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James J. Fisicaro  
Director,  
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Waterford 3

W3F1-96-0075  
A4.05  
PR

May 14, 1996

U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, D.C. 20555

Subject: Waterford 3 SES  
Docket No. 50-382  
License No. NPF-38  
Proposed Self-Assessment

Gentlemen:

In accordance with the NRC's program to permit self-assessment alternatives to NRC team inspections, Entergy Operations, Inc. proposes to conduct a self-assessment at Waterford 3 to examine the effectiveness of engineering activities, and programs and controls established for the identification, resolution and prevention of problems. The objective of the assessment is to evaluate engineering activities using the guidance of NRC Inspection Procedure (IP) 37550, "Engineering," to identify strengths, weaknesses, and areas for further improvement. Based on our discussions with the NRC Region IV staff, we understand that the staff concurs with the self-assessment option as an alternative to a full scope engineering inspection.

Attachment 1 outlines the objective, scope, general approach, schedule, level of effort, and team qualifications. Attachment 2 provides the details of the assessment plan and Attachment 3 includes the resumes of most of the assessment team members. Please note that this is a preliminary list that will be revised to add additional team members as indicated. Remaining team members will be identified and resumes not included will be forwarded by May 23, 1996.

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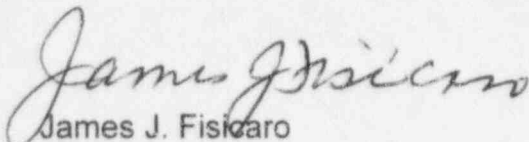
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We appreciate the opportunity to participate in the self-assessment program.  
Should you have any questions or require additional information, please contact me  
at (504) 739-6242 or Don Vinci at (504) 739-6370.

Very truly yours,



James J. Fisicaro  
Director  
Nuclear Safety

JJF/RTK/tjs  
Attachment

cc: L.J. Callan (NRC Region IV)  
C.P. Patel (NRC-NRR)  
R.B. McGehee  
N.S. Reynolds  
NRC Resident Inspectors Office

## **ASSESSMENT OVERVIEW**

### **OBJECTIVE**

The objective of this self-assessment is to examine the effectiveness of Waterford 3 engineering activities; to recognize strengths and identify opportunities for improvement. The guidance provided in USNRC IP 40501 will be used so that this assessment can be performed as an alternative to a full-scope NRC inspection.

### **SCOPE**

The Waterford 3 engineering assessment will be conducted using USNRC IP 37550. This procedure was used to develop the assessment plan provided in Attachment 2.

The assessment will include evaluation of the following areas/activities:

1. General engineering capabilities
2. Design and configuration control
3. Involvement/responsiveness in site activities
4. Identification/Resolution of technical problems
5. Effectiveness of the independent safety engineering group (ISEG) function

### **APPROACH**

The assessment will be accomplished by performing an in-depth vertical evaluation of a significant safety system, the Emergency Diesel Generators, and a horizontal review of other selected engineering activities on either a system or process basis. The in-depth evaluation will emphasize verification of selected design/licensing bases, configuration control and system capabilities while the horizontal review will provide a broader look at engineering involvement/responsiveness in site activities and general engineering capabilities.

### **SCHEDULE**

The assessment is scheduled for July 22-August 2, 1996. A report of the completed assessment will be provided to the NRC Regional Administrator no later than August 30, 1996. Additionally, Waterford 3 would welcome an opportunity to meet with the NRC staff to review the results of the assessment. We would anticipate being prepared for this meeting in the latter half of August 1996.

## **LEVEL OF EFFORT**

The assessment team will be composed of approximately eight team members plus a team leader. The level of effort is expected to be approximately 640 man-hours of direct inspection.

## **TEAM QUALIFICATIONS**

The team consists of experienced technical personnel with expertise in their area of assignment. The resumes of most of the team members are included in Attachment 3. Please note that this is a preliminary list that will be revised to add additional team members as indicated. Remaining team members will be identified and resumes not included will be forwarded by May 23, 1996.

## **SELF-ASSESSMENT PLAN**

### **METHODOLOGY**

The self-assessment will be conducted using a performance based combination of vertical and horizontal reviews. The established Entergy Operations self-assessment process will be used to conduct the assessment and produce the assessment report.

