Tampa Electric Company - IGCC Project

**Quarterly Report
January 1 - March 31, 1996**

Work Performed Under Contract No.: DE-FC21-91MC27363

For

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

By

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TECO Power Services Corporation
Tampa, Florida

MASTER

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**TECO
POWER SERVICES**
A TECO ENERGY COMPANY

February 22, 1996

Mr. Nelson F. Rekos, Jr.
Project Manager
Clean Coal Branch
U.S. Department of Energy
Morgantown Energy Technology Center
3610 Collins Ferry Road.
Morgantown, WV 26505

**Re: Tampa Electric Company IGCC Project
Quarterly Report - First Quarter 1996**

96 AUG -5 PM 2:51

Dear Nelson:

On February 7, 1996, representatives of Tampa Electric met with DOE personnel at METC to review the subject project status. The notes of this meeting will serve to meet the requirements of the First Quarter 1996 Technical Quarterly Report. For your review and use, attached is a complete set of all materials used by the Tampa Electric Team during this presentation.

In the way of a general summary of the meeting results, below is an overview of the current project status.

Mr. Black reported that the project is generally meeting its intended objectives. Polk is currently on schedule for completion about September 15, 1996. This would initiate the Demonstration Testing Period.

With the finalization of the recent overrun request via Amendment A-007, the project is generally on budget, with the major unknown piece being the costs for reclamation of the area west of SR 37. If TEC is successful in mitigating these reclamation requirements, the overall project cost should be at or below current estimates.

From a personnel standpoint, Deputy Project Managers Steve Jenkins and Dan Giel have been transferred to other areas in TECO Energy. Also, in addition to his current assignment as Project Construction Manager, Mike Rivers has been assigned the responsibilities of Deputy Project Manager following construction, start-up, spare parts, environmental and parts of the DOE activities.

Probably the most difficult of all project challenges is the hot gas clean-up system (HGCU). Physical construction of the HGCU system is progressing well. However, development of the required sorbent causes TEC great concern on all fronts; technically, schedule wise, cost wise, and

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politically. There is a real possibility that after checkout of the HGCU system, operation may have to be delayed pending the development of a functionally and financially acceptable sorbent for actual plant operation.

As we begin to approach completion of the project's construction, TEC is initiating efforts related to the continuation application to proceed from Budget Period II to Budget Period III. We expect to submit that application in the spring of this year.

Bechtel has completed 99%+ of the detailed engineering and has completely shut down the engineering effort in their Houston office except for any specific requests or speciality support. The Bechtel overall quality of engineering remains good. Bechtel does have a resident engineering staff (Houston based engineers assigned to the site) comprised of generally one (1) engineer from each discipline, to rapidly resolve any problems or questions that arise in the field.

We have finally resolved almost all of the engineering problems related to the design of the Radiant Syngas Cooler (RSC) supplied by Man-GHH. There are still some outstanding commercial issues which should be resolved shortly.

General Electric has experienced several problems related to the 7F Combustion Turbine (CT). Throughout its worldwide fleet, the 7F CT has experienced a set of incidents, which are either isolated cases, affect only limited units, or affect all units. For our unit, several of the problems either don't exist or have already been corrected. The one most significant item for the Polk Unit is the cracking in the 3rd stage turbine wheel. To prevent this cracking, GE has developed a program to cut off a portion of the 2/3 spacer. GE is implementing this fix worldwide and should complete the Polk work by February 15, 1996.

The other modification currently being implemented by GE is the alteration of the Combustion Liners based on a testing program at Schenectady to optimize the firing characteristics of the 7F while burning syngas.

During our review meeting at METC, TEC asked for help from DOE to insure that operating issues which developed at the DOE Wabash River Project, would be passed on to Polk Project personnel to preclude our unit from being subjected to similar cost and schedule problems.

Essentially all equipment and material has been delivered to the site. There are a few minor valves and miscellaneous cable yet to be delivered, but none of them will have any significant negative impact on the project schedule.

Ordering of spare parts is a major effort. We have almost finished the effort required to support the plant start-up and are now concentrating on procurement of plant operating spares.

Another area requiring significant attention is the Process Safety Management (PSM) assessment which is currently underway. TEC is reviewing the OSHA requirements to confirm the specific efforts required for this area.

Mr. Nelson Rekos

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GEESI has essentially completed all their conceptual and detailed engineering. Remaining work is centered around finalizing drawings and instruction manuals. We are assessing the requirements for GEESI support for training and start-up of the HGCU system. GEESI is also heavily involved with the sorbent development and testing.

