	2	2/14SEP95	18SEP95	26	NFK																						■	TERMINATE CABLE TO ASH MCC																
CFXF4-CHT	2	2	2/14SEP95	18SEP95	-15	NFK																						■	TERMINATE CABLE TO COAL HANDLING MCC																
CFXF4-ES4T	2	2	2/14SEP95	18SEP95	-1	NFK																						■	TERMINATE CABLE TO ESS4 MCC																
#5 480V SWITCHGEAR																																													
CFXA3024D	4	4	4/08MAY95	11MAY95	30	NFK																						■	INSTALL NO. 5 480 SWITCHGEAR - ADMIN. BLDG.																
CFXF5-ESS1	4	4	4/07SEP95	13SEP95	10	NFK																						■	PULL CABLE TO ESS1 MCC																
CFXF5-ESS2	4	4	4/07SEP95	13SEP95	-33	NFK																						■	PULL CABLE TO ESS2 MCC																
CFXF5-ESS3	4	4	4/07SEP95	13SEP95	26	NFK																						■	PULL CABLE TO ESS3 MCC																
CFXF5-ES1T	2	2	2/14SEP95	18SEP95	10	NFK																						■	TERMINATE CABLE TO ESS1 MCC																
CFXF5-ES2T	2	2	2/14SEP95	18SEP95	-33	NFK																						■	TERMINATE CABLE TO ESS2 MCC																
CFXF5-ES3T	2	2	2/14SEP95	18SEP95	26	NFK																						■	TERMINATE CABLE TO ESS3 MCC																
SWITCHGEAR BUILDING																																													
SF04601	10	16	02MAR95A	28APR95	429	DLE																						■	SWITCHGEAR BUILDING DESIGN																
SF04601L	5	5	07APR95	13APR95	34	DLE																						■	SWITCHGEAR BUILDING LOUVER DESIGN																
SF04601LA	19	19	14APR95	10MAY95	34	DLE																						■	DELIVER SWITCHGEAR BUILDING LOUVERS																
CF04601	12	12	10MAY95	31MAY95	-23	NFK																						■	ERECT SWITCHGEAR BUILDING BLOCK WALLS																
CF04601L	8	8	11MAY95	24MAY95	27	DLE																						■	INSTALL SWITCHGEAR BUILDING LOUVERS																
CF04601R	12	12	01JUN95	21JUN95	-23	NFK																						■	ERECT SWITCHGEAR BUILDING ROOF & DECKING																
SWITCHGEAR BUILDING FOUNDATION																																													
CF046001	8	8	12APR95	25APR95	-23	NFK																						■	POUR SWITCHGEAR BUILDING FOUNDATION																
CABLE TRAYS																																													
CF03230	56"	48"	27MAR95A	29SEP95A		NFK																						■	INSTALL CABLE TRAYS																
INSTRUMENT CABLE																																													
SF03430	58	58	11APR95	30JUN95	31	WKK																						■	CONTRACTOR FAB & DELIVER I&C CABLE																
CF03430A	78	78	03JUL95	16NOV95	25	NFK																						■	PULL & TERM FW'S ELECTRICAL CABLE																
POWER CABLE																																													
SF03530	58	58	11APR95	30JUN95	-3	WKK																						■	CONTRACTOR FAB & DELIVER POWER CABLE																
CABLE ROUTING																																													
SF037A	232	155	05DEC94A	14NOV95	-10	WKK																						■	CABLE ROUTING DESIGN																
SF03670	185	163	01FEB95A	28NOV95	177	WKK																						■	RELEASE CABLE ROUTING INSTALL CARDS																
SF037B	19	19	29NOV95	27DEC95	177	WKK																						■	INCORPORATE MWK INTO CABLE ROUTING DESIGN																
SF037C	19	19	29NOV95	27DEC95	177	WKK																						■	INCORPORATE FW INTO CABLE ROUTING DESIGN																
ELECTRICAL BULKS																																													
SF03726	119	100	27FEB95A	28AUG95	-10	WKK																						■	DELIVER ELECTRICAL BULKS BM AS WE COMPLETE																
SF03730	114"	104"	24MAR95A	01SEP95	85	NFK																						■	PROCURE ELEC BULKS AS NEEDED																
WIRING DESIGN																																													
SF038C	29	10	26DEC94A	20APR95	-43	WKK																						■	PREP WIRING DIAGRAMS																
SF038D	9	9	21APR95	03MAY95	-43	WKK																						■	PREP WIRING DIAGRAMS																