The vertical review will be used to evaluate engineering effectiveness by reviewing the operational performance capability of the Emergency Diesel Generators. This will include a multi-discipline review of selected engineering elements of the system to verify that the engineering performed supports the design basis requirements. The following items will be included as part of this effort:

1. Assessing selected design basis functional requirements.
2. Assessing the adequacy of design and configuration changes.
3. Assessing selected surveillance and post maintenance testing activities.
4. Assessing engineering's capability to identify and resolve problems.

The horizontal component of the assessment will be used to provide a broader review of engineering activities outside the selected system. The following items will be included as part of this effort:

1. Assessing the effectiveness of the Waterford 3 engineering organization to identify, evaluate, and resolve problems by reviewing the resolution of selected operational issues.
2. Assessing the overall effectiveness of the engineering organization in providing maintenance support for such activities as troubleshooting, corrective, and planned maintenance support.
3. An evaluation of the effectiveness of the system engineering function to improve and maintain system material condition, trending component performance, and operations support.
4. Assessing engineering work backlog.
5. Assessing the adequacy of selected design and configuration changes, either completed or awaiting installation, and a review of

temporary alterations to ensure engineering properly supported implementation of the changes in accordance with approved procedures.

6. Assessing the effectiveness of the independent review functions of the Independent Safety Engineering Group (ISEG).
7. Assessing the use of risk analysis to support operations and maintenance activities.
8. Assessing the effectiveness of engineering communications with, and involvement in operational and maintenance technical issues.

The assessment will be accomplished through a review of relevant design, procurement, installation, maintenance, testing, and corrective action documents; walkdowns of the Emergency Diesel Generators; and interviews with cognizant personnel. Potentially generic issues will be identified and appropriately pursued across system boundaries.

## **DETAILED PLAN**

### **Vertical Evaluation**

1. Design and Configuration Control
  - a. Review licensing and design basis documents for the selected system to identify the functional requirements for the system during normal, abnormal and accident conditions. For the selected functional requirements (team leader to select during assessment preparation) determine if (1) the design basis is in accordance with the licensing commitments and regulatory requirements, (2) the design basis, analyses, and associated design output documents such as facility drawings, and procurement specifications are correct, and (3) if the installed system and components are tested to verify that the design bases have been met.
  - b. Review a sample of safety-significant design changes and temporary modifications for the EDG system and evaluate these changes to verify conformance with the applicable implementation and testing requirements.
  - c. Review the modification configuration and determine if the drawings, which reflect the as-built design and installation match the current design documents and licensing requirements of the facility. Also ensure that plant drawings were either revised and distributed or legibly



marked-up, on an interim basis, to show all changes relating to the plant modification.

- d. Determine if the modified system is capable of functioning as specified by the current design documents and licensing requirements for the facility, and that 10CFR50.63 Station Blackout, Reg Guide 1.97, and SPDS have not been compromised.
- e. Determine if the modifications implemented have introduced any unreviewed safety questions and if a 10 CFR 50.59 review or safety evaluation was appropriately documented.
- f. Review the modification packages to ensure that all changes to the support elements have been made, including maintenance requirements and procedures, operating procedures, training documentation and training programs, periodic testing, and procurement documentation and specifications.

## 2. Surveillance and Testing

For the selected system, evaluate several technical specification (TS) surveillance and post maintenance tests performed since January 1995, to verify that the tests and surveillances are adequate to demonstrate continued operability.

- a. Review and evaluate the technical adequacy of the selected TS surveillance procedures and post maintenance tests.
- b. Verify that the system testing adequately ensures that the system will operate as designed under postulated accident conditions. Verify that the surveillance test procedure acceptance criteria are adequate to demonstrate continued operability.
- c. Review the component history files, looking for indications of adverse trends or recurrent test failures.
- d. Review the inservice test records for pumps and valves in the selected safety system for technical adequacy.
- e. Determine if design engineering and system engineering personnel contribute to test procedures and if they review test results.
- f. Determine if post maintenance testing for maintenance activities were correctly scoped and implemented.