As mentioned above, sorbent development remains a critical path item for the HGCU system. Completion of the pilot plant testing at Schenectady was delayed last fall and TEC has serious concerns about all of the potential sorbents being ready to start the spring tests. Manufacture of the Z-Sorb 3M for the shakedown testing at the project site appears to be on schedule for a May 1, 1996 delivery. In order to support the supply of the operating sorbent, an order for a technically and financially acceptable operating sorbent also must be placed by May 1, 1996. If this date is missed, initial operation of the HGCU system will probably have to be delayed. The attached schedule details the project's requirements. In a recent meeting at METC, two (2) other promising sorbents under development were discussed. It is unlikely that either of these new sorbents would be available for the Polk start-up.

TEC still is concerned about the coverages of Phillip's patents related to sorbents for our HGCU. We still need to resolve the long term ownership interests of all the various parties involved with Polk sorbent supply, including Phillips, DOE, and GEESI. We are currently working with DOE METC to resolve the DOE patent position.

Tampa Electric has prepared a short video which covers the history of the project, discusses some of the key elements of the project, and provides an update of the project status. A copy of this video was left with project personnel at METC for their use.

Construction percentage complete continues to increase. We are currently about 2/3 complete with the overall site activities. During this quarter, we expect to mechanically complete the air separation unit, the sulfuric acid plant, and complete the combustion turbine lube oil flush. The project has consumed about 2,800,000 man-hours to date. Construction has completed about 1/3 of the system turnover packages. Start-up has turned over about 10% of the systems to the plant for operation. To date, this is slightly behind schedule but several packages/systems will be completed in the next few weeks.

The current project critical path is through the installation of piping in the gasification area. This item is currently showing slightly behind schedule but efforts are underway to restore the project schedule.

Environmental compliance continues. TEC notified the Florida Department of Environment Protection (FDEP) that the first firing of the auxiliary boiler occurred January 3, 1996. Reclamation of the main plant areas has been completed. The contractor is now planting the required trees, shrubs and other plants.

Mr. Nelson Rekos
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In the area west of SR 37, documents are being prepared for submittal to the agencies which would be asked for approval to revise the reclamation requirements for that area to a plan that is significantly more cost effective. We expect the Governor to act on this request late summer of 1996.

As of February 8, 1996, all plant operating personnel have been hired and training was well underway. Tampa Electric has undergone an extensive selection process to ensure the most qualified personnel available will be considered for selection. The operator associated training schedule is exhaustive and requires about 6 months for each individual. The permanent plant staff will consist of 72 people operating in a self-directed environment. All of the IGCC process teams will be multi-disciplined with each individual trained in two (2) different technical areas.

Tampa Electric is currently undergoing a review of the Polk unit by the Florida Public Service Commission to consider a mechanism which will allow inclusion of the Polk Unit in rate base without undue stress on the customers rates. This review is expected to continue for the next few months.

Attached is a copy of the revised project cash flow which reflects the recently approved cost growth request A-007. Also included are comparison cash flows for the most recent project cost updates.

From an overall aspect the project continues on schedule for a first gasifier fire in mid-July 1996. We currently have the start-up/light-off fuel oil on site, and expect to receive the first coal on site mid-March 1996. The cooling pond is complete and almost at operating level. The project simulator is being used for the first parts of the plant to be started-up: the ASU and the Auxiliary Boiler.

TEC has recently taken bids for the start-up coal supply, and are preparing a contract for submittal to DOE for its approval as a surveillance contract.

The project is currently developing a detailed plan for the period of time from first gasifier fire to full load operation/performance testing.

Very truly yours,

D.E. Pless

D.E. Pless
Project Manager

DEP:jm:A\ISTQTRRP.LTR

cc: C.R. Black
R.N. Howell
Trimco

Tampa Electric Company - Project Review Meeting
First Quarter Review, February 7, 1996
Morgantown Energy Technology Center, Conf. Room G4a/b

8:00 Introductions & Welcome	Nelson Rekos, DOE
8:10 Overall Project Status	Chuck Black, Tampa Electric Co.
8:20 Project Management/Engineering	Don Pless
8:40 Construction	Mike Rivers
9:00 Environmental	" "
9:20 Start-Up	" "
9:40 Break	
10:00 Operations	Charles Shellnut
10:20 Regulatory	Bob Howell
10:30 Budget & Costs	Mike Hegarty
10:50 Schedule	Don Pless
11:00 Questions & Discussions	

Notes

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TAMPA ELECTRIC COMPANY - DOE IGCC PROJECT
FIRST QUARTER 1996 - STATUS REVIEW
METC - FEBRUARY 7, 1996