										1995												1996											
Activity		Orig	Rem	Early	Early	Early	Total	EAD																									
ID		Dur	Dur	Start	Finish	Float			D	J	F	M	A	M	J	J	A	S	O	N	D												
CF-CH-S12		4	4	19SEP95	25SEP95	5 NFK																											
CF-CH-S13		4	4	19SEP95	25SEP95	5 NFK																											
CF-CH-S14		4	4	19SEP95	25SEP95	5 NFK																											
CF-CH-S15		4	4	19SEP95	25SEP95	5 NFK																											
CF-CH-S16		4	4	19SEP95	25SEP95	-15 NFK																											
CF-CH-S17		4	4	19SEP95	25SEP95	5 NFK																											
CF-CH-S18		4	4	19SEP95	25SEP95	5 NFK																											
CF-CH-S19		4	4	19SEP95	25SEP95	5 NFK																											
CF-CH-S20		4	4	19SEP95	25SEP95	5 NFK																											
CF-CH-S21		4	4	19SEP95	25SEP95	5 NFK																											
CF-CH-S22		4	4	19SEP95	25SEP95	5 NFK																											
COOLING TOWER MCC #1																																	
CF-C11		4	4	30AUG95	06SEP95	10 NFK																											
CF-C1-S08		1	1	19SEP95	19SEP95	14 NFK																											
CF-C11-S01		1	1	19SEP95	19SEP95	10 NFK																											
CF-C11-S02		1	1	19SEP95	19SEP95	10 NFK																											
CF-C11-S03		1	1	19SEP95	19SEP95	10 NFK																											
CF-C11-S04		1	1	19SEP95	19SEP95	10 NFK																											
CF-C11-S05		1	1	19SEP95	19SEP95	10 NFK																											
CF-C11-S06		1	1	19SEP95	19SEP95	10 NFK																											
CF-C11-S07		1	1	19SEP95	19SEP95	14 NFK																											
COOLING TOWER #2																																	
CF-C12		4	4	30AUG95	06SEP95	5 NFK																											
CF-C12-S01		1	1	19SEP95	19SEP95	5 NFK																											
CF-C12-S02		1	1	19SEP95	19SEP95	264 NFK																											
ESSENTIAL #1 MCC																																	
CF-ESS1		4	4	30AUG95	06SEP95	10 NFK																											
CF-ES1-S01		1	1	19SEP95	19SEP95	10 NFK																											
CF-ES1-S02		1	1	19SEP95	19SEP95	10 NFK																											
CF-ES1-S03		1	1	19SEP95	19SEP95	10 NFK																											
CF-ES1-S04		1	1	19SEP95	19SEP95	10 NFK																											
CF-ES1-S05		1	1	19SEP95	19SEP95	10 NFK																											
CF-ES1-S06		1	1	19SEP95	19SEP95	14 NFK																											
CF-ES1-S07		1	1	19SEP95	19SEP95	14 NFK																											
ESSENTIAL #2 MCC																																	
CF-ESS2		4	4	30AUG95	06SEP95	-33 NFK																											
CF-ES2-S01		1	1	19SEP95	19SEP95	72 NFK																											
CF-ES2-S02		1	1	19SEP95	19SEP95	8 NFK																											
CF-ES2-S03		1	1	19SEP95	19SEP95	264 NFK																											
CF-ES2-S04		1	1	19SEP95	19SEP95	72 NFK																											
CF-ES2-S05		1	1	19SEP95	19SEP95	2 NFK																											
CF-ES2-S06		1	1	19SEP95	19SEP95	20 NFK																											
CF-ES2-S07		1	1	19SEP95	19SEP95	264 NFK																											