3. Identification/Resolution of Technical Problems Associated with the EDG System.
  - a. The assessment team will select a sample of issues, problems, and self-assessments occurring since January 1995, for detailed analysis to assess engineering's ability to identify and correct problems.
    - \* Operational events, testing, or maintenance activities (such as temporary repairs or troubleshooting activities).
    - \* Equipment deficiencies requiring safety evaluations or operability determinations.
    - \* Procedural adherence deficiencies.
    - \* Audits.
    - \* Repetitive equipment deficiencies.
    - \* Other events or issues that may indicate weaknesses.
  - b. The problems selected above will be evaluated to determine engineering effectiveness in performing the following:
    - \* Initial identification and characterization of the problem.
    - \* Proper assignment of priority and elevation of problems to proper level of management for resolution.
    - \* Root-cause analysis.
    - \* Evaluation of adverse trends or repetitive conditions.
    - \* Disposition of any operability/reportability issues and interim resolutions.
    - \* Implementation and timeliness of corrective actions.
    - \* Expansion of the scope of corrective actions to include applicable related systems, equipment, procedures, and personnel actions.



### Horizontal Evaluation

#### 1. General Engineering Capabilities

Through a review of selected operational issues evaluate the capability of the engineering organization in the following areas:

- a. Assess engineering involvement in site activities, particularly in the resolution of technical issues.
- b. Evaluate the effectiveness of communications within Engineering, and with other departments such as Maintenance and Operations.
- c. Evaluate the extent of backlogged engineering work.

#### 2. Design and Configuration Control

Review selected design and configuration change engineering products (design changes, temporary alterations, Spare Parts Equivalency Evaluations, calculations, etc.) in accordance with the criteria noted in Items 1.b-f of the vertical evaluation section:

(Specific items will be selected by the team leader during the assessment preparation)

#### 3. Identification/Resolution of Technical Problems

Review a sample of recent technical problems in accordance with the guidance of Items 3.a-b of the vertical evaluation section.

#### 4. Maintenance and Operations Support

Evaluate the effectiveness of the engineering organization in providing maintenance support for such activities as troubleshooting, corrective and preventive maintenance support, and use of risk analysis to support operations and maintenance activities.

- a. Review selected corrective and preventive maintenance activities for safety significant components performed since January 1995. Determine the level of engineering involvement in planning the maintenance activity. Discuss with relevant maintenance personnel to determine if sufficient engineering support was provided.
- b. Evaluate how Waterford 3 ensures the operability of equipment for systems such as ATWS, SBO, SPDS and RG 1.97 instrumentation that are not covered by TS but are installed in accordance with commitments and are important to the safe operation of the plant.
- c. Assess whether probabilistic risk assessment considerations were made when removing components from service for planned maintenance.

- d. Assess whether Operations has been supported with timely and thorough review of technical problems (e.g., review operations work around list and determine if engineering issues are being addressed in a timely manner).

5. ISEG Function Effectiveness

Evaluate the overall effectiveness of the independent safety engineering function by reviewing a sample of ISEG reports issued since January 1995.

- a. Assess if reports are thorough and of appropriate breadth and depth.
- b. Determine if appropriate recommendations are provided.
- c. Determine if recommendations are responded to/implemented in a timely manner.

6. System Engineering Function

Evaluate the effectiveness of the system engineering function to trend and maintain system material condition, and provide operations and maintenance support.

- a. Review the role of the system engineers and their knowledge of system requirements and plant design basis.
- b. Review the system engineers involvement in system activities; including planned maintenance, modifications, surveillance testing, condition reports, and nonconformances.
- c. Review system engineering effectiveness in trending and monitoring system performance.

## **ATTACHMENT 3**

**WATERFORD 3  
ENGINEERING AND TECHNICAL SUPPORT SELF-ASSESSMENT  
July 22-August 2, 1996**

**ASSESSMENT TEAM**

**Team Leader:**

Jerry Roberts, Entergy Operations, Director Nuclear Safety and Licensing

**Team Members:**

Phillip Wagner, Contractor

Jeff Wright, Grand Gulf, Mechanical Design Engineering Supervisor

Clyde Little, ANO, Mechanical Engineer, Technical Assistant to Design Director

Drew Bottemiller, Grand Gulf, Superintendent, Plant Licensing

Larry Phillips, Grand Gulf, Senior I&C Design Engineer

Dan Dormady, River Bend, Manager System Engineering

TBD (EDG System Engineer)

TBD (Electrical Design Engineer)

