ENCLOSURE 1

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

INSPECTION REPORT 50-219/86-99 (AMENDED REPORT)

GENERAL PUBLIC UTILITIES NUCLEAR CORPORATION

OYSTER CREEK NUCLEAR GENERATING STATION

ASSESSMENT PERIOD: OCTOBER 16, 1986 - SEPTEMBER 30, 1987

BOARD MEETING November 17, 1987

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I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) program is an integrated NRC staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance based upon this information. The SALP program is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. The SALP program is intended to be sufficiently diagnostic to provide a rational basis for allocating NRC resources and to provide meaningful guidance to the licensee's management to promote quality and safety of plant construction and operation.

An NRC SALP Board, composed of the staff members listed below, met on November 17, 1987, to review the collection of performance observations and data, and to assess licensee performance in accordance with the guidance in Chapter NRC 0516, "Systematic Assessment of Licensee Performance." A summary of the guidance and evaluation criteria is provided in Section II of this report.

This report is the SALP Board's assessment of the licensee's safety performance at the Oyster Creek Nuclear Generating Station for the period October 16, 1986 to September 30, 1987. The summary findings and totals reflect the eleven and one-half month assessment period.

SALP Board

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Members

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Other Attendees

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N. Perkins, OIA
J. Wechselberger, Resident Inspector, Oyster Creek

II. CRITERIA

Licensee performance is assessed in selected functional areas, depending upon whether the facility is in a construction, preoperational, or operational phase. Functional areas normally represent areas significant to nuclear safety and the environment. Some functional areas may not be assessed because of little or no licensee activities or lack of meaningful observations. Special areas may be added to highlight significant observations.

One or more of the following evaluation criteria were used to assess each functional area.

1. Management involvement and control in assuring quality.

2. Approach to the resolution of technical issues from a safety standpoint.

3. Responsiveness to NRC initiatives.

4. Enforcement history.

5. Operational and Construction events (including response to, analyses of, and corrective actions for).

6. Staffing (including management).

7. Training and Qualification Effectiveness.

However, the SALP Board is not limited to these criteria and others may have been used where appropriate.

Based upon the SALP Board assessment each functional area evaluated is classified into one of three performance categories. The definitions of these performance categories are:

Category 1. Licensee management attention and involvement are aggressive and oriented toward nuclear safety; licensee resources are ample and effectively used so that a high level of performance with respect to operational safety and construction quality is being achieved. Reduced NRC attention may be appropriate.

Category 2. Licensee management attention and involvement are evident and are concerned with nuclear safety; licensee resources are adequate and are reasonably effective so that satisfactory performance with respect to operational safety and construction quality is being achieved. NRC attention should be maintained at normal levels.

Category 3. Licensee management attention or involvement is acceptable and considers nuclear safety, but weaknesses are evident; licensee resources appear to be strained or not effectively used so that minimally satisfactory performance with respect to operational safety and construction quality is being achieved. Both NRC and licensee attention should be increased.

The SALP Board may determine to include an appraisal of the performance trend of a functional area. Normally, this performance trend is only used where both a definite trend of performance is discernible to the Board and the Board believes that continuation of the trend may result in a change of performance level. Improving (declining) trend is defined as: Licensee performance was determined to be improving (declining) near the close of the assessment period.

III. SUMMARY OF RESULTS

A. Overall Summary

Site and corporate management continue to demonstrate a strong commitment to safety. Some important corporate level personnel and other changes were made to improve overall management effectiveness. Adequate site staffing and facilities are being maintained. GPUN maintains a strong commitment to improve performance through effective training for both management and craft personnel. However, performance this period, in some critical areas, has been marked by inconsistency. While security and safeguards continues to exhibit a high level of performance; plant operations, surveillance, emergency preparedness, and engineering support have experienced some reduction in performance.

Unplanned outages resulting from equipment malfunction and rework of maintenance items continue to be a problem. On one occasion, following a series of operational problems, management took a major step to improve plant reliability and solve root cause equipment problems prior to restart of the plant by establishing three committees to identify and correct problems contributing to poor plant performance. Initiatives of this type to identify root causes to problems and to correct long standing plant deficiencies should be continued.

Improvements in operator decision making capabilities and control room professionalism have been noted. However, some significant operator errors have also occurred. Increased efforts are needed to assure procedure compliance, to eliminate the graded approach to procedure adherence, and to encourage changing of procedures when warranted. Although the facility has many excellent procedures, improvements are needed. In addition, a method by which procedure changes are more promptly incorporated into procedures would serve to encourage the submittal of needed procedure changes. Operations management support was upgraded by the assignment of a former Shift Technical Advisor to the staff.

Improvement in the overall management of maintenance has been noted. Continued efforts are needed to improve equipment reliability, reduce challenges to the operators from equipment problems, and to improve plant reliability. A licensee self-assessment identified that improvement in communications between operations, maintenance, and the technical support groups in identifying and correcting problems; the steps to accomplish this should be implemented promptly.

The licensee continues to demonstrate a strong commitment to maintaining quality training programs for all levels of personnel. However, a large number of LERs were attributed to personnel error. A continuing evaluation of plant activities and the focusing of training to identified needs will further improve a good training program.

An improvement in onsite QA/QC has been noted with audit and inspection activities. Some instances were noted, however, where inspectors lacked technical competence. This was more evident in the auditing of technically specialized areas.

Another area which should be addressed is the cumbersome internal review of documentation which has led to a number of LERs being submitted late and also prevented the timely completion of some Licensing Action Items (LAIs). This has made the entire LAI system less effective.

Little change has been noted in the area of technical support with inconsistent performance still being noted. The completion of self-assessment in this area and initiation of corrective action is needed.

Despite the strong commitments to safety, training, and improvement of management effectiveness, performance during this SALP period has been inconsistent. The many good initiatives and operational performance periods have been interrupted by significant operational events.

B. Background

Oyster Creek is a GE BWR/2 with a Mark I containment. The Construction Permit was issued in December 1964 and commercial operation commenced on December 23, 1969.