1995												1996											
Activity		Orig	Rem	Early	Early	Finish	Total	EAD															
ID		Dur	Dur	Start	Start	Finish	Float	Float															
CF-FW2-S07		1	1	19SEP95	19SEP95	19SEP95	6	NFK															
CF-FW2-S08		1	1	19SEP95	19SEP95	19SEP95	39	NFK															
CF-FW2-S9		1	1	19SEP95	19SEP95	19SEP95	16	NFK															
MWK #1 MCC																							
CF-MWK1		4	4	30AUG95	06SEP95	06SEP95	13	NFK															
CF-MWK-S01		1	1	19SEP95	19SEP95	19SEP95	26	NFK															
CF-MWK-S02		1	1	19SEP95	19SEP95	19SEP95	24	NFK															
CF-MWK-S03		1	1	19SEP95	19SEP95	19SEP95	24	NFK															
CF-MWK-S04		1	1	19SEP95	19SEP95	19SEP95	25	NFK															
CF-MWK-S05		1	1	19SEP95	19SEP95	19SEP95	30	NFK															
CF-MWK-S06		1	1	19SEP95	19SEP95	19SEP95	14	NFK															
CF-MWK-S07		1	1	19SEP95	19SEP95	19SEP95	13	NFK															
CF-MWK-S08		1	1	19SEP95	19SEP95	19SEP95	13	NFK															
CF-MWK-S09		1	1	19SEP95	19SEP95	19SEP95	13	NFK															
CF-MWK-S10		1	1	19SEP95	19SEP95	19SEP95	13	NFK															
CF-MWK-S11		1	1	19SEP95	19SEP95	19SEP95	18	NFK															
CF-MWK-S12		1	1	19SEP95	19SEP95	19SEP95	18	NFK															
CF-MWK-S13		1	1	19SEP95	19SEP95	19SEP95	27	NFK															
CF-MWK-S14		1	1	19SEP95	19SEP95	19SEP95	27	NFK															
CF-MWK-S15		1	1	19SEP95	19SEP95	19SEP95	74	NFK															
CF-MWK-S16		1	1	19SEP95	19SEP95	19SEP95	76	NFK															
CF-MWK-S17		1	1	19SEP95	19SEP95	19SEP95	76	NFK															
CF-MWK-S18		1	1	19SEP95	19SEP95	19SEP95	20	NFK															
CF-MWK-S19		1	1	19SEP95	19SEP95	19SEP95	264	NFK															
MWK #2 MCC																							
CF-MWK2		4	4	30AUG95	06SEP95	06SEP95	4	NFK															
CF-MK2-S01		1	1	19SEP95	19SEP95	19SEP95	264	NFK															
CF-MK2-S02		1	1	19SEP95	19SEP95	19SEP95	12	NFK															
CF-MK2-S03		1	1	19SEP95	19SEP95	19SEP95	12	NFK															
CF-MK2-S04		1	1	19SEP95	19SEP95	19SEP95	20	NFK															
CF-MK2-S05		1	1	19SEP95	19SEP95	19SEP95	20	NFK															
CF-MK2-S06		1	1	19SEP95	19SEP95	19SEP95	4	NFK															
CF-MK2-S07		1	1	19SEP95	19SEP95	19SEP95	4	NFK															
US TURBINE MCC																							
CF-UST		4	4	30AUG95	06SEP95	06SEP95	71	NFK															
CF-UST-S01		1	1	19SEP95	19SEP95	19SEP95	71	NFK															
CF-UST-S02		1	1	19SEP95	19SEP95	19SEP95	71	NFK															
CF-UST-S03		1	1	19SEP95	19SEP95	19SEP95	71	NFK															
CF-UST-S04		1	1	19SEP95	19SEP95	19SEP95	71	NFK															
CF-UST-S05		1	1	19SEP95	19SEP95	19SEP95	71	NFK															
CF-UST-S06		1	1	19SEP95	19SEP95	19SEP95	71	NFK															
CF-UST-S07		1	1	19SEP95	19SEP95	19SEP95	71	NFK															
BOP #1 MCC																							

