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 RECIP. NAME      RECIPIENT AFFILIATION  
 MARTIN, J. B.      Document Control Branch (Document Control Desk)

SUBJECT: Requests reduced NRC insp activity in SWS operational  
 performance insp (SWSOPI) area of emphasis, per NRC Insp  
 Procedure 40501. Util proposing to perform own SWSOPI, using  
 guidance of NRC SWSOPI Temporary Instruction 2515/118.

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AEP:NRC:1104D

Donald C. Cook Nuclear Plant Units 1 and 2  
Docket Nos. 50-315 and 50-316  
License Nos. DPR-58 and DPR-74  
SERVICE WATER SYSTEM OPERATIONAL  
PERFORMANCE INSPECTION: REQUEST  
FOR REDUCED SCOPE INSPECTION  
PURSUANT TO USNRC INSPECTION PROCEDURE 40501

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

Attn: J. B. Martin

September 30, 1994

Dear Mr. Martin:

Pursuant to a discussion with Mr. G. C. Wright of the NRC Engineering Branch of Region III on September 2, 1994, the purpose of this letter is to request reduced NRC inspection activity in the service water system operational performance inspection (SWSOPI) area of emphasis. In lieu of the full-scope NRC inspection, we are proposing to perform our own SWSOPI, using the guidance of the NRC SWSOPI Temporary Instruction No. 2515/118. This request for reduced scope inspection is being made in accordance with the guidance of NRC Inspection Procedure 40501, entitled "Licensee Self-Assessments Related to Area of Emphasis Inspections." We are proposing to begin the self-assessment on February 28, 1995.

In order to support the proposed February 28, 1995, start date, we request your approval of this proposal by December 30, 1994.

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Mr. J. B. Martin

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AEP:NRC:1104D

Additional details on the proposed self-assessment in support of our request for reduced scope inspection are contained in the attachments to this letter.

Sincerely,



E. E. Fitzpatrick  
Vice President

ar

Attachments

cc: A. A. Blind  
G. Charnoff  
W. T. Russell  
NFEM Section Chief  
NRC Resident Inspector - Bridgman  
J. R. Padgett

ATTACHMENT 1 TO AEP:NRC:1104D  
DETAILS ON PROPOSED SELF-ASSESSMENT  
SWSOPI



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### Introduction

NRC Inspection Manual Temporary Instruction (TI) 2515/118 provides the inspection plan for service water system operational performance inspections (SWSOPIs). According to the TI, the inspection is to be performed on all plants licensed before 1979, which encompasses the Cook Nuclear Plant Units 1 and 2. In accordance with NRC Inspection Procedure (IP) 40501, entitled "Licensee Self-Assessments Related to Area-of-Emphasis Inspections," we are proposing to perform our own SWSOPI with reduced scope NRC involvement, versus the full-scope NRC inspection. We are proposing to begin the self-assessment February 28, 1995.

As required by IP 40501, these attachments provide the proposed schedule, scope, level of effort, and team qualifications.

As discussed below, the self-assessment will be conducted by a combined team from the American Electric Power Nuclear Organization (AEPNO) and Cygna Energy Services as a consultant. The self-assessment will occur primarily at Cook Nuclear Plant with interaction with the Columbus office as necessary. An AEPNO response team will be organized to support and provide the needed data and information to the SWSOPI team and to respond to the team's findings.

### Proposed Schedule

We are proposing to follow a schedule based on the schedule of TI 2515/118. Specifically, the proposed schedule is as follows:

#### Week 1

The SWSOPI team arrives at the site to collect necessary background information, to present expectations concerning the remainder of the self-assessment, and to get support contractors badged.

#### Week 2

Review of material at Cook Nuclear Plant, modify and finalize the self-assessment plan.



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Week 3	On-site self-assessment.
Week 4	Review of self-assessment documentation at American Electric Power offices in Columbus, Ohio.
Week 5	On-site self-assessment.
Weeks 6,7,8	Self-assessment report prepared.
Week 9	Issue final self-assessment report.
Weeks 10,11	Self-assessment summary report submitted to NRC.

#### Scope and Level of Effort

The self-assessment will involve the safety related service water system (SWS) and its suction sources. (At the Cook Nuclear Plant the safety related SWS is called the essential service water (ESW) system.) The ESW system provides the cooling water flow requirements to the component cooling water heat exchangers, the containment spray heat exchangers, the emergency diesel generator coolers, and the control room HVAC system. Additionally, the ESW system is used to provide an alternate suction source to the auxiliary feedwater pumps when the normal suction source, the condensate storage tank, is depleted.

Consistent with TI 2515/118, the objective of the self-assessment will be to:

1. Assess our planned or completed actions in response to Generic Letter 89-13, "Service Water System Problems Affecting Safety-Related Equipment."
2. Verify that the SWS is capable of fulfilling its thermal and hydraulic performance requirements and is operated consistent with its design bases.
3. Assess the SWS operational controls, maintenance, surveillance, and other testing, and personnel training to ensure the SWS is operated and maintained so as to perform its safety-related functions.

Attachment 2 contains the preliminary detailed self-assessment plan.

The SWSOPI team will contain ten members including the team leader from AEPNO and a co-leader from Cygna. We have chosen to contract with Cygna Energy Services to provide support personnel in the areas outlined in the TI.

Team Member 1	Team Leader, Mechanical (David Powell-AEPNO)
Team Member 2	Team Co-Leader, Operations (Alan Tattersall-Cygna)
Team Members 3,4	Mechanical Design (Gregory Hines-AEPNO, Robert Stanley-Cygna)
Team Members 5,6	Maintenance & Corrective Actions (Curtis Hehl-AEPNO, Jeffrey Haverly-Cygna)
Team Members 7,8	Surveillance & Testing (Walter McCrory-AEPNO, James Olson-Cygna)
Team Member 9	Operations (James O'Neil)
Team Member 10	Electrical and I&C Engineer (Donald Kosack-Cygna)

The SWSOPI plan will be consistent with the guidance of TI 2515/118. In order to optimize the use of resources, the SWSOPI plan will consider relevant assessments in related areas of emphasis. In particular, Cook Nuclear Plant received a NRC Safety System Functional Inspection (SSFI) of the essential service water system in 1990, a NRC Electrical Distribution System Functional Inspection in 1992, and a NRC Motor Operated Valve Inspection in 1993. In addition, an internal SSFI was conducted on the Component Cooling Water (CCW) system in 1993.

The CCW SSFI was led by an independent consulting firm with the support of AEPNO. Consideration of these past assessments will allow followup in known past problem areas, and avoid applying resources in areas that have been previously independently reviewed and found acceptable.

AEPNO has extensive experience in coordinating and supporting self-assessments of this nature. In 1986, we contracted with WESTEC (now Ogden, Inc.) to perform an SSFI of our auxiliary feedwater system. In 1991, Ogden performed an SSFI of our control room, engineered safeguards, and spent fuel pool ventilation systems. In 1992, Ogden again conducted an SSFI of the containment spray system. In 1993, Cygna performed the CCW SSFI. AEPNO response teams have supported the above activities.

