

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-219/84-31

Docket No. 50-219

License No. DPR-16

Licensee: General Public Utility Nuclear Corporation

100 Interpace Parkway

Parsippany, New Jersey 70754

Facility Name: Oyster Creek Nuclear Generating Station

Inspection At: Forked River, New Jersey and Parsippany, New Jersey

Inspection Conducted: November 26-30, 1984

Inspectors: P. K. Eapen
P. K. Eapen, Ph.D., Lead Reactor Engineer

12-27-84
date

E. Thomas Shaub
E. T. Shaub, Reactor Engineer

1-8-85
date

A. Alba
A. Alba, Reactor Engineer

12-27-84
date

Approved by: S. D. Ebnetter
S. D. Ebnetter, Chief
Engineering Programs Branch, DETP

1/15/85
date

Inspection Summary:

Special Announced Inspection on November 26-30, 1984 (Inspection Report No. 50-219/84-31)

Areas Inspected: Licensee's actions to address equipment classification, vendor interface and post maintenance testing concerns identified in NRC Generic Letter 83-28 and QA Program and its implementation.

The inspection involved 111 hours by three region based inspectors and one supervisor.

Results: No violations were identified.

8501290674 850117
PDR ADDCK 05000219
PDR
Q

1. Persons Contacted

General Public Utility Nuclear Corporation

T. Brownridge, Maintenance and Construction (M&C) Jobs Manager
*S. DeMerchant, Licensing Engineer
*P. Fiedler, Vice President
J. Garly, M&C Supervisor, J&C
J. Lachenmayer, Licensing Engineer
J. Maloney, Manager, Plant Material
S. Good, M&C Planning and Scheduling Manager
N. Kazanas, Director, Quality Assurance (QA)
J. Maloney, M&C Manager, Plant Materials
J. Moore, Consulting Engineer
W. PoPow, M&C Director
J. Short, M&C Manager, Production
J. S. Monetti, Site Audit Manager
J. Solakiewicz, QA Engineering and System Manager
J. Sullivan, Manager Plant Operations
*C. Tracy, Manager, Quality Assurance Modification/Operation
J. Thorpe, Director, Licensing and Regulatory Affairs
R. Wayne, Manager, Quality Assurance Design and Procurement
V. Willett, M&C Planning Manager
R. Wilson, Vice President, Technical Functions

Fauth & Associates

D. Nortus Quality Assurance/Quality Control Specialist

U.S. Nuclear Regulatory Commission (NRC)

*C. Cowgill, Senior Resident Inspector
*J. Welschelberger, Resident Inspector

*Denotes those present at the exit meeting on November 30, 1984.

The inspectors also interviewed other site and corporate personnel during the inspection.

2. Follow-up on NRC Generic Letter 83-28, "Generic Implications of Salem ATWS Events"

2.1 Background

The reactor trip system, a subsystem of the reactor protection system, is fundamental to the safety of all nuclear power reactors. Analyses to support and justify the fuel designs assume that the reactor trip system is available and will automatically initiate the reactivity control system on demand. The design and regulatory philosophies for assuring high reliability for the reactor trip system

are based primarily on system redundancy, periodic testing and quality assurance.

In February, 1983, the Salem Nuclear Generating Station experienced two failures of the reactor trip system to function on demand. Regulatory and industry task forces were established to review and determine the safety significance and generic implications of these events. Based on the findings of these task forces, the NRC issued Generic Letter 83-28 to require specific actions from all licensees to review and improve post trip review, equipment classification and vendor interface, post-maintenance testing and reactor trip system reliability.

The licensee provided his responses to the above Generic Letter in letters dated September 6, 1983, November 14, 1983 and November 20, 1984. This inspection was to review and assess the effectiveness of the licensee's actions in equipment classification, vendor interface and post-maintenance testing areas, as detailed in paragraphs 2.2, 2.3, and 2.4 below.