**Assessment Coordinator:**

Tom Smith

**JERRY C. ROBERTS**  
**Director, Nuclear Safety & Licensing**

**EXPERIENCE**

**ENTERGY OPERATIONS, INC.**

- March 1994**      *Director, Nuclear Safety & Licensing, Corporate Headquarters. Reports to the Vice-President, Operations Support - Echelon, and is responsible for directing the licensing staff in activities pertaining to monitoring and providing analysis on new and long-term generic issues, pro-active participation with the NRC and industry to achieve the resolution of generic issues, facilitating consistency on selected regulatory issues, providing short-term staff support, and coordinating Entergy Operations interface with NUMARC. In addition, is responsible for directing Corporate Quality Assurance and Nuclear Assessment functions. The Corporate Quality Assurance function insures that corporate activities performed for the sites are carried out in accordance with Quality Assurance requirements. The Nuclear Assessment function seeks to ensure excellent performance in the safe operation of Entergy's nuclear stations through performance based assessments. These assessments are designed to measure operating plant performance against criteria of excellence (not regulatory compliance).*
- Sept. 1991**      *Manager, Plant Maintenance, Grand Gulf Nuclear Station. Reports to General Manager, Nuclear Operations - GGNS, and is responsible for the safe, efficient, and cost-effective implementation of all plant maintenance activities in accordance with appropriate procedures and regulatory requirements to enable maximum power generation and plant availability.*
- July 1988**      *Manager, Performance and System Engineering, Grand Gulf Nuclear Station. Reports to the GGNS General Manager, and is responsible for the safe, efficient, and cost-effective implementation of all plant engineering activities in accordance with appropriate procedures and regulatory requirements to enable maximum power generation and plant availability.*
- 1987-1988**      *Manager, Plant Modification & Construction, Grand Gulf Nuclear Station. Promoted to (Acting) Manager, Plant Modification and Construction in April 1987. In June was promoted to Manager, Plant Modification and Construction. Reported to the GGNS Site Director, and was responsible for planning, scheduling and implementing major maintenance and modification activities during both outage and non-outage periods at GGNS. This included installation and documentation of all modification work activities; maintenance of the interface with Plant Staff and NPE for outage activities; coordination of all assigned work activities such as modifications, major maintenance activities, retests, etc., being performed during outage and non-outage periods; and establishment and implementation of all Design Changes at GGNS. Also served as Duty Manager and Emergency Director for the GGNS General Manager.*
- 1978-1987**      • *Technical Assistant to Manager, Plant Support, Grand Gulf Nuclear Station. As the Technical Assistant to Manager, Plant Support, reported to the Manager, Plant Support and assisted in his day-to-day duties. Such duties are associated with Technical Support, Warehousing and Security.*

- *Technical Support Superintendent*, Grand Gulf Nuclear Station. Reported to the Manager, Plant Operations, responsible for Results Engineering, Reactor Engineering, Shift Technical Advisors, and Startup Test Group. Special assignments have included Manager, RPD of Technical Specification rewrite. Routine responsibilities include coordinating surveillance program/implementation and approval of surveillance procedures. Reporting to RF01 Outage Director also substituted for Backshift Outage Manager. Obtained NRC SRO License, GGNS, Unit No. 1 License Number 20487 on 10/19/86.
- *Startup Manager/Superintendent*, Grand Gulf Nuclear Station. Reported to the General Plant Manager/Manager Plant Operations, responsible for closeout of Phase I systems punchlist (including applicable testing, maintenance and design change activities), Phase II systems completion and testing, and implementation of power ascension test program. During this time provided support to Technical Engineering Organization by overseeing DCP approval, implementation and close out process and coordinating System Engineering functions during surveillance rewrite program.
- *Startup Supervisor*, Grand Gulf Nuclear Station. Reported to the Startup Manager, responsible for supervision of the preoperational and acceptance test programs and preparations for the Power Ascension Test program. Responsibilities included the coordination of testing activities to meet the project schedule, approval of test procedures, coordination with Bechtel-CTO, and coordination with plant staff for operations and maintenance support.
- *Assistant Startup Supervisor*, Grand Gulf Nuclear Station. Reported to the Startup Supervisor. Provided assistance to the Startup Supervisor in the supervision of preoperational and acceptance test programs and coordination of day to day operations and maintenance support.
- *Group Leader*, Grand Gulf Nuclear Station. Reported to the Startup Supervisor. Provided assistance to the Startup Supervisor in the supervision of preoperational and acceptance test programs and coordination of day to day operations and maintenance support.
- *Startup Test Supervisor*, Grand Gulf Nuclear Station. Organized and issued Plant Startup Manual and participated in its writing; design review and correction of liquid and solid radioactive waste systems; preparation of liquid and solid radioactive waste systems, and containment integrated leak rate test preoperational test procedures; review of construction and acceptances of radioactive waste building and facilities; general engineering support to other Startup Test Supervisors and their systems.