OVERALL PROJECT STATUS

C.R. BLACK

PROJECT MANAGEMENT/ENGINEERING

D.E. PLESS

CONSTRUCTION/SAFETY

M.R. RIVERS

ENVIRONMENTAL

M.R. RIVERS

START-UP

M.R. RIVERS

BREAK

OPERATIONS

C.A. SHELNUT

BUDGET/COSTS

M.E. HEGARTY

REGULATORY

R.N. HOWELL

SCHEDULE

D.E. PLESS

QUESTIONS AND DISCUSSIONS

ALL

TAMPA ELECTRIC COMPANY - DOE IGCC PROJECT
FIRST QUARTER 1996 - STATUS REVIEW
METC - FEBRUARY 7, 1996

<u>Length</u>	<u>Time</u>	<u>Subject</u>	
10 Minutes	8:00 am	Overall Project Status	C.R. Black
20 Mintues	8:10 am	Project Management/Engineering	D.E. Pless
20 Minutes	8:30 am	Construction/Safety	M.R. Rivers
10 Minutes	8:50 am	Environmental	M.R. Rivers
20 Minutes	9:00 am	Start-Up	M.R. Rivers
10 Mintues	9:20 am	BREAK	
20 Minutes	9:30 am	Operations	C.A. Shelnut
20 Minutes	9:50 am	Budget/Costs	M.E. Hegarty
10 Minutes	10:10 am	Regularatory	R.N. Howell
10 Minutes	10:20 am	Schedule	D.E. Pless
	10:30 am	Questions and Discussions	All

OVERALL PROJECT STATUS

- ◆ Approval of M-007
 - ▶ Cost/Envelope Growth of \$12,600,000
 - ▶ METC's Effort
 - ▶ Importance to TEC
- ◆ General Project Status
 - ▶ Project Objectives
 - ▶ C.O. Date
 - ▶ Cost
 - ▶ HGCU
- ◆ Continuation Application
 - ▶ Starting The Process
 - ▶ Review Requirements
 - ▶ Submittal late this Spring

PROJECT MANAGEMENT AND ENGINEERING

◆ Personnel Changes

▶ Deputy Project Managers

-- Steve Jenkins

-- Dan Giel

-- Mike Rivers

◆ Other Project Representatives

▶ Charles Shelnut

▶ Bob Howell

▶ Mike Hegarty

PROJECT MANAGEMENT AND **ENGINEERING**

- ◆ Bechtel
- ◆ 99%+ Complete
- ◆ Houston Shutdown
- ◆ Resident Engineering Staff
- ◆ Man GHH

PROJECT MANAGEMENT AND ENGINEERING

◆ General Electric

- ▶ 2/3 Spacer Modification
- ▶ Combustion Liner Modifications
- ▶ Other 7-F Fleet Problems
- ▶ Hartford Insurance
- ▶ Warranty Considerations
- ▶ Comparison to Wabash River

PROJECT MANAGEMENT AND ENGINEERING

- ◆ Material Delivery Status
- ◆ Process Safety Management (PSM)
- ◆ HGCU
 - ▶ GEESI Engineering
 - ▶ Sorbent
 - ▶ Phillips
 - ▶ Patent Positions
- ◆ Project Video

SIU and HU Schedules

Desulfurization Sorbents for TECo

D. Cicero 4:17 PM 1/30/96

Z-SOAB IV 50 CYCLE TEST

Z-SOAB IV PILOT PLANT SORBENT PRODUCTIONS

POLK POWER PROJECT
CONSTRUCTION

PROJECT MILESTONES

	PLANNED	ACTUAL
• SET RADIANT SYN GAS COOLER	01-JUL-95	26-JUN-95
• ENERGIZE PLANT SUBSTATION	01-AUG-95	27-JUL-95
• COOLING RESERVOIR COMPLETE	15-OCT-95	15-OCT-95
• - COMPLETE WATER TRANSFER	01-FEB-96	01-FEB-96
• UTILITIES TO AIR SEPARATION UNIT	13-NOV-95	13-NOV-95
• STEAM TO AIR SEPARATION UNIT	10-JAN-96	15-JAN-96
• ACID PLANT COMPLETE	15-FEB-96	17-JAN-96
• FIRST COAL IN SILO	13-MAR-96	
• FIRST FIRE CTG (ON OIL)	19-APR-96	
• STEAM BLOWS COMPLETE	30-APR-96	
• ROLL STEAM TURBINE	01-JUN-96	
• MAKE FIRST SYNGAS	18-JUL-96	
• TURNOVER FOR OPERATION	15-SEP-96	
• COMPLETE WETLAND RESTORATION	MAY-97	