1. Licensee Activities

At the beginning of the assessment period, the plant was in an extended refueling, maintenance, and modification outage. Problems were identified with thinning of the drywell shell in the sand cushion area at the bottom of the drywell. This resulted in a delay in restart while evaluation of the significance of the problem was pursued.

On December 21, 1986 the plant was restarted. On December 24, 1986 a reactor scram occurred on high-high IRM power due to cold feedwater injection. The plant was restarted on December 26 and the generator placed on line on December 28. On December 29 power was reduced and the plant manually scrammed due to a relief valve and bellows problems on the plant's secondary side. On January 6, 1987 the plant was restarted.

On January 18 a reactor scram occurred from 84% power due to a high power signal. Restart commenced on January 19 but was followed by a shutdown on January 20 due to intermediate range nuclear instrumentation problems. A startup occurred later on in the day and the generator was placed on line on January 21. On February 14 a reactor scram occurred from 98% power due to a turbine trip on high

reactor water level. The high water level signal resulted from a loose electrical lead. Restart commenced February 18, but nuclear instrumentation problems caused a manual shutdown on February 19.

At this point the licensee decided to form three committees in an attempt to identify and correct the problems contributing to the plant's poor performance. These committees addressed loose leads, intermediate range instrumentation, and plant reliability. On March 9, 1987 the plant restarted smoothly and remained on line until April 24 when it was shut down to repair a failed electromatic relief valve acoustic monitor.

Following a brief outage, the plant was restarted on May 14 and continued to run until a reactor scram on July 30 caused by inadvertent closure of a main steam isolation valve. During the extended run from May 14 until July 30, plant operators were challenged several times but, in all cases, responded properly. On August 4 the plant was restarted and continued to generate power at less than full rated due to environmental limits on discharge water temperature.

On September 6 a leak was identified on the #2 main flash tank manway. Repair efforts were unsuccessful in stopping the leak. The drywell unidentified and identified leak rates had been increasing as well as torus water level, confirming a bonnet leak on a previously worked feedwater isolation valve (V-2-35). Because of these concerns, the plant was shut down to effect repairs. On September 10 the plant was shut down and on September 11 a safety limit was violated as a result of recovery from a Reactor Building Closed Cooling Water System leak during valve maintenance.

Based on the projected time required to fully address the safety limit violation and the apparent destruction of a plant record associated with the event, the licensee opted to remain shut down and to declare an official maintenance outage. This commenced September 16 and continued through the end of the SALP evaluation period.

2. Inspection Activities

Two NRC resident inspectors were assigned to the site throughout the assessment period. The total NRC inspection time for the assessment period was 5089 hours (resident, region, and headquarters based) with a distribution in the appraisal functional areas as shown in Table 2. This equates to 5310 hours on an annual basis.

The annual emergency preparedness exercise was held on May 12, 1987.

Special inspections were conducted as follows:

-- Region I Appendix R Team Inspection, January 5-9, 1987.

-- Region I Special Team Inspection to follow up tying open of torus to drywell vacuum breakers, April 24 - May 6, 1987.

-- Region I and Headquarters Integrated Performance Appraisal Team Inspection, August 10-21, 1987.

-- Region I and Headquarters Augmented Inspection Team inspection to follow up Safety Limit violation, September 11-17, 1987.

Table 1 summarizes all inspection activities during the assessment period. Table 3 lists specific enforcement data.

C. Facility Performance Analysis Summary

	Functional Area	7/1/85 to 10/15/86 Last Period	10/16/86 to 9/30/87 This Period	Trend
A.	Plant Operations	2	3	
B.	Radiological Controls	2	2	
C.	Maintenance	2	2	
D.	Surveillance	1	2	
E.	Emergency Preparedness	1	2	
F.	Security and Safeguards	1	1	
G.	Assurance of Quality	2	2	
H.	Licensing Activities	2	2	Improving
I.	Engineering Support	2	3	
J.	Training and Qualification	1	2	

D. Unplanned Shutdowns, Plant Trips, and Forced Outages

Date	Power Level	Description	Root Cause	Functional Area
Startup from Cycle 11 Refueling/Maintenance/Modification Outage on December 21, 1986.				
12/24/86	3.5%	Intermediate range high flux scram due to overfeeding the reactor with cold feedwater.	Operator Error/ Equip-deficiency: Undesirable feedwater regulating valve "lockout feature" caused valve to drift open. Operator failed to recognize valve had drifted open prior to start of a feed pump. Operators were previously aware of the lockout feature and were cautioned not to position the controller into lockout.	Plant Operations
12/29/86	2%	Manual Scram	Equipment Failure: Steam Leak-Secondary Side. Relief Valve and bellows	Maintenance
1/16/87	84%	High flux scram during recirculation pump start.	Operator Error: inadequate understanding of operation of motor operated valve resulted in failure to fully close recirc pump discharge valve.	Plant Operations
1/20/87	0%	Manual shutdown	Equipment Failure: Intermediate range instrumentation. Detector failure apparently due to vibration.	Engineering Support
2/14/87	98%	Scram due to turbine trip caused by high reactor water level.	Random equipment failure. Spurious signal caused by a loose wire dislodged during inspection.	N/A

Date	Power Level	Description	Root Cause	Functional Area
2/19/87	0%	Manual Shutdown	Equipment Failure: Intermediate range instrumentation. Detector failure apparently due to vibration.	Engineering Support
4/24/87	100%	Manual Shutdown required by Tech Specs. Specs.	Equipment Failure: Electromatic relief valve acoustic monitor failure resulting from a defective and poorly designed cable splice.	Engineering Support
7/30/87	70%	Scram due to high reactor pressure.	Equipment Failure: MSIV closure due to air leak caused by fasteners of improper length used to assemble valve manifold.	Maintenance
9/09/87	66%	Manual shutdown	Equipment Failure: Steam leak - secondary side and increasing drywell leak rate.	Engineering

NOTE: The root cause in this Table is the opinion of the SALP Board based on the inspector(s) description of the event and may, in certain instances, differ from the Licensee Event Report (LER).