## INGALLS SHIPBUILDING

1974

*Radiological Engineer*. Responsible for the following duties to support the refueling and overhaul of nuclear submarines: Man-Rem Reduction Engineer; Radiological Work and Management/ Organization Auditor; wrote and approved decontamination procedures, radioactive waste packing procedure, and radioactive liquid processing system design and operating manual; had overall radioactive liquid processing engineering responsibilities; wrote shipyard radiation emergency plan; engineer for performance of and approval of



detailed radiation shield survey results (lead on two submarine data reduction supervisor on one). Prepared and conducted training of instrument operators, data recorders, and data reduction personnel for performance of shield survey.

#### GEORGIA POWER COMPANY

1974-1978

- *Test Engineer* - Responsible for review of systems in order to set instrumentation calibration, logic checks, and functional checks, and functional checks. Review and approval of completed data packages.
- *Preoperational Test Engineer* - for completion of local leak rate testing to complete containment integrated leak rate test; developed and performed functional and logic checks of emergency diesel generator systems.
- *Fuel Loading Engineer* - Alternated between refueling floor and control room to direct and verify fuel loading operations.
- *Startup Engineer* -for initial criticality through five to ten percent power testing.

#### EDUCATION

1974

Mississippi State University, Starkville, MS.  
B.S. Nuclear Engineering

**THOMAS H. SMITH JR.**  
Senior Oversight Specialist  
Nuclear Safety And Licensing

**Experience**

**1982 - Present**

**Louisiana Power and Light/Entergy Operations**

1991-

*Senior Oversight Specialist, Nuclear Safety and Licensing (Assessments).* Responsible for planning, scheduling, and leading performance based assessments of activities/processes at all Entergy Operations facilities. Was Acting Manager of the Assessment Group during the formative stages of assessment process development from October 1992 to February 1994. The EOI assessment process has been recognized by others in the industry, INPO and NRC as a superior process. Over 160 assessments have been conducted since the inception of the process.

1988-1991

*Plant Engineering Superintendent, Waterford 3.* Directed the activities and was responsible for System Engineering, Reactor Engineering and Performance, and Chemistry; a department of approximately 60 engineers and technicians. Established and staffed the initial system engineering program. Waterford 3 performance steadily improved during this period.

1985-1987

*Maintenance Superintendent, Waterford 3.* Directly supervised the Electrical, Mechanical and I&C Assistant Superintendents and a small group of maintenance engineers in the management of a department of approximately 160. Led the maintenance department in the transition from startup support to operational plant maintenance. Responsible for all plant corrective and preventive maintenance. Achieved a good maintenance record with steady improvements. First plant refueling outage completed successfully.

1984-1985

*Support Engineering Supervisor, Waterford 3.* Supervised thirteen engineers. Responsible for the final preparation of the Technical Specification, the Equipment Qualification program, the Preservice and Inservice Inspection program and various major surveillance test activities.

1982-1984

*Startup Engineer, Waterford 3.* Completed startup testing of assigned systems. Shift Test Director for Hot Functional Testing and Containment Integrated Leak Rate Test.

1978-1982

**Nuclear Regulatory Commission**

Two years regional office based inspector, two years Senior Resident Inspector at an operating PWR facility.

**Military**

U.S. Navy. Two nuclear submarine sea tours. Department Head on second tour.  
Engineer Qualified.

**Education/Certifications**

Bachelor of Science, United States Naval Academy  
SRO Management Certification, Waterford 3

## **ROBERT J. WRIGHT**

### **PROFESSIONAL EXPERIENCE:**

Engineering Supervisor, Mechanical/Civil Engineering (NPE), Entergy Operations, Inc., Grand Gulf Nuclear Station, Port Gibson, MS.

(1991-Present) Supervisor for the Mechanical Programs group. Responsible for managing the design activities of a technical staff of seven people in a broad spectrum of mechanical engineering programs and systems. Program areas include ASME Section XI, welding and coating special processes, and valve programs. System responsibilities include HVAC and diesel generator systems. Other assignments include performance of metalurgical evaluations and resolution of containment design and testing issues. Responsible for implementation of Generic Letter 89-10 program for testing of motor operated valves. This program implements industry leading initiatives for minimizing cost and scope by use of valve grouping and PRA techniques. Currently coordinating major update of ISI and IST 10 year programs. Responsible for developing an alternate design change program to allow valve packing changes with reduced cost and plant impact. Also served as Mechanical Group budget coordinator.