2.2 Equipment Classification

2.2.1 References/Requirements

1. NRC Generic Letter 83-28, "Generic Implication of Salem ATWS Events"
2. General Public Utility (GPU) Nuclear Corporation letters dated September 6, 1983, November 14, 1983 and November 20, 1984.
3. GPU Nuclear Operational Quality Assurance Plant (Rev. 0)

2.2.2 Documents and Activities Reviewed

- Oyster Creek Nuclear Generating Station Procedure 105 (Revision 22) Conduct of Maintenance
- Work Request No. 08079
- Work Request No. 22780
- Work Request No. 22875
- Work Request No. 22886
- Work Request No. 20102
- Procedure No. 5000-ADM-7313.01, (Revision 8) System Design Description

- (Budget Authorization) BA-402747 - Containment Vent and Purge Valve Modification
- BA-402685 - Spent Fuel Pool System Seismic Upgrade
- Modification Proposal No. 538-80-03
- BA-402020 - Oyster Creek Plant Computer System

2.2.3 Program and Implementation

As stated in the licensee's letter dated November 14, 1983, the licensee has an equipment quality classification list containing the major systems, components and structures at the station. The licensee established neither a component level Quality Classification List (QCL) nor a definite schedule for the development of a QCL. The Corporate Technical Functions department is primarily responsible for the development of QCL. To provide the required level of attention to this task, the licensee recently established a special organization under a separate Director. As of the conclusion of this inspection, the licensee selected an adequately qualified individual for the Director's position. The selections of managers and staff will not be initiated until the newly selected Director assumes his responsibility. The Vice President, Technical Functions, informed the inspector that the goals for the new organization, which include goals for QCL development, would be established by February 1985.

The inspector noted that the attachment to the licensee's letter dated November 20, 1984, did not address the specifics of equipment classification, vendor interface and post maintenance testing. While the attachment discussed plans for these items, it failed to provide schedules and actions for the interim.

Upon identification of the above, both site and corporate Senior Management provided the following information to the inspectors:

A corporate wide task force was formed to review the implications of the Salem ATWS events at TMI and Oyster Creek and to make recommendations. The task force recommendations were approved distributed for action by the President of the GPU Nuclear Corporation on June 19, 1984. These recommendations are cost and man power intense. Additionally, it will require actions from several different departments. A responsible organization was identified for each of the recommendations. The responsible organizations were

to provide action plans within six weeks of the date of assignment. Periodic status reports are also required until the items are closed out. Since these action plans are in the mobilization phase, definite goals are not established.

The licensee's Senior Management informed the inspector that they were prepared to discuss these action plans with the NRC Headquarters and regional management if needed. A licensee letter discussing the short and long range actions in these areas would be docketed.

The inspector reviewed the task force recommendations and noted that these recommendations were responsive to the concerns identified in NRC Generic Letter 83-28.

Until a component Level QCL is developed, the licensee intends to continue case-by-case evaluation for classification concerns. The inspector reviewed two recently completed evaluations and noted that these evaluations were adequate and were conducted by competent staff.

Quality Control personnel review copies of all work orders for classification. Except for a few isolated work orders out of several thousands written, Quality Control was successful in detecting and correcting the classification errors prior to the commencement of work.

In response to a recent NRC concern regarding the classification of work requests, the licensee's Quality Assurance personnel conducted an indepth evaluation of all work orders and noted that the initial classification error was below two percent.

The inspector reviewed those instances, in which Quality Control identified improper classification after the work started. In all cases reviewed, the inspector noted that the licensee took adequate actions, including stop work, review and rework, to correct the classification error.

Routine QA audits (e.g. S-OC-84-03, S-OC-84-11 and S-OC-84-20) adequately assessed the effectiveness of work order and design change classification. These audits were conducted using detailed approved check lists that were appropriate for the activity being audited. The audit personnel were competent and were qualified to conduct the audits.

2.2.4 Findings

No violations were identified. Licensee's controls are adequate to assure proper classification of components for design changes and work orders.

However, the licensee's responses to the Generic Letter 83-28 to date lack specificity and completion goals. Actions for the interim are also not adequately addressed. The inspector identified these concerns to the licensee's representatives. The licensee's representatives acknowledged the findings and stated that a letter detailing the short and long range action plans with milestones will be docketed.