IV. PERFORMANCE ANALYSIS

A. Plant Operations (1820 hrs., 36 %)

1. Analysis

The previous SALP rating in this area was Category 2. Strengths discussed included strong senior operations management and improving control room environment and operations/maintenance interface. Weaknesses included long-standing unresolved equipment problems that potentially affected plant operations and challenged operator performance. Recommendations included training and improvement in shift managements' decision making capabilities.

Routine resident and specialist inspections, an Integrated Performance Assessment Team (IPAT) inspection, an Augmented Inspection Team (AIT) inspection, and special inspections formed the basis for evaluation during the assessment period.

In response to the previous SALP, senior operations management took action to emphasize the importance of on-shift decision-making. Shift management reacted positively, resulting, with some exceptions, in more informed decisions. Operations has also emphasized training, especially in the area of teamwork, and improved the professional environment in the control room. Part of the benefits realized were improved operator response to reactor water level transients during event recovery. Operations management support was upgraded by assignment of former Shift Technical Advisors (STA's) to the staff.

Equipment problems continued to challenge the operators. Many challenges, including two Unusual Events, were responded to correctly by the operators. In several specific instances, however, operator response was not adequate and problems resulted. An example includes failure to properly respond to a known design deficiency of a feedwater valve controller. This resulted in a valve drifting open and a high flux scram occurring from the intermediate range when the associated feed pump was started. The issue of equipment problems challenging the operators has been discussed in previous SALP reports and, although substantial efforts have been made by the licensee to upgrade the plant, there has not been a corresponding reduction in the number of system challenges.

Operator errors not precipitated by equipment failures continued in this evaluation period. Two of these were significant. The first occurred during a routine plant shutdown when the drywell to torus and reactor building to torus vacuum breakers were tied open when primary containment was required, thus, compromising primary containment integrity. The second occurred when operator action was required to respond to a leak in the cooling water system to

the two operating recirculation pumps. As part of his response, an operator closed a fourth recirculation pump discharge valve. This resulted in violation of a Technical Specification safety limit.

A review of Licensee Event Reports analyzed in Section V.D., indicates other examples and gives rise to a concern for an apparent increase in personnel errors. Operator errors indicated a lack of understanding of the equipment being operated. Others indicated either lack of attention to detail, or lack of adherence to procedures. Lack of knowledge of motor operated valves contributed to transients on two occasions.

When questioned by NRC inspectors about some of the procedural violations, operations personnel stated there was not a problem with their action and that the procedures were either too prescriptive, incorrect, or conflicted with other guidance. This response indicated a reluctance of operations personnel to change procedures and implies a graded approach to procedural adherence that is a function of the individual performing the procedure and management priority. This situation is not consistent with stated GPUN commitments regarding procedure compliance.

A concern that was discussed with the licensee during the previous SALP was the effect of schedular pressure. This pressure has resulted in operations, at times, not insisting on thorough resolutions to technical problems with the potential for subsequent negative impact. One example of this was the containment vacuum breaker event: There was an operations' perception that the torus deinerting time was increasing and holding up drywell entry. Instead of insisting on investigation and correction of the problem, compensatory measures were taken that involved tying open two drywell to torus vacuum breakers during torus deinerting in an attempt to reduce the time. The first few times this was done, primary containment was not required. However, the last time it was done, primary containment was required and a safety violation occurred. In examining the root causes of this event, one of the contributing factors was schedular pressure to deinert the torus. However, the torus deinerting time had not changed.

The results of the various special NRC inspections including the AIT to follow up the safety limit violation and the IPAT to independently assess Oyster Creek's performance were mixed but generally positive. The AIT concluded that, although several personnel errors and misjudgments were made that resulted in both the scenario that required securing the recirculation pumps and the actual operator actions to accomplish, the event did not compromise plant safety and subsequent operator recovery was timely and correct. One major concern involving apparent destruction of a portion of the sequence

of alarms recorder tape by a licensed control room operator was under investigation by both the NRC and the licensee at the end of this SALP period.

The IPAT concluded that operations is strongly managed and responsiveness and performance of the staff reflect a proud and competent organization. Several areas were noted where improvements are needed and included promulgation of management goals to lower levels of the organization, making operators more aware of risk importance, taking a more inquisitive approach to non-routine plant conditions, and removing remnants of informality and lack of attention to detail. This assessment indicated that the operations department includes many effective programs and strong staff. This is contrasted by several specific events which indicate that there are inconsistencies in the application or appreciation of these programs and lapses in personnel performance.

During operations, housekeeping is good in frequently traveled areas and not as good in infrequently traveled areas. During outages, housekeeping deteriorates. This can be attributed, in large part, to failure of workers to clean up after themselves. This problem has been discussed in previous SALP reports and remains uncorrected.

Routine observations by the resident inspectors identified one concern that involved freezing temperatures in areas of the plant containing water filled fire protection system piping. Although none of the specific pipes questioned by the inspectors were frozen, the licensee did identify other pipes that were frozen and broken. In general, the licensee needs to upgrade their cold weather protection program as evidenced by, not only the frozen fire water piping, but also by the frozen and then broken condensate storage tank drain line isolation valve that caused an Unusual Event.

In conclusion, equipment problems continued to challenge the operators despite substantial efforts made by the licensee to upgrade the plant. Improvements in on-shift decision making capabilities, control room professionalism, and operations management were observed. The IPAT findings were generally positive and afforded a contrast with other negative findings and events during the evaluation period. The tying open of vacuum breaker valves, thereby, violating primary containment integrity, incidents of graded procedural compliance, lack of understanding of equipment operation in some cases, and an overall increase in personnel errors indicates there are inconsistencies in operation's personnel knowledge of and approach to their responsibilities.

2. Conclusion

Rating: Category 3.

Trend:

of alarms recorder tape by a licensed control room operator was under investigation by both the NRC and the licensee at the end of this SALP period.

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2. Conclusion

Rating: Category 3.

3. Board Recommendations

Licensee:

-- Perform self-assessment to determine reasons for inconsistent performance.

-- Reduce operator challenges.

-- Address personnel error rate and cause.

