

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Docket No: 50-219

License No: DPR-16

Report No: 50-219/99-06

Licensee: GPU Nuclear Corporation

Facility: Oyster Creek Nuclear Generating Station (OCNGS)

Dates: October 5 - 8, 1999

Inspectors: D. Silk, Senior Emergency Preparedness Specialist, DRS
N. McNamara, Emergency Preparedness Specialist, DRS
T. Hipschman, Resident Inspector, OCNGS
N. Perry, Project Engineer, Branch 7, DRP
J. Williams, Senior Operations Engineer, DRS

Approved by: Richard J. Conte, Chief
Human Performance and Emergency Preparedness Branch
Division of Reactor Safety

EXECUTIVE SUMMARY

Oyster Creek Nuclear Generating Station
Full-Participation Emergency Preparedness Exercise Evaluation
October 5, 1999
Inspection Report Number 50-219/99-06

Based on the results of this inspection, it was determined that the overall performance of the ERO demonstrated, with reasonable assurance, that onsite emergency plans are adequate and that your organization is capable of implementing them. Simulated events for this exercise were diagnosed accurately, emergency declarations were timely and accurate, offsite agencies were notified in a timely manner and protective action recommendations were appropriate.

One exercise weakness was identified. Due to a communications problem in the technical support center, important information was not relayed to a key decision maker. As a result, mitigation actions to isolate a simulated loss of coolant accident were delayed for approximately two hours. This delay was an undesired response to the simulated event.

Your critique process was well implemented. Post-exercise facility debriefs were candid. At the formal critique, your staff identified a number of issues, in addition to those identified by the NRC. The most significant issues identified were prioritized for prompt corrective action. Overall, the critique was balanced with positive and negative findings and was appropriately self-critical.

Report Details

P4 Staff Knowledge and Performance

a. Exercise Evaluation Scope (82301)

During this inspection, the inspectors observed and evaluated the licensee's biennial full-participation exercise in the emergency control center (ECC), the technical support center (TSC), the operations support center (OSC), and the emergency operations facility (EOF). The inspectors assessed the emergency response organization's (ERO) recognition of abnormal plant conditions, classification of emergency conditions, notification of offsite agencies, development of protective action recommendations (PARs), command and control, communications, utilization of repair and field monitoring teams, and the overall implementation of the emergency plan. In addition, the inspectors observed the post-exercise critique to evaluate the licensee's self-assessment of the exercise.

b. Exercise Evaluation Observations and Findings

b.1 ECC

The site shift manager (SSM) promptly declared the alert when informed of the damaged spent fuel and the associated offsite notification was performed in a timely manner. The SSM conducted a thorough turnover with the oncoming emergency director (ED). Throughout the exercise, the ECC staff quickly recognized off-normal conditions and relayed the information to the TSC. The SSM demonstrated good command and control of his crew and conducted frequent briefings of plant conditions and procedure implementation.

The ECC crew was not very assertive in informing the TSC regarding the need for and the capability to isolate a loss of coolant accident (LOCA) on the B Recirculation Loop. Even though information about the break and the ability to isolate it was communicated promptly to the TSC, the SSM did not challenge the ED regarding the priority to restore power to the isolation valves.

b.2 TSC

In general, performance of TSC personnel during the exercise was good. Emergency responders staffed and activated the facility within the time requirements of the emergency plan, and the TSC was adequately equipped to perform its emergency response function. The ED maintained excellent facility management and control, and conducted frequent and informative briefings. He effectively utilized his subordinate advisors and kept the facility noise to a manageable level. The ED's classification of the general emergency (GE) condition was accurate and timely.