Polk Power Station Unit #1 OSHA Recordable Rate

Job Inception to Date By Month and Cumulative

— 100 —

HISTOGRAM OF SCHEDULED SYSTEM TURNOVERS STATUS AS OF JANUARY 24

STARTUP SYSTEM DESIGNATORS (PARTIAL LISTING)

AGR - ACID GAS/AMINE
ARC - AIR REMOVAL SYSTEM
ASU - AIR SEPARATION UNIT
BCS - BRINE CAUSTIC SYSTEM
BRS - BRINE CONCENTRATION SUMP
CCS - SYNTHAS COOLER HP/MP STEAM DRUMS CHEM INJ
CEM - CONTINUOUS EMISSIONS MONITORING
CNA-1 CONDENSATE SYSTEM MAIN HEADER
CNA-2 CONDENSATE SYSTEM
CNC - CONDENSATE COLLECTION
CPL - LOW PRESSURE CONDENSE
CQM - CONDENSATE MED PRESS EXCLUD GASIFIC/HGCU
CNP - PURGE WATER DISTRIBUTION (GASIFIC)
CNR - CONDENSATE RECOVERY SYST
CWB - BURNER COOLING WATER
ECS - STEAM TURBINE HYDRAULIC CONTROL
ECT - CLOSE CIRCUIT TV
ESS - EMERGENCY SHUTDOWN SYSTEM
FCA - COAL AMMONIA INJECTION
FCD - DUST COLLECTION
FCF - COAL FEED SYSTEM
FCS - COAL STORAGE/RECLAIM
FN - FINES HANDLING
FOG - FUEL OIL TO GAS TURBINE
FP2 - FIRE PROTECT POWER BLOCK
FP7 - FIRE PROTECT TRANSFORMERS
FPA - FIRE PROTECT COAL UNLOADING
FP9 - FIRE PROTECT COAL CONVEYORS/SILO
FP10 - FIRE PROTECT COAL GRINDING SLURRY PREP
FP11 - FIRE PROTECT GASIFIC/SLAG/HGCU/AGR
FP12 - SULFURIC ACID PLANT
FVA - HSGG FEEDWATER SYSTEM
FWM - FW TO SYNTHAS COOLER HP STEAM DRUM
FWM - FW TO HSGG IP DRUM
FWM - FW TO SYNTHAS COOLER MP DRUM
FWP - GASIFIER MP PURGE WATER
GAB - GASIFIER MAIN BURNER
GAD - GRINDING AREA DRAINS
GPB - PREHEAT BURNER
GTG - GAS TURBINE
GWD - SLAG COWATERING SUMP
GWF - VACUUM FLUSH DRUM & PUMP SYSTEM
GWM - GREY WATER
GWS - GREY WATER DRAINS
HAE - GASIFICATION EL ELEVATOR
HAG - HGCU ABSORBER
HGB - GASIFICATION HOIST
HPN - HIGH PRESSURE NITROGEN
HPS - HGCU PRIMARY & SECONDARY CYCLONE
HPU - HYDRAULIC POWER UNIT CT
HSG - HGCU SODIUM BICARB STORAGE & TRANSFER
HSG - HGCU SYNTHAS
LOS - STEAM TURBINE LUBE OIL
LOT - LUBE OIL STORAGE & TRANSFER
LPN - LOW PRESSURE NITROGEN
NT - DILUENT NITROGEN TO GAS TURBINE
OXY - OXYGEN FEED
PAS - PLANT AIR
PCS - PLANT COMMUNICATION
PRO - PROPANE SYSTEM
RSA - ACID GAS

SMP-1 - MP STEAM EXCLUD GASIFIC
SMP-2 - MP STEAM GASIFIC
SMS - MAIN STEAM
SRH - HOT/COLD REHEAT STEAM
SWS - STEAM WATER SAMPLING
TME - STEAM TURBINE
TMS - STEAM TURBINE SEALS & DRAINS
WCG - CLOSED LOOP COOLING GASIFIC
WCV - CONDENSER CIRCULATING WATER
WGW - GRINDING WATER
WHP - GASIFICATION HP PRESSURE BLOWDOWN
WHP - RSC HP STEAM/WATER
WMP - SYNTHAS COOLER MP WATER/STEAM
WOC-2 - OPEN LOOP COOLING GASIFIC/HGCU
WSR-2 - SERVICE WATER C/D GASIFIC/HGCU/SLAG
WTB - WASTE TRANSFER BUILDING
WYS - SYNTHAS SCRUBBER
XCA - COAL HANDLING AREA Sumps
XGT - GAS TURBINE DRAIN COLLECTION
XYT - CHEM QZ E/WASTE TANK
ZAC - GENERATOR CT
ZAS - GENERATOR STEAM
ZIX - H2 STORAGE SYSTEM
ZTC - CO2 BULK STORAGE