-- Insist upon thorough resolution of equipment problems.

NRC:

-- Increase on-site presence.

B. Radiological Controls (813 hrs., 16%)

1. Analysis

The previous SALP rating in this area was Category 2 with effective management, good staffing levels, and adequate equipment and facilities in most areas. Strong points included access control, training, dosimetry, chemistry, and effluent controls and radwaste shipping. Weaknesses identified during that period included lack of timeliness in assessing airborne activities in work areas and weaknesses in ALARA program, as well as poor maintenance in the Augmented Offgas and new Radwaste Buildings.

During the current period, there were two violations in the area of radiological controls. They were both in connection with a resin cask filling operation in which an administrative dose limit was exceeded.

Previously noted program strengths remain strong during this SALP period. Specifically, management remains generally effective and responsive, and the staffing levels and qualifications remain good. Facilities and equipment remain good in most areas of radiological controls, with a significant improvement in the area of respiratory protection as a result of construction of a new respirator issue and maintenance facility. Training, including General Employee and Radiological Technicians remains good. There is currently no training program designed specifically for the radiological engineers. However, a committee has been formed to develop such a program.

Radiation and contamination areas were properly and clearly posted. Access control and dosimetry issue also retain their effectiveness. However, prejob briefing of technicians by their foremen remains in some cases incomplete, as illustrated by an incident involving filling a shipping cask with radioactive resin. This incident resulted in a worker receiving a dose in excess of his administrative limit. Supervisors also did not always spend a proper amount of time to ensure that their technicians are aware of all important aspects of the job.

As noted in previous SALPs, management has continued to show a vigorous response to such incidents, including disciplinary action, if necessary, training for the individual involved, discussions about the incident with the staff, and incorporation of important lessons into the regular training curriculum. The training department has also shown responsiveness to such incidents by modifying lesson plans as necessary. However, these management actions apparently did not identify and firmly address the root causes.

Weaknesses in the Radiological Controls department administrative procedures and quality control were identified during this SALP period. One manifestation of these weaknesses is the fact that different job descriptions appeared to exist for the same positions; licensee staff was unable to resolve the differences and to indicate the actual requirements for the positions involved. There appears to be a lack of emphasis on carrying out the quality control functions within the Radiological Controls department. Also, in some cases, these functions are carried out but there is no followup to ensure that the results meet the use for determining compliance. Much of the deficiency stems from the lack of technical support and oversight provided by the Radiological Engineering section. The results of internal audits performed by Radiological Engineering are sometimes not acted upon, apparently due to lack of followup action by Radiological Engineering. Management has recently recognized these weaknesses and there is an apparent effort to strengthen and formalize the audit and oversight functions of the Radiological Engineering section. These changes are very recent and their effectiveness has not been evaluated.

Performance in the area of ALARA, which was one of the weak areas in the previous SALP, is improving slowly. However, the cumulative exposure for the 1986 outage year remains high (2400 man-rem) even after consideration of the extensive outage work. Management has taken several initiatives to improve performance. These include chemical decontamination of the major systems that produce a substantial part of the exposure, establishment of committees to search for methods to reduce exposures, and a requirement for timely submittal of work packages. Engineers are also required to do walkdowns of the plant areas involved in their projects to evaluate, among other things, radiological conditions and area arrangements to minimize personnel exposure. There is also an effort to refine the exposure estimates on the basis of job descriptions and historical data. However, most of these initiatives are recent and have not yet produced a measurable effect. Furthermore, despite the initiatives mentioned above, ALARA efforts on site remain fragmented because the ALARA function is vested in many individuals with no continuous oversight by a dedicated individual, such as an ALARA coordinator. Goal setting has not been used as an effective management tool to control the scope of work and to monitor job progress, and also to establish accountability. The threshold for initiating an ALARA review for a job remains high. This results in many jobs being performed without an ALARA review. Such jobs collectively contribute a significant fraction of the overall site exposure. There is also little formal training of the technicians on ALARA techniques. Additional details are presented in Section J of this report.

The licensee maintained a generally adequate chemistry program during the assessment period. A management commitment to and support for an adequate program to control corrosion was evident. Chemistry technicians knowledgeable of the licensee's methods were trained in an ongoing program fully accredited by INPO. During the previous assessment period, the licensee completed a hydrogen water chemistry test to determine the rate of hydrogen addition necessary to reach mitigation of intergranular stress corrosion cracking (IGSCC). During this period, routine implementation of hydrogen water chemistry controls and continuous crack growth rate monitoring had not been completed; however, the licensee has developed comprehensive plans for IGSCC mitigation. In other aspects of the program, the licensee provided state of the art analytical capabilities and close attention to chemical parameter trends.

Review of the licensee's solid radioactive waste preparation, packaging and shipping program showed the licensee was responsive to weaknesses noted in earlier reviews. Changes were made to the licensee's Operational Quality Assurance Plan to increase monitoring activities of the solid radwaste generator quality assurance/quality control program, improve control of shipments and packages, modify procedures related to package labeling and provide audits conforming to NRC regulatory guidance. Implementation of the changes in the receipt inspection of shipping containers and liners, control of high integrity liners and vehicle package inspections indicated improved attention to technical detail in those activities had been achieved. However, lack of adequate management oversight of contracted solidification services resulted in unapproved changes to key process parameter controls and incomplete solidification of a shipment. Although this problem appeared to be an isolated event, the incomplete solidification showed an inadequate review of contractor-initiated changes to previously approved procedures and less than optimal monitoring of contractor activities in solid radwaste solidification. Revised commitments to train personnel assigned to shipping activities were implemented.

During the assessment period, the licensee began implementation of amended Radiological Environmental Technical Specifications (RETS). Licensee staff responsible for dose assessment demonstrated a good understanding of the technical bases and methodology utilized.

A reduction in projected offsite doses resulting from plant operations was noted. Contributing to this reduction from the previous assessment period's projected doses were licensee improvements in the performance of the Augmented Off-Gas (AOG) System, the reduction of significant fuel leakage and minimal liquid releases during the assessment period.