The SWSOPI self-assessment will be coordinated consistent with the methods we used successfully for previous SSFIs. However, for this assessment, AEPNO is leading and conducting the self-assessment with the support of an experienced consulting firm. This format was chosen as a reinforcement to our strong commitment to the self-assessment process. AEPNO team members will conduct this assessment in an independent environment with the full support of AEPNO management. The assessment will be the first order of business for the team members.

The combined AEPNO and Cygna SWSOPI team will be supported by a response team of people drawn from within AEPNO. The AEPNO response team will include personnel from Cook Nuclear Plant as well as from the American Electric Power Service Corporation. This team will be chartered to interact with the SWSOPI team. The AEPNO response team will consist of representatives from various corporate and plant departments. The team will include the system and design engineers for the service water system, as well as an assistant plant manager.

Questions from the SWSOPI team will be assigned and tracked to ensure that information is retrieved in a timely manner. Our corrective action system will be used to process items of non-conformance or operability concerns.

The SWSOPI team will conduct a daily review meeting. These meetings will allow for cross-discipline review and discussion of potential problem areas. Representatives from the AEPNO response team will meet frequently with the SWSOPI team to allow for continuous communications of SWSOPI results and direction, and to allow for important feedback. AEPNO upper management will be briefed appropriately as to the course of the self-assessment and the findings.

#### SWSOPI Team Qualifications

The combined AEPNO and Cygna team has over (175) years of relevant experience in the design and operation of service water systems and in performing self-assessments. Team members were selected with diverse backgrounds to cover all the aspects of this self-assessment as outlined in the TI.

Cygna has substantial experience performing work of this nature. Cygna has performed over thirty SSFIs (under the nomenclature of Safety System Functional Reviews). Cygna has also assisted various nuclear stations with issues related to the service water system. Resumes of the team members are provided in Attachment 3.

The SWSOPI team will be led by Mr. David Powell. Mr. Powell is the Mechanical Systems Section Manager, Nuclear Engineering Department, in the AEPNO corporate office in Columbus. The Mechanical Systems section is comprised of the design engineers for safety related mechanical systems including service water. His selection to lead this self-assessment was prompted by his broad association with mechanical systems and components, his past experience in our Quality Assurance Department, and his participation on the auxiliary feedwater SSFI team.

The SWSOPI team will be co-led by Mr. Alan Tattersall of Cygna. Mr. Tattersall will also review operations activities. Mr. Tattersall is a former NRC Resident Inspector with over 25 years of nuclear experience. He completed 10 years service in the Naval Nuclear Power Program, having served as Engineer Officer of a nuclear submarine.

He was licensed as a Senior Reactor Operator on Unit 1 and 2 of the Calvert Cliffs Nuclear Power Plant where he was the Supervisor of the I&C and Electrical Maintenance Groups. He was the NRC Resident Inspector at the North Anna Power Station during the startup and operation of Unit 2 and the operation of Unit 1.

Should it become necessary to replace an inspection team member whose resume is provided in Attachment 3, we will provide the NRC with a resume of the replacement individual.

ATTACHMENT 2 TO AEP:NRC:1104D  
PRELIMINARY SELF-ASSESSMENT PLAN



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The proposed self-assessment will include interviews with personnel, system walkdowns, and document reviews. The following provides the minimum set of items to be reviewed and will be added to and refined based upon the findings of the self-assessment:

- 1.0 Mechanical Systems Engineering Design Review and Configuration Control
- 1.1 Review the design bases, and other design documents such as calculations and analyses for the SWS, and determine the functional requirements for the SWS and each active component during accident or abnormal conditions.
- 1.2 Review the SWS configuration drawings for consistency with applicable design documents, NRC requirements, and licensing commitments.
- 1.3 Review the SWS operation as compared to design documents.
- 1.4 Evaluate single active failure vulnerabilities of the system and the resulting impact on interfacing system components. Also, examine potential common mode failures from fouling of common intakes or traveling screens.
- 1.5 Review the effectiveness of design features installed to minimize silting and biofouling of the piping and components.
- 1.6 Verify if features are provided for the timely detection of flow degradation and if flow balancing has been conducted during various system operating modes.
- 1.7 Verify that pump run out conditions are not present with minimum number of pumps operating with worst case alignment of non-safety related loads.
- 1.8 Verify that system flow balance data is consistent with key design assumptions.



- 1.9 Check whether design features are provided to mitigate the effects of flooding caused by SWS leaks. Review NUREG 1275, Volume 3, Section 3.3 for information on SWS events involving actual or potential flooding.
- 1.10 Review the safety related portion of the system for seismic qualification and verify that non-safety related portions can be isolated in accordance with the provisions specified in the system design bases.
- 1.11 Review the program for monitoring system degradation.
- 1.12 Review the setpoints for alarms and actuations to ensure they are consistent with the design bases and assumptions.
- 1.13 Review the system design bases to ensure that the required functions are met.
- 1.14 Evaluate the adequacy and consistency of the existing system/components with respect to the design bases.
- 1.15 Assure availability of power circuits under all operating and design bases conditions.
- 1.16 Review instrumentation for range and accessibility.
- 1.17 Verify the adequacy of system/component controls and protection logic.
- 1.18 Review all modification to the SWS and select at least three significant modifications for a detailed review.
- 1.19 Evaluate the adequacy of the response to Action IV of NRC Generic Letter 89-13.
- 2.0 Operations
- 2.1 Perform an in-depth system walkdown. Review the SWS configuration for consistency with design drawings.

- 2.2 Review the SWS alarm response procedures and operating procedures for normal, abnormal, and emergency system operations.
- 2.3 Review operating logs to determine the adequacy of temperature and flow monitoring.
- 2.4 Review operator training for the SWS, ensuring that the lesson plans reflect the system modifications and that the licensed operators have been trained on these modifications.
- 2.5 Review the proper implementation of procedures for verifying periodic and post-maintenance alignments of valves in the SWS, especially those valves that isolate flow to safety-related components.
- 2.6 Verify that required accident condition flow is not degraded during normal system operation valve alignments.
- 2.7 Review control of SWS heat exchanger flow variations due to changing climate (temperature) conditions.
- 2.8 Walk through the system operating procedures and the system piping and instrument diagrams with engineering and operations staff, as appropriate. Verify that the procedures can be performed and that components and equipment are accessible for normal and emergency operation.
- 2.9 Verify that the operators' knowledge of equipment location and operation is adequate.
- 2.10 Interview the operators to determine the adequacy of their technical knowledge of such items as the operation of the system, its role in accident mitigation, technical specification surveillance requirements, and determination of operability.
- 2.11 Review the local operation of equipment. Determine if the indication available to operate the equipment is in accordance with applicable operating procedures and instructions. Verify that the environmental conditions, such as expected room temperature, emergency lighting, and steam, assumed under accident conditions are adequate for remote operation of equipment.