TURNOVER TO STARTUP BEHIND SCHEDULE

TURNOVER TO STARTUP EARLY

TURNOVER TO STARTUP ON SCHEDULE

TURNOVER TO STARTUP LATE

STATUS AS OF 01/28/96

POLK POWER PROJECT

TOTAL PROJECT A/G LARGE BORE PIPE

Figure 1

POLK POWER PROJECT

TOTAL PROJECT A/G SMALL BORE PIPE

Figure 1

POLK POWER PROJECT

TOTAL PROJECT A/G CONDUIT

Figure 1

POLK POWER PROJECT

TOTAL PROJECT WIRE & CABLE (INCL TERMS)

Figure 1

Polk Power Station Environmental Status

Notifications

- The Florida Department of Environmental Protection (FDEP) was notified of the first fire of the Auxiliary boiler which occurred on January 3, 1996. The Auxiliary Boiler Environmental Performance test protocol was submitted as required by the Conditions of Certification and PSD permit.
- Notification to place the domestic waste treatment system in service was submitted and approved and the system placed into service.
- FDEP was notified and gave approval to transfer up to 8,000 Acre-ft of accumulated storm water for the Polk Power Station site to a neighboring phosphate mine. This was required to dewater the reclamation area west of SR 37.

Reclamation Work

- Reclamation areas east SR 37 are on schedule as outlined in the Conditions of Certification. Some plants may have to be replanted due to recent frosts which have occurred on site. Final as-builts have been completed and are in the process of being prepared for submittal to FDEP as required in the Conditions of Certification.
- Revisions to the site reclamation plan are currently being developed for approval by FDEP and are expected to be submitted by the end of February. Negotiations with FDEP have been proceeding favorably for these reclamation changes. Approval of the modified plan is expected sometime after June 1996 (with a submittal by the end of February). Earth moving work for the modified plan is proceeding with a qualified approval (at owner's financial risk) by FDEP.

NPDES Discharge Points

- Outfall 002 was opened in the later part of December to support reclamation work on site. Automated sampling systems have been installed to support sampling and reporting requirements.
- Outfall 001 has not been opened for discharge. However, discharge is expected to begin within the first quarter of 1996.

Submittal Requirements

- With the exception of consumptive use reports required by South West Florida Water Management District (SWFWMD), all submittals required by the Conditions of Certification are on time. SWFWMD reporting will be brought current with the reports to be submitted by February 10, 1996.

Customers

IGCC Process
Teams

Process Support
Teams

Key Mission Team

- Eng. Team
- Materials Team
- Bus. Support Team
- Lab Team
- Maint. Support Team

- Eng. Mgr.
- SPO
- SPM
- Bus. Mgr.
- Env./Safety Coord.
- Gen. Mgr.

POLK POWER STATION

*Notes: Materials Team reports admin to Materials Management

January 25, 1996

POLK POWER STATION Organization

POLK POWER STATION

PERSONNEL REQUIREMENTS

KEY MISSION TEAM

GENERAL MANAGER	1
ENGINEERING MANAGER/ELECTRICAL ENG.	1
BUSINESS MANAGER	1
SUPERINTENDENT OF OPERATIONS	1
SUPERINTENDENT OF MAINTENANCE	1
ENVIRONMENTAL/SAFETY COORDINATOR	<u>1</u>
SUBTOTAL MANAGEMENT	5

ENGINEERING TEAM

GASIFICATION PROCESS ENGINEER	1
POWER BLOCK PROCESS ENGINEER	1
ASU, H ₂ SO ₄ , AUX. SYS. PROCESS ENGINEER	1
CHEMICAL ENGINEER	1
I&C/DCS ENGINEER	<u>1</u>
SUBTOTAL ENGINEERING	5

IGCC PROCESS TEAMS

IGCC PROCESS SPECIALIST	50
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PROCESS SUPPORT

I&C/DCS/ELECTRICAL SPECIALIST	1
MECHANICAL MAINTENANCE SPECIALIST	1
I&C/ELECTRICAL SCHEDULER/PLANNER	1
MECHANICAL SCHEDULER/PLANNER	1
LAB SPECIALIST	3
MATERIALS/TOOLS SPECIALIST	<u>2</u>
SUBTOTAL SUPPORT	10