A review of the licensee's program for radiochemical analyses and measurements indicated that the licensee maintained a good capability for determination of quantities of radioactive material in its liquid and gaseous effluents.

The licensee maintained a generally effective radiochemistry laboratory quality control (QC) program. The licensee was responsive to suggested improvements in the laboratory QC program in this area.

Calibrations and functional tests of the licensee's effluent monitors were performed in accordance with procedures and generally more frequently than required by Technical Specifications. A licensee initiative to develop correlation factors for calculation of release from monitor readings has been instituted. Some required monitors were out of service during the period. The licensee used alternate means to track effluents The inoperability of overboard radwaste discharge monitors has been identified in previous SALPs. Prolonged inoperability of these monitors indicates a lack of prompt and effective corrective action in this area.

Review of the radiological environmental monitoring program (REMP) found the program to be generally adequate. A measurement quality control program was implemented (including participation in the EPA Crosscheck Program). Program records were complete, maintained, and available. Audits were thorough, timely, and resulting appropriate recommendations were implemented in the REMP.

In summary, the radiological control program remains generally effective. These include access control, posting, facilities and equipment, and training. Access control, posting, facilities and equipment, and training remain strong. Specific training for technicians in the area of ALARA, however, is weak and needs to be strengthened. Prejob briefings should also be strengthened. The quality control functions within the Radiological Controls Department have been poorly administered and incompletely performed. This function should be formally scheduled and results formally reviewed. The technical overview function of Radiological Engineering has been weak in some areas, resulting in technical problems remaining unidentified for prolonged periods of time. ALARA was identified as a weak area in past evaluations and remains a weak area. The ALARA function on site should be more closely controlled by a well defined entity that would also coordinate the ALARA efforts of the site and corporate groups, particularly during outage planning. The process of goal setting is not effective as a management exposure control tool. It should be made more realistic and should be used as a basis for assigning exposure accountability.

 SEE ERRATA SHEET

2. Conclusion

Rating: Category 2.

Trend:

3. Board Recommendation

2. Conclusion

Rating: Category 2.

3. Board Recommendation

C. Maintenance (964 hrs., 18%)

1. Analysis

The previous SALP rated maintenance Category 2. Specific concerns included procedure compliance, craft supervision, rework, communications, work backlog, and upgrade of secondary side equipment. In general, improvement has been made in most areas. At the conclusion of the last SALP the facility was still shutdown and a complete assessment of the effectiveness of improvements made during the previous SALP period could not be made until after restart.

A self-assessment was undertaken in response to the previous SALP and identified weaknesses and plans for improvement. The assessment was critical of weak areas and corrective action taken resulted in organizational and personnel changes and efforts to reduce the work backlog and improve communications.

Based on plant restart performance, it appears the overall quality of work performed during the 11R outage was somewhat improved over previous outages. However, significant problems resulting from maintenance activities still existed. These included a vessel head seal leak due to dislodged snap rings, a recirculation pump flange leak, and recirculation pump seal problems.

During this period, six unplanned maintenance outages resulted from various equipment failures. These problems included a bellows failure in a relief valve discharge line, feedwater regulation valve problems, recirculation pump and valve problems, an inadvertent MSIV closure, acoustic monitor failures, and recurrent problems with manway leaks on a feedwater heater and main flash tank. One failure, the inadvertent MSIV closure, resulted from maintenance performed prior to this SALP period. Other failures such as the feedwater regulating valve problem and leaky manways occurred on equipment which had been worked on during past outages and never effectively corrected. A relief valve discharge line bellows failure resulted from failure to replace bellows that were known to be defective. Not all of these problems can be attributed directly to inadequate maintenance and indicate the importance of the need for more effective communications between engineering, operations, and maintenance.

A number of other problems associated with maintenance occurred which resulted in 11 LERs being attributed to this functional area. Five of these LERs were attributed to personnel error four to procedures and only two to equipment failure. No common cause was identified in the analysis of the personnel errors.

In all six unplanned maintenance outages, management was effective in quickly identifying and organizing the work to be accomplished and in identifying backlogged work that could be worked in parallel with critical path activities. Major efforts were expended to control workscope during these outages.

Rework and overhauled or repaired equipment that fails to perform as expected continues to be a problem. To verify performance of equipment which had been worked on, the licensee has extensively revised the post-maintenance testing program. The past practice of using an abbreviated surveillance procedure is no longer routinely used. Instead, generic component level test procedures have been developed which serve as guidelines in developing specific post-maintenance tests. This has been a good initiative that has contributed to a decrease in rework.

In an effort to address plant aging issues and the amount of maintenance rework, the licensee is establishing a reliability centered maintenance program. The establishment of this program is still in the exploratory stages with some initial work already having been done.

A large maintenance backlog had also been noted as a concern in the previous SALP. The licensee has assigned a senior manager to evaluate this problem and to take action to reduce the backlog. Additional emphasis has been placed on completion of backlog work, and although the backlog is still relatively large, the actual number of items that affect safety-related equipment is low. The majority of the corrective maintenance items are prioritized in order of importance and tracked in daily plan of the day meetings. New items are reviewed daily by a committee from the operations, maintenance, and plant material organizations to ensure that proper priority is established.

One of the key individuals in the licensee's modification and maintenance planning effort is the planner. This individual is responsible to generate a work package, including procedures, to perform a job. The responsibilities involved in this job are substantial and effective communications between the planner and all other interfacing organizations is essential. Based on events that occurred during this SALP period, it is evident that interdepartmental communication weaknesses exist. For example, a job was planned to replace reactor water level sensors. Certain electrical leads had to be lifted and terminal points jumpered in order to perform the modification. After lifting the leads and jumpering the terminal points, it was determined the automatic initiation feature of the standby gas treatment system had been inadvertently disabled. This was a Technical Specification violation that resulted from inadequate interfacing and input from operations and engineering support.

The licensee's work control and maintenance procedures are generally considered to be adequate. With regard to maintenance procedures, one violation was identified in which twenty-one Maintenance, Construction, and Facilities procedures were not reviewed within the required two year period. Also, previous Quality Assurance audits have shown some continuing concerns in the proper completion of short forms. Actions are being taken to correct these issues.