The TSC staff's assessment of the scenario events was accurate, but some exceptions were noted. One of the scenario events was a loss of the 1B21 electrical bus. Shortly after this event, a LOCA resulted when the B Recirculation Pump casing was penetrated by the pump impeller. Isolation of the B Recirculation Pump was prevented because

power for the isolation valves was supplied by the de-energized 1B21 bus. The B Recirculation Pump was un-isolated for approximately two hours longer than necessary due to the problematic flow of information from the TSC staff to the ED. The ED apparently thought that the D Recirculation Pump, vice the B Recirculation Pump, was experiencing the vibration increases. He also was not aware that the 1B21 bus supplied the power for the B Recirculation Pump isolation valves. Therefore, the restoration of the 1B21 bus was not given the proper high priority. Approximately two hours passed before the ED became aware of the information described above, during which time the reactor core was unnecessarily uncovered with only core spray providing core cooling.

When the ED became aware of the significance of restoring the 1B21 bus, he directed its restoration immediately. The bus was subsequently restored and the source of the LOCA was successfully isolated. Immediately after the LOCA, the ECC staff was aware that restoration of 1B21 bus was necessary to isolate the LOCA. Due to poor feedback from the TSC staff, the ECC staff was unaware that the ED had assigned a low priority to the restoration of the bus. During the two hour delay of bus restoration, the ECC staff did not aggressively pursue the issue with the ED. Failure of the ERO to properly mitigate the accident and stop the release of radioactivity, due to the failure to isolate the source of the LOCA in a timely manner, was considered an exercise weakness. **(IFI 50-219/99-06-01)** This issue was identified by the licensee during the critique process. At the critique, the licensee stated that only a slight amount of additional core damage and exposure to the public would have occurred based on this scenario. Nonetheless, this delay in isolating the loss of coolant was an undesired response to the simulated event.

During the exercise, a few other minor problems were encountered in the TSC, but were quickly remedied or did not result in the loss of necessary functions. For instance, initial attempts to establish an open line of communications with the simulator control room were not successful.

b.3 OSC

The staffing and activation of the OSC was timely. Evacuation of OSC to the secondary OSC was performed well. The operations coordinator, and the maintenance and operations personnel on the drywell vent valves teams demonstrated a questioning attitude and in-depth knowledge of the plant. The facility was equipped to perform its emergency function, however, some problems were noted with the OSC control of repair teams and realistic field performance during the exercise.

Nearly two hours elapsed from the initial identification of a problem with the drywell vent valves and the approach of a team to the scene. The team was dispatched by the control room at approximately 5:20 p.m. to evaluate problems with drywell vent valves (V-27-1 and V-27-2). The team was then redirected to proceed to the OSC, however, the OSC was not activated until 5:39 p.m. The OSC coordinator called for the team to be formed at 6:05 p.m. Although the team was prepared to perform its job assignment, the team's departure was delayed until 6:55 p.m., while waiting for a radiological briefing, permission from the radiological assessment coordinator (RAC) and the OSC coordinator. The team was further delayed due to a lack of protective clothing

accessories (cotton liners and plastic protective packs). The team never entered the reactor building. It was recalled by the OSC because of changing radiological conditions due to the simulated LOCA.

Repair team prioritization was not always consistently applied. Of fifteen teams formed, eleven teams were designated 'high' priority, and three were identified as 'low' priority. Although emergency plan implementing procedures allow for teams to be classified as 'standard' priority, this classification was not used. The inspectors determined that the priority system had little value since the departure of the team formed to troubleshoot the drywell valves had to wait for the completion of a radiological briefing of a team assigned to monitor the old radiological waste building.

The tracking of teams was frequently inaccurate. Time was lost during transition looking for supplies. After the secondary OSC was established, the TSC continued to display outdated computer generated OSC team status information for the remainder of the exercise.

Performance of the OSC teams was not always realistic. None of the teams observed by the inspector used any tools or procedures. For example, the team assigned to troubleshoot the drywell vent valves or the 1B21 breaker in the event of a real response would have needed tools and electrical safety equipment. Additionally, procedures directing the operators and maintenance technicians' actions, such as, Exhibit 5 of EPIP-OC-.27, Operations Support Center, were not used to maintain configuration control.