- 2.12 Assess operational controls for traveling screens and circulating water pumps to preclude excessive drawdown of the intake bay, with associated loss of SWS pump suction head, as a result of clogging the traveling screens.
- 3.0 Maintenance
- 3.1 Conduct an in-depth system walkdown to review the as-configured system for material condition.
- 3.2 If possible, witness maintenance performed on the selected system. Review maintenance package preparation and observe quality control involvement.
- 3.3 Review maintenance procedures for technical adequacy.
- 3.4 Determine if maintenance procedures are sufficient to perform the maintenance tasks and provide for identification of equipment deficiencies.
- 3.5 Compare maintenance procedures to vendor manuals to identify any vendor recommendations not incorporated into the procedures.
- 3.6 Determine if vendor manuals are available and maintained current.
- 3.7 Review the periodic inspection program used to detect corrosion, erosion, protective coating failure, silting, and biofouling.
- 3.8 Review the maintenance program for removal and repair of SWS piping and interface system components due to silting, biofouling, corrosion, erosion, and failure of protective coatings.
- 3.9 Determine if the SWS components are being adequately maintained to ensure their operability under all accident conditions.

- 3.10 Review the maintenance history for the selected components of the SWS for the past two operating cycles (minimum of two years) or longer if necessary. Look for recurring equipment problems and determine if any trends exist.
- 3.11 Review several completed maintenance activities for technical adequacy, performance of appropriate post-maintenance testing, and satisfactory demonstration of equipment operability.
- 3.12 Determine the adequacy of the maintenance program from an overview perspective. Of importance here is a determination that the maintenance work order system ensures that the plant, system, and component design bases are adequately maintained.
- 3.13 Determine if maintenance personnel receive adequate training pertaining to the SWS and if the degree of training provided is consistent with the amount of technical detail in the procedures.
- 3.14 Conduct detailed interviews with the maintenance personnel to determine their technical knowledge of how components are maintained.
- 3.15 Assess the degree of assessment of industry component/system specific failures and/or maintenance issues.
- 4.0 Surveillance and Testing
  - 4.1 Review and evaluate the technical adequacy and accuracy of the technical specification surveillance procedures and inservice test procedures performed in the past two operating cycles (minimum of two years) for the SWS.
  - 4.2 Review the SWS design and licensing bases.
  - 4.3 Verify that test acceptance criteria are consistent with the design bases to ensure the SWS testing adequately demonstrates that the SWS will operate as designed.

- 4.4 Review indicators of SWS performance to identify if any testing inadequacies exist or if testing frequency is appropriate.
- 4.5 Determine if surveillance test procedures comprehensively address required SWS responses.
- 4.6 Review results from preoperational testing to determine whether the SWS capabilities and limitations were appropriately demonstrated.
- 4.7 Determine whether appropriate controls were established to avoid unacceptable system or component operating regimes.
- 4.8 Evaluate the support systems and plant modifications selected for review by the engineering team to ensure that surveillance and testing has been properly performed.
- 4.9 Review the inservice test records for valves and pumps in the SWS.
- 4.10 Review how specific SWS instruments are calibrated and tested.
- 4.11 Verify that the tolerances used for instrument accuracy are acceptable.
- 4.12 If possible, witness post-maintenance, surveillance, and inservice tests performed on the SWS.
- 4.13 Review procedures for periodic testing of safety-related heat exchanger heat transfer capability and the trending of such results.
- 4.14 For the two previous operating cycles (two years minimum) preceding the self-assessment, ascertain system, train, pump, or significant component unavailability during power and shutdown conditions. Assess the degree to which the licensee has input accurate unavailability data into the IPE.
- 4.15 Verify that the installed SWS components are tested to ensure the components will perform in accordance with their design bases.

- 4.16 Review the implementation of the periodic inspection program to detect flow blockage from biofouling in other systems.
- 4.17 Review testing on one air-to-water heat exchanger served by the SWS to ensure proper heat transfer. Examine the air side for fouling.

5.0 Quality Assurance and Corrective Actions

- 5.1 Review the meeting minutes of the plant onsite safety review committee and the offsite safety review committee for the past six months for items pertaining to the SWS.
- 5.2 Review the operational history of the SWS.
- 5.3 Compare the results of the team's assessment of the areas inspected for the SWS with the results of applicable licensee quality verification activities in the same areas. Determine why quality verification activities did not uncover significant issues identified by the team.
- 5.4 Review the timeliness and technical adequacy of licensee resolution of findings from its self-assessments. Review the open item tracking system for adequate tracking and closure of identified SWS deficiencies.
- 5.5 Evaluate the interface between engineering and technical support and plant operations, regarding corrective actions to resolve operational problems.

ATTACHMENT 3 TO AEP:NRC:1104D

RESUMES OF SWSOPI TEAM MEMBERS



**NAME:** David Foster Powell, P. E.

**PROFESSION:** Section Manager  
Mechanical Systems Section  
Nuclear Plant Engineering Support Division

**YEARS WITH FIRM:** 10

**NATIONALITY:** US

**KEY QUALIFICATIONS:**

Broad experience in many technical areas in support of nuclear power operations and maintenance, including system and component engineering, welding, metallurgy, nondestructive testing, ASME Section XI and quality assurance. Member of the Nuclear Safety and Design Review Committee Subcommittee on Audits.

**EDUCATION:**

B. S. Welding Engineering, Ohio State University, June, 1979.  
Masters Business Administration, Capital University, December, 1988.

**PROFESSIONAL AFFILIATIONS:**

Professional Engineer, State of Ohio, Registration Number E-048697  
Professional Engineer, State of Michigan, Registration Number 6201037545

**EXPERIENCE:**

03/94 - Present American Electric Power Service Corporation, Columbus, OH

Section Manager, Mechanical Systems Section. Management responsibility for safety related systems at Cook Nuclear Plant, providing a broad range of support for operations, maintenance and refueling outages.

01/90 - 02/94 Assistant Section Manager, Piping, Valves, HVAC and Fire Protection Section. Management responsibilities and technical direction of the section in the areas of piping, valves, welding and metallurgy. Key activities included development of an MOV Program for Generic Letter 89-10, investigation of main steam isolation valve performance and ongoing support of plant operations and maintenance.

12/88 - 12/89 Senior Engineer - Metallurgy, Nuclear Engineering Division, Duties as Acting Assistant Section Manager - Piping, Valves, HVAC and Fire Protection, in addition to welding and metallurgy.



- 07/86 - 12/88      Engineer - Metallurgy, Mechanical Engineering Division Staff. Responsibilities included administration of the Corporate Nondestructive Examination and Welding Manuals, and technical support for the Cook Nuclear Plant in the areas of welding, metallurgy, nondestructive examination, heat treating, inservice inspection and the ASME Boiler and Pressure Vessel Code. Team member on contractor-performed auxiliary feedwater SSFI.
- 01/84 - 07/86      Quality Assurance Engineer - Responsibilities included engineering support for Quality Assurance at the Donald C. Cook Nuclear Plant. This involved leadership and participation in audits and surveillances of plant activities and development of a unified corrective action system.
- 06/83 - 01/84      Pacific Gas & Electric Company, San Ramon, CA  
Lead NDE Engineer - Department of Engineering Research. Supervisory responsibilities for four NDE engineers in support of generating station outage examinations.
- 08/82 - 06/83      NDE Engineer, Department of Engineering Research, on loan to Diablo Canyon Nuclear Power Plant, Quality Control Department. Duties as a Quality Control Inspector responsible for vendor surveillance and examination coordination of Westinghouse reactor vessel preservice examinations at Diablo Canyon Units 1 and 2.
- 07/79 - 08/82      Engineer, Department of Engineering Research - NDE research, consulting and examination services, and procedure development and field examination coordination for numerous scheduled and unscheduled outages at company nuclear, geothermal, hydroelectric, steam, cogeneration and gas transmission facilities.
- 06/78 - 09/78      International Powder Metallurgy Corporation, Columbus, OH
- 06/77 - 09/77      Electric Boat Division of General Dynamics, Groton, CT  
Production Improvement Group
- 06/76 - 09/76      Electric Boat Division of General Dynamics, Groton, CT  
Weld Development Laboratory.