BUSINESS SUPPORT

ADMINISTRATIVE SPECIALIST	2
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TOTAL STATION REQUIREMENTS	72
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OPERATORS/SHIFT

1/24/96

10/TEAM

- 1 TEAM LEADER
- 2 CONTROL ROOM
- 2 GASIFICATION
- 1 POWER BLOCK OPERATOR
- 1 ASU/DEMIN. WATER TREATMENT
- 1 SLURRY PREP/BRINE CONCENTRATOR
- 1 SULFURIC ACID PLANT/AMINE SYSTEM
- 1 COAL AND SLAG HANDLING

SKILLS/PER SHIFT		TOTAL FOR 5 TEAMS
I&C	3	15
ELEC.	2	10
MECH./WELD.	1	5
M/MILLWRIGHT	3	15
OTHER SKILLS	1	5

TOTALS BY SKILLS

- 3 GENERAL MANAGER/MANAGERS
- 2 SPO/SPM
- 5 ENGINEERS
- 1 ENVIR./SAFETY
- 2 MAINTENANCE SPECIALIST
- 2 SCHEDULER/PLANNER
- 15 I&C
- 10 ELECTRICAL
- 3 LAB
- 5 MECH./WELDER
- 15 MECH./MILLWRIGHT/MACHINIST
- 2 ADMINISTRATIVE
- 2 WAREHOUSE
- 5 REMAINING COMPLIMENT - VARIED SKILLS SUCH AS OPERATIONS
- 72 TOTAL

POLK POWER STATION **IGCC PROCESS SPECIALIST**

Employees were selected who had high *Technical Skills* in one or more of the following areas:

- Mechanical Maintenance
- Electrical Maintenance
- Instrumentation & Controls
- Plant Operations

They will be required to complete a comprehensive training program in *Operations* and *Safety* and gain a base level of skill in a *Second Technical Area* of either:

- Mechanical Maintenance
- Electrical Maintenance
- Instrumentation & Controls

The station was staffed using a *Self Directed Work Team* philosophy which required people have strengths in the following dimensions:

- Teamwork
- Ability to Learn
- Judgement
- Initiative
- Work Standards
- Adaptability
- Problem Analysis

Major Steps in Selection System

- Expected selection ratio is low (many applicants per position)
- Designed as a funnel; expense and effort concentrated at later stages
- Decision rules and points clearly defined
- All applicants treated consistently

POLK POWER OPERATOR TRAINING

- 7 wks. **Initial Training**
- Basic Power Plant
 - Plant Auxiliary
 - Basic Chemical Fundamentals, Water Treatment
 - Safety Training - First Aid, Safety Regs., Hazwoper, Process Safety
 - Systems Training
- 1 wk. **Bailey DCS**
- 1 wk. **Air Separation Unit**
- 1 wk. **Sulfuric Acid Plant**
- 3 wks. **GE Power Block Training**
- Combustion Turbine Familiarization and Routine Maintenance
 - Heat Recovery Steam Generator
 - Steam Turbine Operations and Maintenance
 - Mark V Controls
 - Generator Controls and Excitation
- 2 wks. **Texaco Gasification**
- 1 wk. **Brine Concentrator**
- 1 wk. **Hot Gas Cleanup**
- 1 wk. **PC Training**
- Work Order Management
 - TEC System
- 2 wks. **Tech. Level Specialized Training**
- CEM's
 - Analyzer's
 - Bailey
 - GE - Mark V, Exciter
 - BWIP - Mag. Bearings
 - Reliance - GEHO
- 10 wks. **Simulator**
- All areas of plant, followed by integrated plant control

POLK POWER STATION TRAINING OVERVIEW

18 - group
14 - 8/15
20 - under 1 yr, instructor
20 - 2 yr, instructor
20 - 3 yr, instructor
20 - 4 yr, instructor

		<u>DATES</u>	<u>INSTRUCTOR</u>
7 WEEKS	BASIC	JULY 17, 1995 OCTOBER 6, 1995 JANUARY 8, 1996 - attending now	TECO
1 WEEK	BAILEY (DCS)	AUGUST 28, 1995 - 1st group not getting on simulator	BAILEY
1 WEEK	AIR PRODUCTS (ASU)	OCTOBER 9, 1995 NOVEMBER 27, 1995	AIR PRODUCTS
2 WEEKS	TEXACO (GASIFICATION)	MARCH 4, 1996 APRIL 1, 1996	TEXACO
1 WEEK	MONSANTO (SULFURIC ACID PLANT)	DECEMBER 11, 1995 FEBRUARY 12, 1996 AUGUST 19, 1996	MONSANTO
3 WEEKS	GE (POWER BLOCK)	JANUARY 8, 1996 MARCH 18, 1996	GE VOGT
10 WEEKS	SIMULATOR	NOVEMBER 6, 1995 THROUGH - on going! SEPTEMBER 15, 1996	TECO OUTSIDE