Activity		Ung Dur	Rem Dur	Early Start	Early Finish	Total Float	EAD
ID							
1995 1996 D J F M A M J J A S O N D J F M A M J J A S O N D							
CF-UT1		4	4	30AUG95	06SEP95	20	NFK
CF-UT1-S01		1	1	19SEP95	19SEP95	5	NFK
CF-UT1-S02		1	1	19SEP95	19SEP95	20	NFK
CF-UT1-S03		1	1	19SEP95	19SEP95	20	NFK
BOP #2 MCC							
CF-UT2		4	4	30AUG95	06SEP95	5	NFK
CF-UT2-S01		1	1	19SEP95	19SEP95	264	NFK
CF-UT2-S02		1	1	19SEP95	19SEP95	20	NFK
CF-UT2-S03		1	1	19SEP95	19SEP95	20	NFK
CF-UT2-S04		1	1	19SEP95	19SEP95	20	NFK
CF-UT2-S05		1	1	19SEP95	19SEP95	36	NFK
CF-UT2-S06		1	1	19SEP95	19SEP95	25	NFK
CF-UT2-S07		1	1	19SEP95	19SEP95	72	NFK
CF-UT2-S08		1	1	19SEP95	19SEP95	36	NFK
DIESEL ENGINE GENERATOR							
SF04440		3	3	07APR95	11APR95	83	WKK
SF04445		5	5	12APR95	18APR95	83	WKK
SF04430		27	27	19APR95	25MAY95	83	NFK
CF04430		4	4	27JUN95	03JUL95	49	NFK
BATTERY & CHARGER							
SF05810		3	3	07APR95	11APR95	90	WKK
SF05820		5	5	12APR95	18APR95	90	WKK
SF05825		1	1	19APR95	19APR95	90	WKK
SF05810A		0	0		20APR95	90	WKK
SF05840		0	0	19MAY95		90	WKK
SF05845		10	10	19MAY95	02JUN95	90	WKK
SF05810G		30	30	05JUN95	17JUL95	90	WKK
CF05850		4	4	20SEP95	26SEP95	35	NFK
Ups							
SFP5810F		0	0	12APR95		92	WKK
SFP5810G		6	6	13APR95	20APR95	92	WKK
SFP5810H		11	11	21APR95	05MAY95	92	WKK
SFP5810I		5	5	08MAY95	12MAY95	92	WKK
SFP5810F		30	30	17MAY95	28JUN95	92	WKK
SFP5810E		0	0		16MAY95	92	WKK
CF05850A		12	12	29JUN95	20JUL95	73	NFK
MISC BUILDINGS							
SF046A		52	11	03JAN95A	21APR95	-10	WKK
SF046B		15	15	24APR95	12MAY95	-10	WKK
ARND SITE							
GENERAL ARRANGEMENT							
TC00220		90	90	06APR95	04JUL96	88	NFK
YARD DRAINS & ROAD WORK							
1995 1996 D J F M A M J J A S O N D J F M A M J J A S O N D							

APPENDIX B

OPERATIONS - SHAKEDOWN SCHEDULE

PSR1		SOUTHERN COMPANY SERVICES POWER SYSTEMS DEVELOPMENT FACILITY OPERATIONS ACT ONLY BY AREA & STEP	Sheet 1 of 7
Project Start Project Finish Data Date Plot Date	01JAN91 25JUL96 07APR95 25APR95		
(c) Primavera Systems, Inc			