In an effort to streamline the processing and job planning for individual work items, the licensee is in the process of implementing a GMS-II system for initiating, controlling, planning, and tracking individual work items. This system was not fully implemented at the end of the period.

As has been noted in previous SALPs, the licensee has in place a good preventive maintenance program. This program is being expanded to include secondary side components.

The licensee generally maintains an adequate supply of spare parts to keep equipment in good repair and maintains a preventive maintenance program on stored items which includes both safety-related as well as non-safety related items.

The licensee is committed to craft training and has an extensive training facility on site. ALARA awareness by craft personnel is evident as demonstrated by use of mock-ups in preparation for complex jobs in high radiation areas. However, as noted in Section B, many jobs are performed without ALARA review as a consequence of the high threshold for review. Also during this assessment period, a new instrument calibration lab was completed.

In conclusion, the licensee continues to experience reliability and maintenance associated equipment problems which significantly affect reliable plant operation. In an effort to improve overall performance, certain steps have been taken; these include personnel changes, a critical self-assessment, establishment of committees to review problems, improvements in post-maintenance testing, and efforts to reduce work backlog. Improvement is still needed in the overall quality of work performed and communications among groups to identify problem equipment and correct the problems before they have an effect on plant operations.

2. Conclusion

Rating: Category 2.

3. Board Recommendations

Licensee:

-- None.

NRC:

-- Increase on-site observation of maintenance activities.

SEE ERRATA SHEET

D. Surveillance/Inservice Testing (464 hrs., 9%)

1. Analysis

The previous SALP rated this area a Category I noting strong administrative control of the program, improved technician training, and generally effective inservice testing (IST) and inservice inspection (ISI) programs.

During this assessment period, the licensee performed a containment integrated leak rate test (CILRT) and restarted the plant from a lengthy refueling and maintenance outage. The CILRT was controlled by comprehensive procedures, and performed in a proper manner, and yielded valid results. A substantial amount of licensee effort was expended performing a multitude of surveillances to ensure readiness for restart which NRC inspection indicated was comprehensive and well done. The surveillance program is supported by procedures that are technically adequate and now include acceptance criteria that identify both Technical Specification acceptance criteria and other less critical criteria.

The licensee utilizes a combination computer generated/manually adjusted surveillance schedule that accurately issues surveillance requirements and tracks completion status. This system has been effectively implemented as evidenced by very few overdue or missed surveillances. Surveillance results are promptly reviewed by operations personnel and deviations written when required. In general, individuals who perform surveillance tests are aware of the importance of Technical Specification related items and the need to promptly notify operations if problems arise during testing. Prompt action is taken to resolve Technical Specification related equipment problems identified during surveillance testing. For example, Technical Specification required monthly surveillances on the hydrogen monitoring system have identified a system drift problem. As a result, the licensee increased the frequency of this test to weekly and is actively pursuing purchasing more stable equipment.

During this evaluation period, instances occurred during surveillance testing when safety-related equipment failed to function properly. Examples included failure of a core spray pump motor to start and an emergency service water (ESW) pump to deliver any appreciable flow of water just after starting. In the case of the core spray pump motor, the breaker was racked out and then back in after which the motor started. An inspection of the breaker after the event did not identify any obvious problem. In the case of the ESW low flow event, the pump was secured and restarted and normal flow appeared. No other troubleshooting of significance was performed to determine the cause of the problem. Management's willingness to accept the results of a repeat surveillance without a satisfactory explanation as to why the first one failed, demonstrates lack of aggressiveness in root cause determination.

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The NRC identified two instances where newly issued Technical Specifications requiring surveillances where not incorporated into the surveillance program within required time limits. This reflects poor communication between the various departments involved in the overall process.

Six of the nine LERs associated with surveillance activities were the result of personnel errors and involved I & C, engineering support, and operations personnel. No common cause for these errors could be identified and the particular problems in the LERs do not represent a significant degradation in licensee performance.

The licensee's program for implementing the requirements associated with pump and valve inservice testing (IST) was reviewed. The major portion of this review was an evaluation of the IST program with respect to procedures, conduct of testing, and analyses of results. Overall, the review verified the technical adequacy of the procedures and proper response to performance indicators. One minor concern was identified. The licensee's corrective action in response to this NRC finding was prompt and thorough and identified and corrected other similar discrepancies. This review also determined that QA audits were performed of both the IST and surveillance test programs and that the audit findings were addressed and resolved.

In conclusion, technically adequate procedures with Technical Specification acceptance criteria clearly distinguished from less critical criteria are being maintained. A master surveillance schedule is maintained which assures that tests are performed as required. Test data are appropriately reviewed and prompt corrective action taken when problems are indicated. Problems that have a more difficult solution, however, are sometimes not solved and indicate a lack of aggressiveness in root cause analysis. Communications require improvement and management attention to address and correct the causes of personnel errors is required. The IST program continues to be viable and is yielding meaningful results.

2. Conclusion

Rating: Category 2

Trend:

3. Board Recommendations

Licensee: None

NRC: None

sults of a repeat surveillance without a satisfactory explanation as to why the first one failed, demonstrates an incomplete approach to root cause determination.

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2. Conclusion

Rating: Category 2

3. Board Recommendations

Licensee: None

NRC: None

E. Emergency Preparedness (420 hrs., 8%)

1. Analysis

During the previous assessment period, the licensee was rated Category 1 in this area. The last assessment was based on a full participation exercise, installation of containment high range radiation monitors, and response during the approach of Hurricane Gloria, resulting in a declaration of an Unusual Event and activation of the Technical Support Center.

During this assessment period, two actual Unusual Events were declared, a full-participation exercise was observed and there was one routine safety inspection. Each Unusual Event was declared in a conservative, discretionary basis per procedure.

The Plant Operations Director declared the first Unusual Event during back-shift hours on January 26, 1987. Some areas of weakness were noted. Of particular note was the lack of response to the initial pager call-out necessitating a second call-out. In addition, call-out procedures were followed initially by security but they failed to perform a required follow-up to determine response to the pager call-out. The Operations Support Center and Technical Support Center were adequately staffed to respond to the plant situation but were not fully staffed to meet requirements of their emergency plan for three hours.