The licensee's efforts to develop and implement a component level Quality Classification List, a complete and current vendor manual system and an effective post-maintenance testing system will be reviewed in a future NRC inspection (50-219/84-31-01).

2.3 Vendor Interface

2.3.1 References/Requirements

- GPUN QA Topical Report
- Warehouse procedure 2240-ADM-6470.01, Shelf Life
- Warehouse procedure 7240-ADM-6480.01, Preventive Maintenance
- Station procedure 125.2, conduct of Spare Parts Engineering
- Station procedure 125, conduct of plant engineering
- Station procedure 123, Operating Experience Assessment and Implementation

2.3.2 Program Review

The vendor interface programs described in the references listed in Section 2.3.1 were reviewed and determined that GPUN has established a program to:

- Assure that vendor information is complete, current and controlled.

- Evaluate and incorporate vendor information into appropriate documents (i.e., procurement, storage, inspection and test, preventive and corrective maintenance) for safety related equipment, components and activities.
- Provide engineering evaluation to develop procurement, receipt inspection testing storage conditions and preventive maintenance action when ever vendor information is lacking.

2.3.3 Program Implementation

Several safety related items were chosen at random and the documentation was reviewed to ensure these items were included in the shelf life and or preventive maintenance (PM) program as applicable. The warehouse shelf life and preventive maintenance programs were reviewed and discussed with the licensee's representative. The warehouse shelf life and PM reports were reviewed, items were selected and verified by direct observation that equipment and components were marked and segregated if shelf life had expired or was unknown, and that preventive maintenance had been performed.

The inspector reviewed several completed preventive maintenance initiation forms and shelf life engineering evaluation forms to ensure that adequate engineering evaluations were performed for equipment and components in storage.

2.3.4 Findings

No violations were identified. However a concern was identified.

The licensee's program for shelf life of materials in storage provides adequate controls to ensure material with identified shelf life will not be issued for use after the expiration date. The licensee has started an evaluation of older materials (procured prior to the establishment of the shelf life program) but to date has only completed approximately 30% of the evaluations. The remaining material could be issued without ensuring the shelf life has not expired. The licensee acknowledged the inspectors finding and stated that interim controls would be established until all old material was evaluated or reordered. This shelf life control issue will be reviewed in future NRC RI inspections (219/84-31-02).

2.4 Postmaintenance Testing

2.4.1 References

- GPUN QA topical report
- Station procedure 105, Conduct of Maintenance
- Station procedure 108, Equipment Control
- Station procedure 116, Surveillance Test Program
- Maintenance and Construction (M&C) Procedure, A000-ADM-1220.1, work request
- M&C procedure, A000-ADM-1220.8, Job Orders
- M&C procedure, A000-ADM-1220.13, Short Form
- GPUN Memorandum from P. Clark, dated June 19, 1984, Salem ATWS Task Force

2.4.2 Program Review

The references in Section 2.4.1 were reviewed and it was determined that the licensee was implementing a post-maintenance and modification testing program which included the following:

- Written procedures for initiating requests for post-maintenance testing
- Criteria and responsibilities for review and approval of post-maintenance testing
- Criteria and responsibilities for performing inspection of post-maintenance testing
- Methods for performing functional testing following maintenance and prior to returning to service
- Requirements for adequate documentation of the above reviews, approvals, inspections, and tests

2.4.3 Implementation Review

The licensee's post-maintenance testing program was reviewed and discussed with licensee personnel to ensure that the program was adequately implemented. The

following work orders and procedures were reviewed to ensure proper classification and that adequate post-maintenance testing was performed to declare the system or component operable. In addition, a random sample of 40 work orders classified as not important to safety were examined to ensure proper classification and post-maintenance testing.