NAME: Gregory D. Hines

PROFESSION: Senior Engineer  
Mechanical Systems Section  
Nuclear Plant Engineering Support Division

YEARS WITH FIRM: 17

NATIONALITY: US

**KEY QUALIFICATIONS:**

Experience in nuclear power plant operations, maintenance and design, including system and component engineering, and in fossil plant operations, maintenance, performance, instrumentation and controls.

**EDUCATION:**

B. S. Welding Engineering, Ohio Northern University, May 1977

**PROFESSIONAL AFFILIATIONS:**

Professional Engineer, State of Ohio, Registration Number E-46767

**EXPERIENCE:**

02/94 - Present     American Electric Power Service Corporation, Columbus, OH

Senior Engineer, Mechanical Systems Section. Cognizant system responsibility for emergency diesel generators and auxiliaries, and auxiliary feedpump turbines. Backup system responsibilities for essential service water and auxiliary feedwater systems.

11/88 - 01/94     Engineer (Senior Engineer 1990), Heat Exchangers, Pumps and Turbine Section, Nuclear Engineering Department. Cognizant system responsibility for nuclear plant emergency diesel generators, auxiliary feed pump turbines, and Unit 2 main turbine. Provided support for technical audit of emergency power system by federal government agency. Wrote specifications for procurement of spare parts for assigned systems. Provided support for resolution of operating and maintenance issues of assigned systems. Proposed and developed design changes to improve assigned systems.

10/83 - 11/88     Engineer, Turbine Section. Cognizant system responsibility from 1985. Provided engineering support for main turbine generators, emergency diesel generators and auxiliary turbines at nuclear power plant in the areas of operation, maintenance, procurement, quality assurance, nuclear safety and regulatory compliance. Assisted in start-up activities on new 1,300 MW fossil unit.

07/77 - 09/83

American Electric Power, Philip Sporn Plant, New Haven WV

Performance Engineer to 02/83. Supervising Performance Engineer from 02/83. Conducted performance tests on plant equipment and made recommendations for improving performance. Provided recommendations for improvements in instruments, controls, equipment and procedures. Responsible for various special projects, such as replacement instrumentation, controls and valves. Assisted in functional check-out of new electrostatic precipitators on fossil units. Responsible for installation of new electronic control systems on fossil units. As Supervising Engineer, directed the work of seven performance engineers in testing of major plant equipment and in special projects. Directed the work of instrument maintenance personnel through three supervisors.



**NAME:** Walter E. McCrory  
**PROFESSION:** System Engineer, Senior  
**YEARS WITH FIRM:** 15  
**NATIONALITY:** US

**EDUCATION:**

Bachelor of Science,  
University of Louisville, May 1979

Master of Engineering in the field of Mechanical Engineering,  
University of Louisville, December 1979

**EXPERIENCE:**

05/93 - Present Indiana Michigan Power Company, Donald C.  
Cook Nuclear Plant Bridgman, MI

Circulating Water/Component Cooling Water  
System Engineer. Provide engineering  
expertise to ensure the safe, efficient and  
reliable operation of the component cooling  
water system, circulating water system and  
related subsystems. Functional areas of  
responsibility include:

- Problem Analysis and Resolution
- Performance Management
- Integrated Logistic Support
- Configuration Management

10/79 to 05/93

Indiana Michigan Power, Breed Plant  
Fairbanks, Indiana

Plant Engineer. Provide engineering expertise to ensure the safe, efficient and reliable operation of the low pressure service water system, bottom ash hopper make-up water system, bottom ash sluice water system, precipitator, fly ash and bottom ash handling system, coal handling system and gas recirculating system. Areas of responsibility include:

- Problem Analysis and Resolution
- Performance Management
- Initiation of Material Purchases
- Design Changes

Responsible for the environmental compliance of the plant in the areas of water pollution (NPDES Permit) and hazardous waste.

Responsible for monitoring the capital budget expenditures and development of the capital budget.



**NAME:** James Patrick O'Neil

**PROFESSION:** Unit Supervisor

**YEARS WITH FIRM:** 14

**NATIONALITY:** US

**KEY QUALIFICATIONS:**

As a licensed and non-licensed operator, I have been directly involved in the performance and supervision of routine surveillance testing, ESW flow balance testing, and routine operation of the Cook Nuclear Plant service water systems. My duties have also included the performance and supervision of clearance preparation and system alignments to facilitate maintenance activities on the Cook Nuclear Plant service water systems.

In April of 1986, I was assigned the additional duty of Shift Lead Trainer. As shift lead trainer my duties include all aspects of operator training including but not limited to utility operator, auxiliary equipment operator (AEO), reactor operator, and senior reactor operator (SRO) training and qualification.

**EDUCATION:**

Attended Lake Michigan College, 1967-1968 and 1991-1993.

**EXPERIENCE:**

11/88 - Present • **UNIT SUPERVISOR:** Responsible to the Shift Supervisor for all operating activities on an assigned shift including supervision of personnel and equipment to assure safe operation, maximum efficiency and continuity of service. Direct the planning of work, assignment of duties and supervision directly or indirectly of up to eight subordinates and determine that duties are being performed in accordance with established plant policies and procedures. Assume the duties of the Assistant Shift Supervisor when requested.

- 04/86 - 11/88
  - SENIOR REACTOR OPERATOR: Completed SRO license training and was issued an SRO license following successful completion of an NRC administered examination. Senior reactor operator duties in addition to reactor operator duties (manipulate the controls of the reactor in accordance with plant procedures) include: supervision of control room personnel, review and verification of activities performed by reactor operators and auxiliary equipment operators and assignment as control room unit supervisor (requires SRO license).
- 01/84 - 04/86
  - REACTOR OPERATOR: On a rotating shift, manipulated and adjusted controls as necessary to operate the plant safely and efficiently during start up, normal operation, shutdown, and refueling conditions.
- 10/80 - 01/84
  - AUXILIARY EQUIPMENT OPERATOR: On a rotating shift, operated and inspected assigned auxiliary equipment; inspected assigned plant areas; performed manual operating duties and routine switching; cleared and tagged equipment; assisted licensed operators as necessary; prepared for NRC license as a Reactor Operator.
- 04/80 - 10/80
  - UTILITY OPERATOR: On a rotating shift, participated in training; assisted auxiliary equipment operators.