Also, when the OSC was planning the teams, dose received to workers during the scenario was not considered. Workers were questioned on their exposure to date, but this exposure was not updated to include dose received due to a previous team assignment, dose received at the OSC prior to the evacuation, and dose received during the evacuation to the secondary OSC.

Overall, no potential adverse consequences were noted with respect to the effectiveness of the emergency plan implementation. Despite the problems with OSC control of teams and realistic field performance during the exercise, the OSC staff demonstrated acceptable performance.

b.4 EOF

The EOF was staffed and activated in a timely manner. The emergency support director (ESD) demonstrated very good command and control by conducting timely and informative briefings, ensuring prioritization of activities based upon known conditions, and eliciting pro-active thinking in anticipation of further plant degradation. There was good interaction between the ESD and the ED in the TSC as they resolved discrepant information and discussed plant status, radiological conditions, and repair activities. The EOF staff concurred in the ED's decision to declare a GE. The PAR developed by the EOF staff was appropriate for the simulated plant conditions. The GE notification and PAR were provided to the offsite agencies in a timely manner. The ESD and the technical support staff provided incomplete plant information and missed some

necessary explanations to state representatives. This was evident during the exercise, since state representatives were seeking plant information from licensee dose assessment personnel.

b.5 Dose Assessment

The dose assessment function was promptly established in the EOF, which assumed control from the TSC in a timely manner. From the EOF, field teams were dispatched, tracked, and moved according to changing plant conditions. The dose assessment staff at the EOF demonstrated proficiency in the use of computers for dose projection. Communications within the dose assessment group regarding changes in plant parameters and meteorological conditions were good. Group members took initiative to pursue and clarify discrepant radiological data and conditions. There were thorough efforts to correlate plant radiation monitors with field team readings and dose projections. Alternate release pathways were properly considered and eliminated. Overall, the dose assessment group successfully implemented their procedures to perform the intended function.

b.6 Licensee Exercise Critique

Immediately following the exercise, the licensee began its critique process with players providing debriefs at each of the facilities. Players were candid in discussing both positive and negative comments regarding player and equipment performance. Licensee controllers then compiled their observations and findings and presented them at the formal critique on October 8, 1999. The licensee identified a number of issues, in addition to the ones identified by the inspectors. Overall, the critique was thorough and self-critical.

c. Overall Exercise Conclusions

Based on the results of this inspection, it was determined that the overall performance of the ERO demonstrated, with reasonable assurance, that onsite emergency plans are adequate and that your organization is capable of implementing them. Simulated events for this scenario were diagnosed accurately, emergency declarations were timely and accurate, offsite agencies were notified in a timely manner, and PARs were appropriate.

One exercise weakness was identified. Due to a communications problem in the TSC, important information was not relayed to a key decision maker. As a result, mitigation actions to isolate a simulated loss of coolant accident were delayed for approximately two hours. This delay was an undesired response to the simulated event.

The critique process was well implemented. Post-exercise facility debriefs were candid. At the formal critique, the licensee identified a number of issues, in addition to those identified by the NRC. The most significant issues identified were prioritized for prompt corrective action. Overall, the critique was balanced with positive and negative findings and was appropriately self-critical.

P8 Miscellaneous EP Issues

P8.1 Scenario Preparation and Exercise Control (82302)

An in-office review of the exercise objectives and scenario was conducted by the inspectors prior to the exercise. It was determined that the scenario was adequate to support the demonstration of the stated objectives and satisfactorily exercised a significant portion of the emergency response capabilities.

P8.2 Minor Equipment Issues (82301)

During the exercise, a number of minor equipment issues were identified. For example, the ED could not get the plant page to function. Also the ED's computer was out of service and the Equipment Status Display System did not function properly at times. The computer in the EOF which provided various information displayed needed to be re-booted during the exercise. There were no adverse consequences resulting from these equipment problems aside from causing minor distractions to the players.