also got H600, Brine conc., special equip try

**DOE PPS
STATUS REVIEW
FEBRUARY 7, 1996**

Operations

A. Staffing

1. Organization charts (3)
2. Total staffing (2)
3. Requirements for job applicants
4. Selection plan
5. Skills required/team and totals selected

B. Training

1. 27 weeks of classroom training
 - operator and safety
2. 10 weeks simulator training for some
3. 3 groups - last group - January 8th
4. 18 people in group 3
 - 14 people working operating shifts
 - 20 people in vendor training, instructors, spare parts, procedures, startup support, etc.

TAMPA ELECTRIC COMPANY

REGULATORY UPDATE

\$100M REVENUE REQUIREMENT FOR POLK POWER STATION

NO IMPACT TO CUSTOMER - NO PRICE CHANGE

Restructing Efforts
Reductions in O&M & Construction Costs
O&M Held Flat

DEFERRED REVENUE PLAN - APPROVED BY FPSC

1995	1996
\$50M	\$10-12M

ALLOCATE DEFERRED REVENUES FROM 1995/1996

To offset 1997/1998 Possibly 1999 Revenue Requirements
associated with Polk Power Station

Other continuing cost control efforts

CURRENT REGULATORY ISSUES

Cost of Polk Power Station - Prudency

Interrogatories due to PSC 02/25/96

Fuel Pricing Issues Lower Gas Prices vs IGCC

SCHEDULE

- ◆ Turnover for Operation Date
 - ▶ Current Projection
 - ▶ Critical Path
 - ▶ Fuel Oil On-Site
 - ▶ ASU and Sulfuric Acid Plant Construction
 - ▶ Cooling Pond Complete
 - ▶ Beginning Coal Procurement
 - ▶ Big Bend Coal Yard Changes
 - ▶ Start-Up
 - ▶ Shakedown and Performance Test Plan
 - ▶ Simulator
 - ▶ Continuation Application

POLK POWER PROJECT

PROJECT MILESTONES

	PLANNED	ACTUAL
• SET RSC	01-JUL-95	26-JUN-95
• ENERGIZE BUS SUB 0	01-AUG-95	27-JUL-95
• COOLING RESERVOIR COMPLETE	15-OCT-95	15-OCT-95
• UTILITIES TO ASU	13-NOV-95	13-NOV-95
• STEAM TO ASU	10-JAN-96	15-JAN-96
• ACID PLANT COMPLETE	15-FEB-96	
• FIRST COAL IN SILO	13-MAR-96	
• FIRST FIRE CTG (ON OIL)	19-APR-96	
• STEAM BLOWS COMPLETE	30-APR-96	
• ROLL STEAM TURBINE	01-JUN-96	
• MAKE FIRST SYNGAS	18-JUL-96	
• TURNOVER FOR OPERATION	15-SEP-96	

POLK POWER PROJECT

SUMMARY SCHEDULE statused thru 31-Jan-96

Status

SHAKEDOWN & PERFORMANCE GUARANTEE TEST PLAN POLK POWER STATION

1996

JULY

AUGUST

SEPTEMBER

1	8	15	22	29	5	12	19	26	2	9	16	23	30
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Polk Power Station Fall 1995 Reforecast

PTD Dec84	Jan95	Feb95	Mar95	Apr95	May95	Jun95	Jul95	Aug95	Sep95	Oct95	Nov95	Dec95
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Fall 05 Reforecast

"Net" TEC Costs

[illegible]

Fall 15 Refereent

"Gross" TEC Costs

[illegible]

Fall 94 Reforecast

DOE Costs

[illegible]

Polk Power Station Fall 1995 Reforecast

[illegible]

Fall 96 Reforncast

"Net" TEC Costs

[illegible]

Fall 95 Reforecast

"Gross" IEC Costs

[illegible]

Fall 96 Reforecast

DOE Costs

[illegible]

Polk Power Station
Fall 1994 Bechtel Estimate No. 2

PTD Dec94 Jan95 Feb95 Mar95 Apr95 May95 Jun95 Jul95 Aug95 Sep95 Oct95 Nov95 Dec95