NAME: Curtis J. Hehl

PROFESSION: Mechanical Maintenance Supervisor

YEARS WITH FIRM: 2

NATIONALITY: US

EDUCATION:

BSCE Michigan Technological University  
Houghton, MI 11/81

E.I.T. Civil Engineering  
Fall 1981

EXPERIENCE:

09/93 - Present Indiana Michigan Power Company Donald C.  
Cook Nuclear Plant, Bridgman, MI

Mechanical Maintenance Supervisor.  
Supervise skilled maintenance mechanics performing corrective and preventive job orders on valves, pumps, heat exchangers, turbines, boilers, etc. Supervise subcontractor support on all valve maintenance activities during unit outages.

08/92-09/93 Indiana Michigan Power Company Donald C.  
Cook Nuclear Plant, Bridgman, MI

Maintenance Engineer - Valves.  
Generate design proposals. Technical support to Plant and Project Engineering, Planning, Procedure and Production departments. Review corrective maintenance, preventive maintenance and test procedures. Perform 10CFR50.59 safety evaluation screenings. Establish valve repair guidelines. Provide engineering support to subcontractors during unit outages. Coordinate main steam safety valve testing. Provide system/component level troubleshooting. Support corrective and post maintenance testing activities. Review and approve/reject ASME Section XI Repair/Replacement Plans.



08/91 to 08/92

American Nuclear Resources (at Donald C.  
Cook Nuclear Plant, Bridgman, MI)

Maintenance Engineer - Valves.  
Generate design proposals. Technical support to Plant and Project Engineering Planning, Procedure and Production departments. Review corrective maintenance, preventive maintenance and test procedures. Perform 10CFR50.59 safety evaluations. Establish valve repair guidelines. Provide engineering support to subcontractors during unit outages. Coordinate main steam safety valve testing. Provide system/component level trouble-shooting. Support corrective and post maintenance testing activities. Review and approve/reject ASME section XI Repair/Replacement Plans.

01/91 to 08/91

Bechtel Construction Company (at Pilgrim  
Nuclear Power Station, Plymouth, MA)

Valve Repair Engineer, Cost/Schedule Engineer, Subcontract Administrator. Developed schedules and labor cost estimates for valve repair/refurbishment and control room panel modifications. Tracked performance and adjusted schedules. Daily status meetings with client's outage construction manager. Performed field engineering duties for valve repair/refurbishment team. Developed mock-up training and valve maintenance seminar for craft personnel during pre-outage activities. Administered sub-contract for valve maintenance specialty contractor. Repairs included extensive in-line welding machining and hot-shop machining.

08/90 - 01/91

Bechtel Construction Company (at Palisades  
Nuclear Plant, SGRP, Covert, MI)

Subcontract Administrator, Field Superintendent. Provided direction to contractors and handled administrative duties for all subcontract work performed during steam generator replacement project, i.e., change notices, progress payments, progress meetings and construction close-out. Liaison between engineering supervision and subcontractors. Insulation and asbestos removal/replacement contracts

superintendent on new steam generators, primary and secondary piping systems. Administered contracts including diamond wire concrete cutting, rigging, post tensioning, temporary buildings, earth work and NDE.

11/88 - 08/90

Holland Construction Company (General Contractor) St. Joseph, MI

Home Office Contract Administrator, Project Manager, Estimator. Project buy-out after contract award (90% project scopes subcontracted). Chief liaison between A/E/Owner and General Contractor. Handled all administrative/managerial duties, i.e., progress payments, change orders, develop project schedules, shop drawing reviews, claims negotiations and project closeout. All types of construction including industrial, institutional and commercial.

03/87 - 11/88

Gelco Space Cynwyd, PA (National Headquarters)

Technical Services Representative, Project Manager/Administrator; Modular Commercial Construction. Assisted salesman throughout USA on bid preparation and estimating for project budgets. Reviewed bid documents/requirements, technical specifications and building code compliance. Identified potential project liabilities and risks. Reviewed bid pricing with upper management for approval. Managed various modular projects from bidding to project closeout. Reviewed purchase orders and contracts prior to execution.

11/83 - 03/87

Raymond International, Inc. (Pile Division), Westville, NJ

Project Superintendent. Supervised numerous piling projects. Direct control of hiring and supervising skilled and semi-skilled union workers. Selected, scheduled and maintained job-site heavy equipment. Ordered and

scheduled materials and deliveries. Handled payroll and kept all job records. Set up and executed structural testing. Handled project closeout. Largest project included 61 craft personnel.

12/81 - 11/83

Raymond International, Inc. (Pile Division),  
Westville, NJ

Assistant Project Superintendent/Sales Engineer. Split time between field and regional office. In field: Assisted superintendent on large lump-sum and cost-plus Raymond Step Taper, sheet and h-beam projects including a \$6,000,000.00 sewage treatment plant contract and \$5,000,000.00 hotel/casino contract. Regional office: Worked with district managers preparing bids and interfacing with clients on pile foundation application. Interpreted specifications and soil reports for pile foundation applications. Supervised craft performing support work.



JEFFREY S. HAVERLY

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**EDUCATION**

B.S., Marine Engineering, SUNY Maritime College, FT Schuyler, Bronx NY, 1974,  
Regimental Commander, Chief Engineer  
Graduate Studies in Business Administration and Nuclear Engineering, Union College,  
1976, 1977

**PROFESSIONAL REGISTRATION**

Engineer in Training, New York State  
Second Assistant Engineer's License, USCG, Steam Engines, Unlimited Horsepower  
Third Assistant Engineer's License, USCG, Diesel Engines, Unlimited Horsepower

Training Courses

Kepnor Tregoe Operations Management Training, 1977  
Kepnor Tregoe Decision Making Training, 1977  
USCG Fire Academy, 1974

**PROFESSIONAL AFFILIATIONS**

Member, American Nuclear Society  
Member, Society of Fire Protection Engineers (#7644)  
Member, National Fire Protection Association (#72807)

**EXPERIENCE**

Mr. Haverly has over twenty (20) years of experience in the operations, maintenance, and engineering disciplines of DOE facility, commercial nuclear, fossil, and marine power plants. He has an extensive background as the Engineer in charge of operations at nuclear and shipboard marine power plants as well as being responsible for the day to day maintenance and long term shutdown, outage and shipyard overhaul programs for both nuclear and shipboard power plants. He has management assessment and compliance program management experience through the performance of safety analysis and management assessment projects for the DOE and the commercial nuclear and fossil power industry.

Mr. Haverly is Group Director within CES's Systems and Operations Services Group. In this role, he has the responsibilities for managing and performing on assigned Operations Services related projects. Currently, he is the Project Manager on the Reliability, Availability, Maintainability (RAM) Program Assessment Project for the DOE Strategic Petroleum Reserve. This project involves the assessment of all technical processes, inputs and outputs and technical reports related to the RAM Program. Prior to this project, he has completed an assignment as Project Engineer on two Management Assessment Projects for the Strategic Petroleum Reserve. The projects' scopes include the assessment of compliance of particular SPR field operations to DOE Orders 5480.19, "Conduct of Operations" and 4330.4A, "Maintenance Management Program". Mr. Haverly developed and implemented detailed assessment plans and was a lead team member in the performance of the assessments. The scope of these assessments included the analysis and assessment of DOE Order compliance by the M&O contractor, and included the evaluation of Tiger Team, DOE Headquarter's, and internal assessment corrective action status.