-- Mechanical

21681, V-20-93 limitorque valve leaking
20889, core spray booster pump
20051, V-31-5 failed local leak rate
3020, CRD hydraulic accumulator, 106 valve
20555 SBGTS 1 and 2 damper operators
15 other important to safety corrective maintenance activities

-- Electrical

19918, replace conduit
19176, liquid poison system - check faulty circuit
2030, Diesel Generator starting circuit
19282, V-24-29 electrical connections
20839, station 125VDC battery, jumper cell
17381, battery grounds
20886, Fire Detection System
10 other important to safety corrective maintenance activities

-- Instrument and Control

21305, SRM period card inoperable
17279, APRM channel 2 intermittent
11433, reactor level indication
11499, CRD 38-27 position indication
20928, Emergency Condenser RTD broken

The inspector reviewed the current ongoing QA audit and QC involvement with the licensee. QC is included in the review cycle for all safety related corrective maintenance. The licensee has recently completed a review of the corrective maintenance performed during the extended outage for proper classification. Of approximately 7,000 corrective maintenance less than 2% were misclassified. The licensee initiated adequate corrective action for the misclassified corrective maintenance actions.

2.4.4 Findings

No violations were identified.

Plant administrative controls place the responsibility for post-maintenance and functional operability testing on the job supervisor and the Group Shift Supervisor respectively. In both cases there is no procedure to provide generic guidance on what appropriate testing should be. The licensee has recognized this problem as well as some deficiencies in their post-maintenance testing program (refer to IE inspection report 219/84-30) and in conjunction with their ATWS task force findings are developing a program to strengthen the post-maintenance functional and operability testing programs.

3. Quality Assurance (QA) Program/Implementation Review

3.1 References/Requirements

1. GPU Nuclear Operation QA Plan (Revision 0)
2. GPU Corporate Policy and Procedure Manual
3. GPU Nuclear Organization Plan
4. GPU Nuclear QA Department Procedure Manual Procedure Manual
5. Nuclear Division Organization Plan

3.2 Details of the Review

The documents identified in Section 3.1 were reviewed to assess the adequacy of the licensee's QA program. The program was well structured and it contained provisions to assure that the changes to the QA program were made in compliance with the licensee's commitments and regulatory requirements. The operational QA plan addressed both nuclear safety and important to safety activities.

The inspector selected several changes made to the QA program and noted that these changes did not degrade previously approved QA program. Additionally, these changes were adequately reflected in applicable Departmental and Section procedures.

The implementation of the QA program was assessed by reviewing a completed job package of the H₂/O₂ Analyzer System. The design documents identified the design requirements adequately. The design was independently reviewed by a competent engineer. A detailed safety review was also conducted and documented. The inspector reviewed the

installed system and noted that the system was installed per design. The records indicated that the installation was witnessed by Quality Control personnel at designated hold points. Field changes to this design were controlled in accordance with the licensee's procedures. The Quality Assurance audit was detailed and assessed the adequacy of design control.

In addition the inspector reviewed the following audits to assess the effectiveness of the Audit program:

- OC-83-14 Corrective Action
- OC-84-19 Fire Protection
- OC-83-04 Inservice Inspection
- OC-84-08 Material Management
- OC-83-03 Maintenance
- OC-83-08 Plant Engineering

The audits were conducted in accordance with the requirement of procedure 6100-QAP-7218.01. The audit schedule was established and the audited organizations were formally notified about announced audits. The audits were conducted using a detailed check list. The scope of the audit was adequate to assess the effectiveness of the audited organization. Audit findings and recommendations were clearly stated. The audited organization responded promptly and effectively to the requests for corrective actions. The licensee management took adequate action to resolve audit findings, addressing inadequate interface among participating organizations. The staffing level was adequate to complete the audit schedule without backlog. Qualified and independent Technical Specialists were used to provide expertise in specialized areas. The auditors were trained and qualified to meet the requirements of ANSI N45.2.23.

3.3 Findings

No violations and unresolved items were identified.

Based on this review, it is concluded:

1. The licensee's QA program and its implementation meet the licensee commitments and regulatory requirements and
2. The changes to the QA program are adequately controlled and effectively implemented. The reviewed changes did not degrade the previously-approved QA program.

4. Exit Interview

The inspector met with licensee representatives on November 30, 1984 at the site to discuss the findings of the inspection. (See paragraph 1 of this report for the attendees at the meeting).

At no time during this inspection was written material provided to the licensee by the inspectors.