P8.3 (Closed) Failure to Follow Abnormal Procedure Requirements (IFI 50-219/97-08-01)

During the 1997 exercise, the ECC operators, after consultation with the ED in the TSC, attempted to close the main steam isolation valves (MSIVs) following an anticipated transient without a SCRAM (ATWS) in order to terminate the release of radioactive material from the containment. This action was not prescribed by the emergency operating procedures (EOPs), and was prevented by an IF/THEN statement in abnormal operating procedure 2000-ABN-3200.26, "Increase in Main Steam Line/Off Gas Activity." This procedure directs MSIV closure IF the reactor has been successfully scrammed. The operators acknowledged and announced the receipt of a control room alarm related to high main steam line radiation; however, they did not utilize either the alarm response procedure or abnormal procedure 2000-ABN-3200.26. The ECC controller prevented the operators from closing the MSIVs to preserve the scenario timeline. The decision to shut the MSIVs with an existing ATWS condition was a concern because it represented a training deficiency at several levels of the ERO.

During this exercise, there were no observed instances of procedure deviations. The inspectors reviewed the licensee's corrective actions to address the above issue. The licensee consulted their EOP developers and the BWR owners group EOP specialists and determined that the decision to close the MSIVs during the exercise scenario would have been appropriate to protect the containment. They also determined that other instances may exist that would be contrary to the existing procedural guidance and it would be difficult to encompass those instances procedurally. Therefore, operators and

ERO members must address each situation on a case-by-case basis. The licensee determined that the ERO should have invoked 10CFR50.54(x) (simulated) to deviate from procedures. The licensee has used this situation as a case study and provided training to operators and the appropriate ERO members to address the issue of closing the MSIVs and invoking 10CFR50.54(x). This item is closed.

P8.4 (Closed) Failure to Notify Offsite Agencies within 15 Minutes (IFI 50-219/97-08-02)

During the 1997 exercise, the EOF failed to make a timely notification of the site area emergency (SAE) declaration to the state. The ESD declared the EOF to be activated at 7:14 p.m., and was tasked with the functional responsibility for making emergency notifications to offsite authorities. At the same time, the ED in the TSC declared a SAE due to an earthquake affecting systems required for safe shutdown. During the turnover of the notification function to the EOF from the ECC, confusion arose over the transfer of the notifications. The EOF staff incorrectly understood that the ECC had notified the state of the SAE declaration, when, in fact, the ECC had not done so. It was not until 7:33 p.m., when the ECC was notifying the state of the termination of the earlier declared notification of unusual event, that the ECC realized that the notification of the SAE had not been made.

During this exercise, notifications to the state were made in a timely manner. The inspectors reviewed licensee corrective actions to address the issue. Corrective actions included procedural revisions to clarify the turnover of communications from the ECC to the EOF. Also, additional training was provided to communicators emphasizing the revisions and the significance of properly transferring the communications function. This item is closed.

V. Management Meetings

X1 Exit Meeting

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on October 8, 1999. The licensee acknowledged the inspectors' findings.

INSPECTION PROCEDURES USED

82301: Evaluation of Exercises for Power Reactors

82302: Review of Exercise Objectives and Scenarios for Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

IFI 50-219/99-06-01: Untimely mitigation actions (Section P4 b.2)

Closed

IFI 50-219/97-08-01: Failure to follow abnormal procedure requirements (Section P8.3)

IFI 50-219/97-08-02: Failure to notify offsite agencies within 15 minutes (Section P8.4)

Discussed

None

LIST OF ACRONYMS USED

ATWS	Anticipated Transient Without a SCRAM
ECC	Emergency Control Center
ED	Emergency Director
EOF	Emergency Operations Facility
EOP	Emergency Operating Procedure
ERO	Emergency Response Organization
ESD	Emergency Support Director
GE	General Emergency
LOCA	Loss of Coolant Accident
MSIV	Main Steam Isolation Valve
OSC	Operations Support Center
PAR	Protective Action Recommendation
RAC	Radiological Assessment Coordinator
SAE	Site Area Emergency
SSM	Site Shift Manager
TSC	Technical Support Center