1995										1996															
D	J	F	M	A	M	J	J	A	S	O	N	D	J	J	F	M	A	M	J	J	A	S	O	N	D
HX0402 SECONDARY GAS COOLER																									
HX02041 REACTOR AND REFRACTORY PIPE																									
PRESSURE TEST RXR, COOLERS, PIPING EXP FLUE GAS																									
OPS - KELLOGG PROCESS AIR COMPRESSORS																									
BL0401 THERMAL OXIDIZER BLOWER																									
INSPECT FUEL SYSTEM AND IGNITER BR0401-IG01																									
START-UP CO0201 MAIN AIR COMPRESSOR																									
HX0405 COMPRESSOR FEED COOLER HYRDO																									
DRAIN BR0401 AFTER BOILOUT																									
REFRACTORY DRYOUT																									
CO0401 RECYCLE GAS COMPRESSOR FLUSH																									
CO0401 RECYCLE GAS COMPRESSOR RUN-IN																									
COLD FLOW, CALIB AIR FLOW CTRL WITHOUT SOLIDS																									
SET REACTOR PRESSURE RELIEF VALVES																									
FLUSH AFTER BOILOUT WITH TREATED WATER																									
HX0204 TRANSPORT AIR COOLER																									
INSPECT AIR DRYER 0210 VESSEL																									
START BOILER/STEAM GENERATION																									
SIM FILL & TRANS BY TRIGGERING SWITCHES (ON AIR)																									
OPS - SCREW COOLER SYSTEM																									
DR0501 HTF SURGE DRUM																									
ME0540 HEAT TRANSFER FLUID SYSTEM																									
FD0502 FINES SCREW COOLER																									
CALIBRATION OF WEIGH CELLS																									
READY FOR INTEGRATION - MAIN COMPRESSOR/COOLERS																									
FD0520 FINES TRANSPORTER																									
INSPECT BIN/VENT FILTERS AND TEST REVERSE JET																									
INSPECT LOCK VESSEL, AND DENSAIRVEYOR																									
PNEUMATIC PRESSURE TEST OF LOCK VESSEL (350PSI)																									
SIM FILL & TRAN BY TRIGGERING SWITCHES (ON AIR)																									
SIM FILL & TRAN BY TRIGGERING SWITCHES ON N2																									
OPS - SULFATOR SYSTEM																									
SU0601 SULFATOR																									
FIRE-IN-THE-HOLE																									
BR0602 SULFATOR START-UP HEATER																									
START CO0601 SULFATOR AIR COMPRESSOR																									
CY0601 SULFATOR CYCLONE																									
FD0610 SULFATOR LIMESTONE FEEDER																									
INSPECT BIN/VENT FILTERS AND TEST REVERSE JET																									
INSPECT LIMESTONE BIN, LK VESSEL, & DISP VESSE																									
HX0601 SULFATOR HEAT RECOVERY EXCHANGER																									
PNEUMATIC PRESSURE TEST OF LOCK & DISP VESS																									
SI0602 SPENT SOLIDS SILO																									

1995										1996											
Activity		Ong	Rem	Early	Early	Finish	Total	EAD	D	J	F	M	A	M	J	J	A	S	O	N	D
ID		Dur	Dur	Start	Start		Float														
SUFD602	1	1	1	06FEB96	06FEB96	23	C_P														
TUSH610	1	1	1	06FEB96	06FEB96	5	C_P														
OPS - MWK STEAM GENERATOR SYSTEM																					
SUDR402	1	1	1	02AUG95	02AUG95	72	C_P														
HYDRO	1	1	1	15OCT95	15OCT95	0	C_P														
SUCY207	1	1	1	16OCT95	16OCT95	7	C_P														
SURX202	1	1	1	16OCT95	16OCT95	7	C_P														
RDY0202K	0	0	0	24OCT95		1	C_P														
OPS - ASH SYSTEM																					
SUBR401	5	5	5	22SEP95	26SEP95	35	C_P														
SUDY210	1	1	1	13OCT95	13OCT95	-41	C_P														
FCFD510A	1	1	1	07NOV95	07NOV95	0	C_P														
FCFD510N	1	1	1	07NOV95	07NOV95	0	C_P														
INBH510	1	1	1	07NOV95	07NOV95	0	C_P														
INSH510	1	1	1	07NOV95	07NOV95	0	C_P														
SUFD206	1	1	1	07NOV95	07NOV95	0	C_P														
SUFD510	1	1	1	07NOV95	07NOV95	0	C_P														
SUSH510	1	1	1	07NOV95	07NOV95	0	C_P														
TUSH510	1	1	1	07NOV95	07NOV95	0	C_P														
OPS - BURNERS/OXIDIZERS																					
SUDR404	1	1	1	26AUG95	26AUG95	64	C_P														
SUBR201	2	2	2	04DEC95	05DEC95	-36	C_P														
SUBR402	1	1	1	04DEC95	04DEC95	-32	C_P														
RDY0201K	0	0	0	06DEC95		-36	C_P														
SURXCURE	4	4	4	06DEC95	09DEC95	-36	C_P														
OPS - BOILER CLEANING/DEGREASING																					
VENDBO	1	1	1	19OCT95	19OCT95	12	C_P														
KBOILOUT	0	0	0	01NOV95		0	C_P														
KCLDARAT	4	4	4	10DEC95	13DEC95	-36	C_P														
KHOTARAT	5	5	5	14DEC95	18DEC95	-36	C_P														
SPENT SOLIDS FEED SYSTEM																					
SUCEMS7	3	3	3	07APR95	09APR95	184	C_P														
SUPD384	1	1	1	07APR95	07APR95	196	C_P														
INSH530	1	1	1	10OCT95	10OCT95	6	C_P														
INBH530	1	1	1	16OCT95	16OCT95	0	C_P														
SUAE402	1	1	1	16OCT95	16OCT95	5	C_P														
SUSH530	1	1	1	17OCT95	17OCT95	0	C_P														
TUSH530	1	1	1	23OCT95	23OCT95	16	C_P														
SUFD530	1	1	1	08NOV95	08NOV95	0	C_P														
FCFD530A	1	1	1	09NOV95	09NOV95	0	C_P														
FCFD530N	1	1	1	10NOV95	10NOV95	0	C_P														
WESTINGHOUSE: TRANSPORT TRAIN PCD																					
SUFL301	3	3	3	24OCT95	26OCT95	19	C_P														

