

U. S. NUCLEAR REGULATORY COMMISSION
REGION I

DOCKET/REPORT NO: 50-219/94-23
LICENSEE: GPU Nuclear Corporation
Forked River, New Jersey
FACILITY: Oyster Creek Nuclear Generating Station
DATES: October 3-7, 1994

INSPECTOR:

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10/20/94
Date

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SUMMARY: Design modifications, engineering support for modifications, and several other technical support functions were reviewed during this inspection. The design modifications evaluated were clearly defined, and safety evaluations were considered to be in-depth.

Other areas reviewed included: engineering organizational interaction and communications; responses to NRC information notices; engineering task assignment actions; exchange of industry information; and, management oversight. The engineering site organizations were observed to work together as a unified team. Technically competent engineering staff were found effective in resolving problems. Management oversight of activities and good engineering support of the outage were evident.

DETAILS

1.0 ENGINEERING AND TECHNICAL SUPPORT (IP37550)

The objectives of this inspection were to review and evaluate engineering activities at the Oyster Creek Nuclear Generating Station. The inspection scope included review of design modifications, response to NRC information notices, communications to industry networks, review of engineering task assignments, and management oversight.

2.0 DESIGN MODIFICATIONS

The inspector reviewed selected modifications in process or completed during the current Cycle 15R refueling outage. Design modification packages were reviewed, discussions were held with licensee's personnel, and walkdown observations were made by the inspector. Details of design modifications reviewed are described below.

- Core Spray Pumps, Recirculation Upgrade (BA 403011).

This modification to each of the two systems implemented installation of the 1½" diameter recirculation piping to a higher elevation and provided a keep fill overflow path at this high level to keep the main piping full. An isolation valve, a flow element, and a throttling valve (to be locked in set position with a prescribed and verified flow) were installed in each recirculation line. The air-operated valves V-20-92, 93, 94, and 95 that had a fail open position on loss of offsite power or loss of air (a source of system drain down) were removed.

This modification addressed the licensee's potential safety concern (PSC-005) and the licensee's event report (LER 94-001) commitment to reduce water hammer potential on system pump start and to upgrade piping supports.

- Condensate Transfer Pump, Suction Expansion Joints (BA 328333-003).

The condensate transfer system provides makeup to the isolation condensers and is defined as regulatory required by the licensee. The purpose of this modification is to install an expansion joint in each of the two condensate transfer pump suctions. The expansion joints are to replace the spool pieces that originally housed temporary strainers during plant construction. This modification is being performed to eliminate excessive condensate transfer pump maintenance that has required one or the other pumps to be rebuilt, replaced, or have seals repaired numerous times. Problems have been attributed to suction pipe rigidity, which the flexible joints will eliminate.

- Drywell Sandbed Inspection.

Because the inspector had reviewed the licensee's major project of sandbed removal, coating of drywell exterior, and leveling of the concrete floor that was performed in the licensee's 14R outage, there was specific interest to follow-up on the licensee's 15R inspection results. During the 15R outage, the licensee performed a physical entry

and visual inspection of Bay 11 after removal of the boron carbide bags. On the day of the inspection (September 23, 1994), no trace of moisture was seen anywhere in the sandbed. There had been some water seepage within 36 hours of the reactor cavity fillup, that stopped after three days, indicating seepage was confined to the outer/exterior concrete wall. The inspection of the drywell shell coating showed no sign of deterioration and no staining to suggest wetting after 14R. The epoxy-repaired concrete floor likewise showed no deterioration.

- Valve Reliability Improvements, Anchor Darling Double Disc Gate Valves Installed on Isolation Condenser Piping (BA 323704).

The inspector observed the in-process modifications of the valve internals being performed by the valve manufacturer. These valves were installed in the 13R outage to resolve thermal binding problems with the replaced valves. The installation position of the new valves was prescribed as stem horizontal, similar to the replaced valves and has been a source of packing leakage since installation. The in-process work included new discs that have close clearances with the valve body, deep stuffing boxes with additional packing and carbon-support bushings, and installation of new "smart stems" that have internally-mounted strain gages. The in-process work on these valves had advance planning and was progressing satisfactorily.

- GL 89-10 Motor-Operated Valve Modification (BA 328312).

The inspector observed the work in process and considered this modification a major licensee undertaking. This modification addresses several concerns described in NRC Inspection Report (IR) 94-11 and is being performed to improve the torque output and thrust capability of isolation condenser system (ICS) motor-operated valves V-14-30 through 37, and reactor water cleanup (RWCU) valves V-16-1, 14, and 61. Changes are being made to motor operator gear ratios, rewire of limit switches to bypass the close torque switch until after flow isolation is reached, replace the ICS time delay relays with relays that have less hysteresis and change of setpoints. The in-process modification included: motor-operated gear ratio changes to RWCU valves V-16-1, 14, and 61; replacement of SBD actuators with SMB actuators on ICS valves V-14-36 and V-14-37 and on RWCU valves V-16-1, 14, and 61; replacement of heavy spring packs with light spring packs on valves V-14-31, 33, 34, and V-16-1, 14, and 61; replacement of thermal overload heaters on valves V-14-30, 31, 34, and 36; and changing the limit switch position of valves V-14-36 and 37 to limit opening stroke to 70%-72% full open.