The licensee subsequently modified the call-out procedures, issued reprimand memoranda to plant personnel who failed to respond, and changed lesson plans to stress mandatory and immediate response to emergency call-out including acknowledgement by telephone of the radiopager signal.

During a routine safety inspection subsequent to the above declaration of an Unusual Event, it was determined that the licensee had responded to NRC findings and all non-exercise related follow-up items were closed. Two unresolved items were identified. One of these related to the delayed staffing during the January Unusual Event and a potential deficiency in the emergency plan, implementing procedures, or management controls which could impede activation and timely staffing of the emergency response facilities when needed. The other was related to potential weaknesses in the Security-Emergency Preparedness interface related to sabotage verification and compensatory measures.

The second Unusual Event was declared on February 10, 1987 by the Group Shift Supervisor during a back-shift period. Procedures were correctly followed, and timely staffing and activation of all on-site emergency Response facilities resulted.

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During the full participation exercise in May, 1987, all previous exercise related follow-up items were closed and the licensee staff exhibited significant improvement in many operational areas in response to previous NRC findings. However, performance in some of these areas was minimally acceptable indicating a need for the licensee to review emergency preparedness training to determine if depth is adequate. The most significant area involves the fact that the Emergency Support Director did not formulate and communicate a protective action recommendation (PAR) in a timely manner and that evacuation time estimates were not used in reaching PARs. In this annual exercise, FEMA determined a need for two partial remedial exercises and identified a number of areas for improvement. The licensee provided the required support to correct these areas.

The licensee continued to maintain and take steps to improve the offsite Alert and Notification System; siren availability was 98% in 1986. Licensee's tests indicated a need to install heaters in 18 sirens to prevent freeze-up. It is estimated this will be completed by October 30, 1987. The licensee has located a back-up siren activation center in West Trenton and a contract has been awarded to upgrade the siren system by installing a remote diagnostic system with feedback.

In summary the licensee has committed resources and developed supporting policies for Emergency Preparedness and Associated Training. Results indicate these commitments have not resulted in uniform and consistently high levels of performance.

2. Conclusion

Rating: Category 2.

Trend:

3. Board Recommendations

Licensee:

-- Licensee should review resource adequacy and monitor station staff awareness and commitment to policy.

NRC:

None.

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2. Conclusion

Rating: Category 2.

3. Board Recommendations

Licensee:

-- Licensee should review resource adequacy and monitor station staff awareness and commitment to policy.

NRC:

None.

F. Security and Safeguards (165 hrs., 3%)

1. Analysis

During the previous SALP, licensee improved their performance in a number of areas. There were several program strength including strong corporate oversight of the site security operation. The licensee was actively pursuing resolution of two long-standing regulatory issues. These were the control room barriers and upgrade of the perimeter intrusion system. Both of these issues received considerable attention again during this assessment period.

In addition to the August site visit, implementation of the licensee's security program was reviewed during two region-based routine physical security inspections and continuing inspections by the NRC resident inspectors. These inspections revealed that corporate security management continued to be actively involved in all site security program matters, including visits to the site by the corporate staff to provide assistance, program appraisals and direct support in the budgeting and planning processes affecting program modifications and upgrades. Security management personnel are also actively involved in industry groups engaged in nuclear plant security matters. This demonstrates program support from upper level management.

The licensee's self inspection techniques, which are independent of the annual security program audits, were again an effective method for providing oversight of the site security program. Self-assessment teams are composed of experienced security management personnel from corporate headquarters and other licensee nuclear facilities. The findings of the self-inspections are reviewed at the corporate level and forwarded to site security management for appropriate action. This initiative is indicative of the licensee's desire to implement an effective security program and at least partly responsible for the licensee's excellent enforcement history during this evaluation period (one Severity Level V violation).

The licensee submitted two security event reports in accordance with 10 CFR 73.71 during the assessment period. Both events involved the failure of security equipment. The events were promptly reported and the written records were sufficiently comprehensive to permit NRC analysis without the need for additional information. Corrective actions and compensatory measures were promptly implemented. Extensive use of compensatory measures continues to be necessary to meet regulatory requirements and licensee program commitments pending completion of systems upgrades.

Staffing of the licensee's security organization is adequate and the security officer training and requalification program is well developed and administered by two full-time instructors. In addi-

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tion to initial and requalification training, on-the-job performance evaluations are conducted which test the proficiency of individuals on general and specific security program requirements. The on-the-job performance evaluations have provided management the capability to review and enhance the performance and job knowledge of security personnel and to correct deficiencies as they are detected. This is a positive initiative indicative of the licensee's desire to implement an effective program.

Review of the licensee's maintenance support for security equipment during this period found it to be generally much improved over the past assessment period. However, two instances were identified where compensatory measures were employed for extended periods in lieu of repairing the equipment. The delay in repairing the equipment appeared to be the need to accomplish higher priority work.

Security facilities and spaces were adequate and well maintained. Records were readily retrievable, complete, and centrally located for ease of use.

Members of the security force exhibited a good appearance and a professional demeanor. However, morale may be affected because of the long term use of compensatory measures.

During this assessment period the licensee submitted two revisions to the Security Plan in accordance with provisions of 10 CFR 50.54(p). Generally, the revisions provided sufficient detail to describe the changes. However those revisions, when reviewed by NRC, were found to contain changes that, in effect, would have modified the basis for the NRC's original approval of the plan, therefore, should not have been submitted under the provisions of 10 CFR 50.54(p). The two revisions were resubmitted late in the assessment period and are currently under review by the NRC.

In summary, the licensee continues to implement the security program in a manner to comply with regulatory requirements and security plan commitments. They have continued to implement self-assessments to improve overall performance. Further, they have an improved maintenance plan designed to reduce out-of-service equipment. Guard force training and requalification remains strong. However, until the licensee's upgrades of security equipment is complete, the use of compensatory measures must receive licensee attention to ensure an equivalent degree of security effectiveness is provided.