Fall 94 Bechtel Estimate No. 2

"Net" TEC Costs

Mth	180,815	6,031	25,798	33,692	22,695	19,238	17,183	14,553	16,915	13,979	10,854	12,149	11,817
Cum	180,815	186,846	212,645	246,338	269,031	288,267	305,460	320,013	336,928	350,907	361,760	373,909	385,726
Yearly	180,815												204,911

Fall 94 Bechtel Estimate No. 2

"Gross" TEC Costs

Mth	223,189	7,846	31,901	42,057	28,352	24,996	22,357	18,442	21,395	18,110	13,736	15,321	14,928
Cum	223,189	230,835	262,736	304,793	333,145	358,140	380,497	398,939	420,334	438,444	452,180	467,501	482,430
Yearly	223,189												259,240

Fall 94 Bechtel Estimate No. 2

DOE Costs

Mth	42,374	1,615	6,103	8,365	5,656	5,760	5,164	3,889	4,481	4,132	2,882	3,172	3,111
Cum	42,374	43,989	60,091	68,457	74,113	79,873	85,037	88,925	93,406	97,538	100,420	103,592	96,703
Yearly	42,374												54,329

Polk Power Station Fall 1994 Bechtel Estimate No. 2

Jan95 Feb95 Mar95 Apr95 May95 Jun95 Jul95 Aug95 Sep95 Oct95 Nov95 Dec95

Fall 94 Bechtel Estimate No. 2

"Net" TEC Costs

Mth	9,035	9,377	9,029	7,850	6,424	6,729	6,613	2,826	3,371	1,909	395	520
Cum	394,761	404,139	413,167	421,017	427,441	434,170	440,782	443,608	446,980	448,889	449,284	449,804
Yearly												64,078

Fall 94 Bechtel Estimate No. 2

"Gross" TEC Costs

Mth	11,410	11,854	11,382	9,901	8,108	8,427	7,524	2,828	3,371	1,909	395	520
Cum	493,840	505,694	517,075	526,976	535,084	543,512	551,036	553,862	557,233	559,142	559,537	560,057
Yearly												77,828

Fall 94 Bechtel Estimate No. 2

DOE Costs

Mth	2,375	2,476	2,353	2,052	1,684	1,699	911					
Cum	99,079	101,555	103,908	105,959	107,643	109,342	110,253	110,253	110,253	110,253	110,253	110,253
Yearly												13,550

Polk Power Station Fall 1994 Bechtel Estimate No. 2

Jan97 Feb97 Mar97 Apr97 May97 Jun97 Jul97 Aug97 Sep97 Oct97 Nov97 Dec97

Fall 94 Bechtel Estimate No. 2

"Net" TEC Costs

Mth	0	0	0	0	0	0	0	0	0	0	0	0
Cum	449,804	449,804	449,804	449,804	449,804	449,804	449,804	449,804	449,804	449,804	449,804	449,804
Yearly												0

Fall 94 Bechtel Estimate No. 2

"Gross" TEC Costs

Mth												
Cum	560,057	560,057	560,057	560,057	560,057	560,057	560,057	560,057	560,057	560,057	560,057	560,057
Yearly												0

Fall 94 Bechtel Estimate No. 2

DOE Costs

Mth												
Cum	110,253	110,253	110,253	110,253	110,253	110,253	110,253	110,253	110,253	110,253	110,253	110,253
Yearly												0

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REC'D PROJ. MGT.

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**Polk Power Station
DOE 3/95 Overrun Request**

[illegible]

	"GROSS" TEG Costs
Mth	13,900 13,476 10,491 9,616 8,575 7,705 10,112 6,003 5,066 10,697 8,256 4,216
Cum	502,291 515,766 526,258 535,874 544,450 552,155 562,266 568,269 573,365 584,062 590,307 594,524
Yearly	106,133

	<u>DOE Costs</u>					
Mth	(3,094)	(2,696)	(2,143)	(1,917)	(1,838)	(1,866)
Cum	(100,813)	(103,509)	(105,652)	(107,569)	(109,407)	(111,073)
						(113,632)
						(114,908)
						(116,007)
						(117,981)
						(118,159)
						(119,963)
Yearly						(122,264)

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7ECO PROJ. MGT.

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<u>March 1986 DOE Overrun Request</u>												
<u>DOE Costs</u>												
Mth	(593)	(593)	(593)	(594)	(540)	0	0	0	0	0	0	0
Cum	(120,575)	(121,168)	(121,761)	(122,355)	(122,894)	(122,894)	(122,894)	(122,894)	(122,894)	(122,894)	(122,894)	(122,894)
Yearly												(2,911)

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