				1995												1996													
				D	J	F	M	A	M	J	J	A	S	O	N	D	J	J	A	M	A	M	J	J	A	S	O	N	D
Activity	ID	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	EAD																						
COMBUSTION POWER COMPANY GBF PCD																													
LDLFL301		2		2/25/0C1995	26/0C1995	8 C_P																							
SUUVLV301		6		6/02/DEC95	07/DEC95	-59 C_P																							
TUOFL301		2		2/03/DEC95	04/DEC95	-20 C_P																							
MOUNTING CANDLES																													
EXER ALL ELECPNEUMATIC VLV ON BACK PULSE SKID																													
CALIBRATE INSTRUMENTATION AS REQUIRED																													
RUN COOLING WATER OR AIR THROUGH HEAT EXCHANGERS																													
CK THERM, ACCURACY OF PRESS & DIFF PRESS DEVICES																													
CK BOOST BLOWER FOR DEBRIS, ROTATION, LUB																													
CK BAGHOUSE PULSE-BACK SYS, HOPPER HTR, ORIFICES																													
LOAD MEDIA, CIRC MEDIA AT ATMOSPHERIC PRESSURE																													
PRESS CK FOR LEAKS, PRESS AT < 10 PSI/MIN																													
TURN ON BAGHOUSE HOPPER HEATER																													
READY FOR INTEGR - SPENT SOLIDS LOCK HOPPER/COOL																													
START/RUN-IN QUENCH AIR BLOWER BL0700 MWK SIDE																													
START/CHECK BAGHOUSE FL0700																													
INSPECT STACK, ME0700 AND STACK SAMPLING & INSTR																													
INSPECT TK2000 CONDENSATE STORAGE TANK																													
FILL MWK CONDENSATE STORAGE TANK																													
START-UP AND RUN-IN CONDENSATE PUMP PU2000A																													
START-UP AND RUN-IN CONDENSATE PUMP PU2000B																													
LEAK TEST MWK CONDENSATE STORAGE TANK																													
FLUSH COND PIPING TO STEAM DRUM & MIN FLOW LOOP																													
TUNE MWK CONDENSATE PRESSURE REGULATOR																													
CONDENSATE CONDENSORS READY FOR DRY OUT																													
BOIL OUT AT 180 F.																													
PRESSURE CHECK HEAT EXCHANGER - FW CONDENSER																													
INSPECT SERVICE WATER TANK INSIDE & OUT																													
START/RUN-IN RAW WATER PUMP PU2100A																													
START/RUN-IN RAW WATER PUMP PU2100B																													
FLUSH RAW WATER SYSTEM																													
TUNE COOLING TOWER MAKEUP WTR PRESS REG SYS																													
CT MAKE-UP SYSTEM READY																													
FILL AND LEAK TEST COOLING TOWER & ASSOC PIPING																													
FLUSH COOLING WATER- LOOP SYSTEM																													
START/RUN-IN PUMP PU2101A																													
START/RUN-IN PUMP PU2101B																													
FLUSH SERVICE WATER SYSTEM																													
PRESSURE CHECK HEAT EXCHANGER -HX2100 LOOP																													

1995												1996																		
D	J	J	F	M	A	M	A	M	J	J	A	S	O	N	D	J	J	F	M	A	M	A	M	J	J	A	S	O	N	D
																			</											

[illegible]

Activity ID	Orig Dur	Rem Dur	Early Start	Early Finish	Total Float	1995												1996																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
						D	J	J	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
RDY2910	1	1	10JUN95	09JUN95	-8 C_P																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				