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Mr. Haverly was assigned to Cygna's Project Management Group. Within the Project Management Group, Mr. Haverly was responsible for the management of and participation in assigned projects, as well as responding to individual client project management needs.

From March 1987 through December 1991, Mr. Haverly was assigned as Vice President and Area Office Manager of Cygna's Midwest Office in Toledo, Ohio. In this capacity, he was responsible for office and project administration, project controls and technical adequacy, project and design quality assurance. Under Mr. Haverly's direction, the office was established and grew to a multi-disciplined engineering office with a staff of over 60 engineers and technicians. Office disciplines included all operations and systems engineering, design engineering, and power plant licensing and support services and personnel. The operations support and design engineering staff performed an extensive number of power plant and design modification projects as well as providing unique engineering solutions in areas such as plant as-built validation projects, configuration management, fire protection and regulatory assessment projects.

In addition to his corporate and office management responsibilities, he has participated in various management assessment programs throughout the industry. The reviews have consisted of assessments including Electric Power Research Institute sponsored design and modification control project, spare parts program assessments, fossil plant design validation and code compliance upgrade assessments, safety analyses and safety-related system design reviews, and performance based functional inspections throughout the utility industry.

The following is a sample of the Design Process Assessments and Safety System Functional Inspections in which he participated:

- Consumers Power Company, 1990 through 1991, performed as Lead Design and Maintenance Reviewer during Design Basis Document Validation Assessments at the Palisades Nuclear Power Plant on the Service Water and High Pressure Safety Injection and Auxiliary Feedwater System.
  - Public Service Electric & Gas Company, 1988 through 1990, participated in the following:
    - Lead Maintenance Reviewer, Instrument Air System, Salem Nuclear Power Station
    - Support Engineer, Design Engineer, Site Service Water, Salem Nuclear Power Station
    - Support Engineer, Design Engineer, Air Systems, Hope Creek Nuclear Power Station
  - Rochester Gas & Electric Company, 1987, performed as Project Engineer and Lead Maintenance reviewer during the full scope SSFI of the R.E. Ginna Westinghouse Plant's Main Auxiliary Feedwater System.
  - Consolidated Edison Company, 1991, performed as Support Engineer for design aspects during the SSFI at the Indian Point Unit 2 Nuclear Power Station.
  - Performed as support engineer on the EPRI Modification and Design Control Project. The objective of the review was to review the modification and design control process
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at a sampling of utilities across the commercial nuclear industry, and to identify generic issues and problems requiring attention, as well as to identify root causes of those problems with corrective actions identified.

Mr. Haverly participated in many technical projects as Project Manager, Project Engineer, as well as Technical Specialist. A sampling of these projects include:

- Facility Change Request Closeout Project
- Plant As-built Drawing Reconciliation Project
- Plant Security System Backfit Project
- Station Blackout Diesel Design Project
- Design Basis Document Development Projects (2)
- Steam Generator Blowdown System Design Validation Project
- HVAC Damper Controller Design Analysis
- Fire Suppression System Design Modifications
- Fire Damper Design Modifications
- Fire Barrier Penetration Seal Configuration Projects
- Fire Risk Assessments and Fire Hazards Analyses
- Safety System Functional Inspections
- Many additional design change notice (DCN) packages for both Nuclear and Fossil Power Plants

Mr. Haverly, from September 1985 through July 1987, completed an assignment as Fire Protection Compliance Manager at Toledo Edison Company's Davis-Besse Nuclear Power Station. In this position, he was responsible for directing all fire protection day-to-day activities as well as the management of the plant restart and FP Design Reconstitution Program. This program was implemented and managed while ensuring continued technical specification compliance.

Prior to joining Cygna, Mr. Haverly was employed by Impell Corporation, where he completed assignments of increasing responsibility as project engineer and project manager in the Operations Services and Engineering Group. He performed as project engineer on a multi-year Electrical/Environmental Qualification Project. He was support engineer on Fire Hazards Analysis projects. He performed high energy line break analyses. He completed a two-year assignment as Supervising Licensing Engineer, responsible for major projects in Fire Protection, Appendix R, and Generic Letter 83-28. He was responsible for coordinating NRC interface activities and interfacing with all utility divisions to develop NRC positions and correspondence.

Before this he worked as a Third Assistant Engineer and following license upgrade, as the Second Assistant Engineer on a number of ships in the United States Merchant Marine. In this capacity, Mr. Haverly performed operations watch officer duties on shipboard power plants, including the operations of all power plant systems on ships up to 30,000 shaft horsepower and 165,000 dead-weight tons. Mr. Haverly performed extensively as maintenance engineer in support of daily power plant and ship equipment maintenance, plant outages and long term lay-up and shipyard periods. As Second Engineer, Mr. Haverly was responsible for the maintenance of all boiler and feedwater and related systems.



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Prior to this following a one (1) year training program in the Naval Nuclear Operations Training Program, resulting in the qualification as Engineering Officer of the Watch, Mr. Haverly progressed in positions of increasing responsibility through staff Operations Engineer, Nuclear Plant Engineer for Training, and Nuclear Plant Engineer for Operations at the D1G Nuclear Prototype Plant. As a qualified Engineering Officer of the Watch, Mr. Haverly was responsible for on-shift operation, maintenance and training at the prototype. He was also responsible for certain aspects of classroom training and off-hull equipment operations and maintenance. Mr. Haverly led his class during qualification as Engineering Officer of the Watch, and performed as lead civilian EOOW during critical plant operations.

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**DONALD E. KOSACK**

## **EDUCATION**

1972 B.E., Chemical Engineering, Stevens Institute of Technology

## **PROFESSIONAL REGISTRATIONS**

Licensed Professional Engineer, CA

## **EXPERIENCE**

Mr. Don Kosack is the Group Director of the Corporate I&C/Electrical Design Engineering Department. He has over 21 years of nuclear engineering, design, licensing, operations and project management experience. He is currently managing CYGNA's project to prepare sixty-six (66) instrument loop design basis and setpoint evaluations for Rochester Gas and Electric's Ginna Station, and previously managed our efforts on Instrument Setpoint Programs for Boston Edison's Pilgrim Station and New York Power Authority's FitzPatrick Nuclear Plant. Additionally, he managed an MCC Component Upgrade project for the Pilgrim Nuclear Power Station.

Mr. Kosack has served as Project Engineer responsible for the overall direction of engineering for modifications performed to improve plant performance. He has been involved with projects which included Instrument Air, Safety Injection, Service Water, and Electrical Distribution Systems, Design Basis Reconstruction, evaluation of Instrument Air System performance in response to Station Blackout, and has provided consulting services to confirm the adequacy of pre-operational test procedures.

He was a member of the Electrical Distribution System SSFI team at the Salem Nuclear Generating Station Units 1 & 2. He reviewed the plant design adequacy and audited the operation and maintenance programs, as well as the design modification process. The Electrical System review included the 500 kV switchyard, the 4 kV distribution system, the 480 volt distribution system, and the diesel generators.