(1989-1991) NSSS Design Engineer responsible for resolving design issues related to emergency core cooling systems. Performed analysis to resolve licensing issues related to fuel pool cooling system design. Presented analysis results to the Nuclear Regulatory Commission and was successful in removing issue from RF04 scope. Directed contractor activities for various RF04 design efforts. Performed as Project Engineer for reactor vessel recovery task force during RF04.

(1988-1989) Project Engineer for alternate shutdown cooling system design. Developed conceptual design and prepared scoping document for budget approval. Coordinated multi-discipline design and scheduling. Developed specifications for equipment procurement. Directed the work performed by Architect/Engineer for task specific analyses. Presented design to the Nuclear Regulatory Commission and received approval for use. Supported field implementation.

(1986-1987) Project Engineer for cooling tower upgrade. Performed analysis to determine cause of loss of performance. Developed specification for modifications to upgrade thermal performance, bid negotiations and evaluations, and selected turn-key vendor for contract award. Performed field engineering functions during construction. Upon completion, performed thermal performance testing which verified performance exceeded design requirements.

(1984-1986) System Engineer for various systems in Balance of Plant Group. Responsible for design of fire protection, fire detection, and domestic water systems. Directed task force that reviewed station fire protection design. Coordinated Mechanical Group work scope for NRC Appendix R audit which resulted in no findings. Developed a Fire Hazards Analysis and administrative procedures to review design changes for impact on the fire protection program. Developed a working knowledge of NFPA codes.

**OTHER EXPERIENCE:**

Supervisor, M. P. Gibson Co., Jackson, MS  
(1979-1981)

Planned and supervised daily assignments of construction work force performing commercial structural foundation repair.

**EDUCATION AND TRAINING:**

Mississippi State University, Mississippi State, MS  
B. S. Degree - Mechanical Engineering (December 1983)  
Cum Laude

Entergy Operations, Inc. SRO Certification Training - 1990

**PROFESSIONAL MEMBERSHIPS:**

Registered Professional Engineer - Mississippi



**DANIEL (DAN) T. DORMADY**  
**Manager, Performance and System Engineering, RBS**

**EXPERIENCE**

**ENTERGY OPERATIONS, INC.**

- January 1996      *Manager, Performance and System Engineering, River Bend Station. Reports directly to the Director, Engineering, and also to the General Manager, Plant Operations. Responsible for the direction of the Reactor Engineering, System Engineering, Thermal Performance, and Process Computer groups. Member of the Facilities Review Committee.*
- April 1994      *Manager, Mechanical/Civil Engineering, River Bend Station. Reported to the Director, Engineering. Responsible for direction of all mechanical and civil design engineering functions including the development of plant design changes.*
- July 1993      *Technical Assistant reporting to the Director, Design Engineering, Waterford 3. Responsibilities included project management of Waterford's power uprate feasibility study and decommissioning cost estimate update to the PSC.*
- June 1991      *Sr. Evaluator at the Institute of Nuclear Power (INPO) on loan from Waterford 3. Responsible for performing evaluations and assistance to the nuclear industry in the maintenance and outage areas. Performed twenty visits to US nuclear plants.*
- August 1989      *Superintendent, Mechanical Maintenance, Waterford 3. Reported to the Maintenance Superintendent. Responsible for direction of all mechanical maintenance functions and plant housekeeping. During this period an INPO 1 rating was received.*
- July 1988      *Supervisor, Maintenance, Waterford 3. Reported to the Mechanical Maintenance Superintendent. Responsibilities included planning and scheduling and plant housekeeping.*
- December 1987      *Engineering and technical roles at Waterford 3*
- 1986      *Consultant to Waterford 3 in configuration management.*
- 1985      *Consultant to Southern Company Services at Plant Vogtle.*

**EBASCO SERVICES, INC.**

- 1981      *Engineering and technical positions on the Waterford 3 Project.*

**EDUCATION**

- 1981      *Rensselaer Polytechnic Institute, Troy, New York  
B. S. Mechanical Engineering*
- (1998)      *Louisiana State University, Baton Rouge, Louisiana  
Masters of Business Administration*
- 1987      *Registered Professional Engineer in Louisiana*