The modification details described above provide updated information relating to Unresolved Items 50-219/91-81-01 and 03. (These are also listed as GPUN Matrix Items 5, and 2 of Attachment 2 to NRC IR 94-11). These unresolved items remain open pending further information planned to be discussed at an October 20, 1994, management meeting with the NRC.

Conclusions

Each of the modification packages reviewed by the inspector provided clear, technical explanations, resulting benefits to be obtained, and a comprehensive safety evaluation. Fulltime on-site presence of corporate project engineers and corporate engineering and design engineers during the outage was noted by the inspector during walkdowns and modification reviews. The inspector attended several of the 7:30 a.m. plant engineering/systems engineering meetings. Managers of the site engineering groups were knowledgeable of modification issues, there was good interchange of information, and task assignments were made to fully support and resolve encountered outage problems. This cohesive interaction by engineering enabled material nonconformance reports to be appropriately and quickly closed. Support of modifications by site and corporate engineering was concluded to be effective.

3.0 INDUSTRY INFORMATION

The inspector reviewed the licensee's activities relating to industry information system input of data, requests for information, and dissemination of information received. The inspector determined that the licensee is an active participant in the Nuclear Network Program. Information inputs and requests for information reviewed by the inspector included: control rod drive leakage, valve air actuator problems, in-storage maintenance, emergency response data, and process water chemistry.

The site licensing department has the administrative responsibility to assign actions to each NRC information notice (IN), maintain control of the activity, and perform administrative closeout action. Engineering provides the technical details relating to a notice. Several selected recent INs were reviewed by the inspector. They included: IN 94-06 potential failure of long-term emergency nitrogen supply for the automatic depressurization system valves; IN 94-18 accuracy of motor-operated valve diagnostic equipment; and IN 93-97 failure of yokes installed on Walworth gate valves. The inspector verified that appropriate actions had been taken, and considered the licensee's system to address INs to be effective.

4.0 ENGINEERING TASK ASSIGNMENTS

The inspector reviewed the plant support engineering task assignments, the system for tracking them, and the backlog. The inspector reviewed the past several years' history and determined there was a system to track and control assigned items. In 1990, 410 actions were issued and 274 completed; in 1991, 254 actions were issued and 335 completed; in 1993, 287 actions were issued and 328 completed; and in 1994, to date, 212 actions were issued and 227 were completed. The inspector concluded that the total backlog is being maintained at a manageable level of less than 500 task items, of which the older items are of low safety significance and of low priority.

meeting. Managers were knowledgeable of information, and task assignments, problems. Three engineering management support Engineering manager and one Systems Engineering manager provided coverage of outage activities.

When problems were encountered, other managers were advised of the issue. Such was the case in problems encountered with the core shroud inspection equipment, and the inspector was in attendance during a phone conference between managers of Systems Engineering and corporate Technical Functions Engineering regarding this matter. The inspector assessed this activity as a good technical information interchange that prepared all engineering managers for a subsequent phone conference with the vendor.

6.0 EXIT MEETING

During the course of the inspection, the inspector's findings were discussed with licensee representatives. An exit meeting was conducted on October 7, 1994, at which time the preliminary findings were presented. Lead licensee personnel in attendance at the exit meeting are listed below. The licensee acknowledged the inspector's findings and conclusions and had no additional comments regarding the inspection results. The bases for the preliminary conclusions did not involve proprietary information.

G. Busch,	Manager, Licensing
J. DeBlasio,	Manager, Mechanical Engineering
C. Lefler,	Manager, Technical Functions
S. Levin,	Director, Operations and Maintenance
A. Rone,	Technical Functions Site Director
T. Sensue,	Licensing Engineer

Mr. Suren Singh, Nuclear Engineer, of the State of New Jersey, Bureau of Nuclear Engineering, observed the inspection and attended the exit meeting.

5.0 MANAGEMENT OVERSIGHT

Management oversight of modifications, outage coverage, and resolution of problems was noteworthy. The inspector attended several of the daily 7:30 a.m. plant engineering/systems engineering meetings. Attendees at the meetings included managers and lead staff personnel from various groups. Managers were knowledgeable of modification issues, there was good interchange of information, and task assignments were made to quickly resolve outage problems. Three engineering management support teams consisting of one Plant Engineering manager and one Systems Engineering manager provided full shift coverage of outage activities.

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