Mr. Kosack was also a reviewer on the Palisades Nuclear Power Plant Safety System Design Confirmation (SSDC) team for Consumers Power. The project consisted of a third party review of the Design Basis Documents (DBDs) against the design and physical plant configuration. Operations, maintenance, and training programs associated with the 2400 VAC system were also reviewed to assure that the design basis information was carried through to all facets of plant operation.

In addition to performing these tasks, he has provided engineering support services to Boston Edison for the Pilgrim Nuclear Power Station. In this capacity, he has developed and reviewed plant design change packages, resolved field construction problems, and provided various consulting services.





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**DONALD E. KOSACK**  
(Continued)

He also was the lead I&C Engineer for the Reactor Water Level Modifications for Generic Letter 84-23 and for the Regulatory Guide 1.97 modifications for the New York Power Authority's J.A. Fitzpatrick plant.

Prior to joining Cygna, Mr. Kosack was employed by Stone & Webster Engineering Corporation, with work assignments performed in the following areas:

#### **YANKEE ROWE POWER STATION - YANKEE ATOMIC ELECTRIC COMPANY**

Assigned as a consultant to Yankee Atomic Electric Company, working in the Instrument and Control and Electrical Engineering disciplines for the Yankee Rowe Plant.

His major activities in the I&C discipline included engineering reviews of design change packages, preparation of design change packages to modify the Main Control Room panels to resolve human engineering deficiencies, instrument loop error analysis calculations, preparation and review of equipment qualification packages, and 10CFR Part 21 evaluations. He also performed the independent review of the Yankee Rowe Alternate Shutdown modification and Appendix R compliance submittal.

His major activities in the electrical discipline included performing electrical load studies, engineering review of design change packages, and preparation and review of various electrical specifications and calculations.

Field assistance for outage support and in troubleshooting operations was also provided for both engineering disciplines.

#### **MILLSTONE NUCLEAR POWER STATION - UNIT 3, NORTHEAST UTILITIES SERVICE COMPANY**

As Principal Instrument Application Engineer, Mr. Kosack was responsible for the direction and overall coordination of the Instrument Application Group activities for the Millstone 3 project. These activities included the design and engineering effort of the headquarters group, as well as the on-site activities of the I&C field engineering group. He was also responsible for the interface between I&C construction and the I&C engineering group.

His responsibilities included scheduling and manpower planning; coordination of effort with other principal engineers; review and approval of loop diagrams, logic diagrams, flow diagrams, specifications, Regulatory Guide interpretations, licensing activities, and field engineering coordination.



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**EDUCATION**

1977 B.S., Marine Engineering, Massachusetts Maritime Academy

**SPECIALTIES**

Control Systems  
Fossil and Nuclear Steam Supply Systems  
Systems Application, Design, & Acceptance Criteria  
Engineering/Construction/Operation/Surveillance Testing  
Independent Audit Activities

**PROFESSIONAL AFFILIATIONS**

Member: Instrument Society of America  
American Nuclear Society

**EXPERIENCE**

Mr. Olson is a Principal Engineer in Cygna Energy Services' Boston office, with over 17 years of broad based experience in the design, application, testing, and operation of power plant systems in the Electric Power Generating Industry. He has diverse experience in both office and field locations. This experience includes both conceptual and site engineering; FSAR and station licensing activities; preparation and review of 10CFR50.59 Safety Evaluations; acceptance and surveillance testing; and outage, construction, and operations support. While working in the power industry, Mr. Olson has been assigned to various nuclear and fossil projects, including Beaver Valley Units 1 & 2, River Bend, Pilgrim, Watts Bar, Rocky Flats (DOE Facility), H.B. Robinson, Brunswick, R.E. Ginna, Dresden, Quad Cities, D.C. Cook, Oswego Unit 5 and two combined cycle gas turbine power stations.

He is experienced in the design, repair, modification, and testing of power plant systems and associated auxiliary equipment, which included activities in the preparation of specifications and equipment installation instructions; development of acceptance testing and acceptance testing criteria; and the identification of pertinent system or component attributes for input to operating, maintenance, and surveillance procedures. He has directly supervised activities of contractor engineering, construction, and test personnel during the modification, installation, and startup testing of plant equipment, in addition to providing technical support to plant operations personnel.

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Additionally, he has been involved in various independent assessment programs evaluating operations, maintenance, surveillance, and design engineering activities, such as performing Safety System Functional Inspections as the lead systems reviewer (Electrical Distribution, Auxiliary Feedwater, Emergency Diesel Generator, Service Water, Component Cooling Water, Quench Spray, Residual Heat Removal, Recirculating Spray), performing fire protection safe shutdown reviews, and performing failure mode and effects analysis reviews on numerous modifications impacting plant operating systems.

Recently, he has provided engineering services to both MASSPOWER and OCEAN STATE POWER, two independent fossil power producers, for the development of a management of change program. This effort consisted of developing procedures to support design, maintenance, surveillance, and operation activities at the respective facilities. As part of these efforts, he prepared guidelines to assist in the reconstitution of the design basis for these power stations.

Mr. Olson has been involved with systems engineering, while being responsible for providing information and criteria required for use in the preparation of pre-operational and acceptance tests; instrument calibrations; instrument loop surveillances; and normal, abnormal, and emergency operating procedures. He also was responsible for recommending solutions to system design problems; verifying accuracy and applicability of the design documents; performing system evaluations; performing operational and surveillance reviews to identify potential program deficiencies; reviewing system flow and logic diagrams to verify operating configurations and modes; and coordinating with design engineers to resolve operational and test anomalies.

He also has worked in both the control logic and instrument applications groups, where he developed process instrumentation equipment sizing calculations for system application and integration, in addition to preparing engineering and design modifications of control circuit logic, wiring modifications of various vendor supplied equipment packages, and providing technical support to the pre-operational test and start-up group personnel.

Mr. Olson spent two years at sea as an Engineering Officer in the Merchant Marine, where, he directed start up, operation, and shutdown of all engine room components including main steam, feed and condensate, electrical and propulsion turbines, and all auxiliary power plant systems. Additionally, he was responsible for the maintenance and surveillance of various shipboard systems including turbine lube oil, diesel generators, auxiliary steam systems, and air conditioning and refrigeration systems.

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ALAN P. TATTERSALL

**EDUCATION**

Graduate Studies, Nuclear Engineering, University of Washington

B. S., Mathematics, U. S. Naval Academy

**LICENSES AND  
CERTIFICATIONS**

Licensed Senior Reactor Operator: Calvert Cliffs  
Nuclear Power Plant, Units 1 and 2 (SOP-2564)

Certified Resident Inspector, U. S. Nuclear Regulatory  
Commission

**EXPERIENCE**  
1981 - Present

General Physics Corporation

Mr. Tattersall is a consultant to the nuclear utility industry. He has over 17 years experience in the nuclear utility sector and an additional 10 years experience in the Navy Nuclear Program. While with General Physics he has performed the following:

- Conducted operator license candidate audit examinations at Calvert Cliffs.
- Conducted fundamentals training for two license classes at Calvert Cliffs.
- Acted as a Technical Specialist for QA audits of Operations, technical specifications and license activities at Virginia Power's Surry and North Anna Power Stations (1992 & 1993).
- Directed review of technical specifications for implementation of Surveillance Requirements at the Surry and North Anna Stations.
- Directed the Vendor Manual/Drawing Review and Control project at Nine Mile Point Unit 2.
- Acted as Project Director for outage support services to the Cooper Nuclear Station from 1987 to 1990 over 3 refueling outages.
- Acted as Project Director for the EOP development project at IP-3.
- Lead an audit of the Start-up Test program at the Hope Creek Station to determine the efficacy of an allegation.
- Acted as Project Manager for the procurement, testing and installation of the Palisades, Midland Unit 1 and Midland Unit 2 control room simulators.
- Provided technical support to an audit of the corrective actions taken at St. Lucie Unit 2 in response to an NRC CAL.
- Provided technical support to PP&L's Susquehanna Steam and Electric Station in the writing of the Unit 1 technical specifications and the resolution of NRC identified issues prior to start-up.

1979 - 1981

U. S. Nuclear Regulatory Commission

Mr. Tattersall was the Resident Inspector at the North Anna Power Station (NAPS). He participated in the FSAR review and licensing hearings for NAPS Unit 2 and represented the Nuclear Regulatory Commission on site during the following major plant evolutions: Unit 1 first refueling and startup, Unit 2 fuel load, initial criticality, startup, low power test programs; and Unit 1 second refueling outage.

1977 - 1979

Burns and Roe, Incorporated

Mr. Tattersall was a Senior Engineer at the Washington Public Power Supply System WNP No. 2 Project. He was involved in construction management and engineering for the instrument installation at this 1250 MWe boiling water reactor. He participated in the review of the FSAR prior to submittal and the resolution of comments. He was responsible for review of contract submittals, coordination of contractor field construction and acceptance of completed systems.

1975 - 1977

Baltimore Gas and Electric Co., Calvert Cliffs Nuclear Power Plant

Mr. Tattersall started as the Training Supervisor responsible for development and conduct of all station training programs including initial operator license training, operator requalification training, general employee training, maintenance and technician training, and station emergency plan training. After receiving his Senior Reactor Operator license he participated as Fuel Handling Supervisor and Shift Test Supervisor during the startup and escalation to power test programs for Unit 2. Mr. Tattersall also served as the Assistant General Foreman for the Instrumentation and Control and Electrical Maintenance groups during the second refueling of Unit 1 and startup of Unit 2 and the first refueling outage of Unit 2.

1966 - 1975

United States Navy

Mr. Tattersall served as Engineer Officer of the nuclear ballistic missile submarine, USS GEORGE BANCROFT where he was responsible for operation and maintenance of the ships' propulsion plant, and for training and qualification of its operators. He also served as the training officer for the S5G nuclear prototype where he was responsible for the training of all officer and enlisted students.



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**EDUCATION:**

1968 B.S., Mechanical Engineering, Pratt Institute

**PROFESSIONAL REGISTRATION:**

Professional Engineer, New Jersey

**EXPERIENCE:**

Mr. Stanley is the Mechanical Engineering Group Director in Cygna's Design Department. In this capacity he is responsible for all technical aspects, procedures, schedule, budget and client interface on all projects under his direction. He has over 25 years of experience in mechanical and systems engineering and design. He has worked on both fossil and nuclear fueled plants.

He performed a review of the testing aspects of the Service Water System at the Palisades Nuclear Plant. Tests reviewed included the IST pump and valve testing as well as the surveillance flow balance testing. A major portion of this review concerned the Post LOCA heat transfer design basis calculation and its confirmation by the surveillance test. Other tests which were reviewed were for the containment coolers, control room chillers, etc. This review assisted Consumers Power in preparation for the Service Water System Operational Performance Inspection (SWSOPI), subsequently conducted by the NRC.

He completed an SSFI at AEP's Cook Nuclear Plant on the Component Cooling Water System, where he was the lead mechanical reviewer. The Service Water System support functions were also reviewed as they related to the ultimate heat sink requirements. The review included examination of the Generic Letter 89-13 commitments made by AEP.

He completed a review of the Chilled Water, Essential Cooling Water and Ventilation Systems for Houston Light and Power's South Texas Project. This was an SSFI type vertical slice review to determine whether there were any design deficiencies, operations or maintenance concerns, or training inadequacies relating to the three systems, especially during cold weather periods.

Prior to this he was part of the Program to Assure Completion and Assure Quality (PAC/AQ) at TVA's Watts Bar Nuclear Plant. He was the Lead Mechanical Review Engineer for the project which included SSFI reviews of the Component Cooling System, Emergency Raw Water Cooling System, 6.9 kV Shutdown Board Room Ventilation System, and the Instrument Air System.

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He previously was the lead Mechanical Project Engineer for the Salt Service Water Pipe Replacement Project at Boston Edison's Pilgrim Plant. The 22" SSW headers between the Intake Structure and the Reactor Building were rubber-lined carbon steel headers and were replaced with Titanium pipe. He developed the material specifications and the Commercial Grade Item dedication plans for both the piping and the rubber expansion joints used for the project. He also developed the installation instructions used in the modification package.

Mr. Stanley was a team member on eleven Safety System Functional Inspections. Seven were on the Service Water System, Safety Injection System, Auxiliary Feedwater, Chemical Volume & Control System, Primary Coolant System, Control Rod Drive Mechanisms and the Diesel Engine Mechanical System at the Palisades Plant, one was for an overall assessment of the Design Process at the Cook Nuclear Plant, and the other three were at Watts Bar for the ERCW system (a service water system), Instrument Air and the 6.9 kV Shutdown Board Room Ventilation System.

He was a reviewer for CP&L at the Harris Plant for an Appendix R Fire Protection audit. He was responsible for review of the Safe Shutdown Analysis and its implementation at the plant as well as general Fire Protection items.

Mr. Stanley conducted an EPRI Study "Assessment of the Effectiveness of ASME Section XI Pump and Valve Surveillance Test Methods in Detecting Component Degradation." This study involved the pump and valve testing within the scope of ASME Section XI Inservice Testing Programs. It assessed valve stroke testing, check valve forward and reverse flow testing, leak testing, check valve exercise testing and the various valve diagnostic test equipment available for evaluating motor operated valves.

Prior to that he was assigned to a special Motor Operated Valve Task Group at CP&L's Brunswick Steam Electric Plant. There he performed a valve suitability/application study of various problem valves and also performed analysis for thrust and torque for numerous motor operated valves.

He was a writer and reviewer on the San Onofre 1 FSAR Project. He had primary writing responsibilities for the Chapter 9 systems sections and was a reviewer for the Chapter 4 NSSS systems.

Prior to joining Cygna, Mr. Stanley was employed by the Public Service Electric and Gas Company, where he was Manager of Systems Engineering. He was responsible for the engineering for modification packages and the engineering for responses to Nuclear Regulatory issues, such as Appendix R, EQ, Generic Letters, IE Bulletins, plant identified safety concerns, etc. He was the PSE&G representative at the Westinghouse Owners Group. He was on site at Salem for the construction and startup of the two units. He was the Chairman of the Pre-Operational Review Committee for the Unit 2 Startup Program.

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