2. Conclusion

Rating: Category 1

Trend:

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2. Conclusion

Rating: Category 1

3. Board Recommendations

None

G. Assurance of Quality (NA)

1. Analysis

Management involvement and control in assuring quality continues to be considered as a separate functional area and as an evaluation criterion for each functional area. The various aspects of the Quality Assurance program have been considered and discussed as an integral part of each functional area and the respective inspection hours are included in each one. Consequently, this discussion is a synopsis of the assessments relating to quality work conducted in other areas and is not solely an assessment of the quality assurance (QA/QC) departments.

Management expresses a commitment to assurance of quality as delineated in corporate as well as divisional goals. Adequate resources have been devoted to QA/QC organization onsite. Management goals and objectives are clearly stated and understood by upper level management and tracked to ensure they are accomplished. These same goals, though, are not as clearly understood at lower levels. The QA/QC organization onsite is involved and effective and is supplemented by effective independent oversight groups.

In general, QA/QC involvement onsite appears to have improved during this assessment period, QA audits and inspection activities have been generally adequate and effective. However, despite this noted improvement, QA/QC inspectors still lack some technical knowledge. This became apparent with improper signoff of QC holdpoints for some valve maintenance, discrepancies between maintenance and QC on snubber inspection techniques and the discovery of unacceptable Raychem splices after having been inspected and accepted by a QC inspector. More disconcerting has been the lack of QA/QC involvement in certain aspects of facility operation. The QA group is not adequately involved in the day-to-day activities conducted by Plant Engineering, including both programmatic and technical assessments. In addition, the procedure governing the conduct of calculations was noted to be inadequate, a fact which has not been identified by QA. Some technical review of plant engineering is provided by the Independent On-Site Review Group (IOSRG) and other such groups to help assure quality of plant engineering functions, but does not perform a charter QA function. In other areas, QC inspection has been inadequate as noted during the installation of hanger bolts, V-2-11 maintenance and drywell shell thickness readings. Improvement has been noted in the vendor manual and document control program. The use of independent oversight groups is a strong point, but the QA/QC organization needs to address specific weaknesses to improve the assurance of quality.

Management effectiveness in assuring quality at Oyster Creek takes place in each onsite division as well as within the QA/QC organization. The licensee on one occasion made tremendous strides in improving plant reliability and their ability to solve root cause equipment problems when management chose to establish three committees to solve long standing plant problems (see Section B.1) prior to allowing plant restart. This seemed to be a watershed for building technical confidence in onsite technical support groups. In another area, a concern with the safety review process from the 1984-1985 SALP led the licensee to conduct an assessment of the process and find problems in the safety review of temporary variations. Management elected to implement short term corrective action while more complete long term corrective action was formulated. While this was in process, the drywell-torus vacuum breaker event occurred (see Section A), in part attributable to deficiencies in the safety review of temporary variations. Apparently the licensee did not recognize the potential significance of the extensive use of temporary variations and did not take prompt corrective action which might have averted the event. Management has taken special efforts to foster a spirit of cooperation and a positive attitude toward self-improvement which should improve performance in this and many areas and play a key part in the success of many improvement programs.

Maintenance Construction and Facilities (MCF) has initiated some programs which will improve MCF effectiveness in addressing quality issues (see Section C). MCF's ability to initially resolve plant equipment problems has been diluted by the number of unplanned outages (6). The number of unplanned outages has significantly diverted management attention and has decreased their efforts in other areas. Efforts to accomplish all the required maintenance activities for a particular outage led the licensee to attempt to accomplish more maintenance items than are manageable for an outage period. The attempt to balance resources with workload has impacted the quality of the work completed, especially when a large number of maintenance tasks had to be completed in a fixed time period.

Effectiveness of management in the engineering support area has been lacking in ensuring complete and thorough evaluation of technical problems. Analysis of plant technical problems have at times taken marginal positions to resolve problems (see Section I). In contrast, the organization has solved some longstanding technical problems after careful and thorough analysis which was preventing plant restart until a successful conclusion was reached (see section C & I). In a related issue, the licensee needs to address the recognition, assessment, and timely disposition of initial equipment problems. Another related concern is the numerous equipment problems associated with the recirculation pumps which indicate a major overhaul/upgrade is warranted. The long outstanding original equipment and construction deficiencies need to be addressed.

The operations department has been effective in implementing corrective action to QA audit findings. Of concern with the assurance of quality in the operations area are the issues of a graded approach to procedural compliance which to some extent may be forced by management priorities, pressure to conduct operations expediently but without complete concern for the quality of operations, housekeeping in areas that are not frequently observed by plant management does not reflect the same care given to readily accessible areas, and operations failure to insist upon in-depth root cause analysis and on stringent equipment operability requirements after repair.

Radiological controls management has implemented a number of program initiatives to improve their performance in ALARA. Additional effort is required though in some aspects of the ALARA program to ensure the improvements are effective (see Section B). Additionally, management needs to emphasize carrying out quality control functions and ensuring applicable criteria are met in the radiological control programs. Management has effectively responded to observed weaknesses in solid radioactive waste preparation, packaging, and shipping program. A strong effort by upper management has achieved some success, but the matrix style organization has resulted in a committee approach to resolving problems and lacks the strong line management approach present in other divisions onsite.

First line supervision has shown some improvement during this assessment period, but has been found to be lacking on several occasions in ensuring quality functions are carried out (see Section C). Operations supervision has been responsive to QA audit findings. A noted weak area was the plant staff's understanding of technical specifications and plant safety design basis which became a concern during the drywell-torus vacuum breaker event (see Section A).

Management continues to try to improve worker attitude toward quality workmanship and has shown some improvement but workers continue to demonstrate a lack of attention to quality, particularly in the balance of plant (see Section C). This worker attitude is demonstrated in the relatively poor level of housekeeping in less frequently visited areas.

Oyster Creek employs a number of oversight groups at the site to ensure quality in their various programs. The Independent On-Site Review Group (IOSRG) continues to provide strong technical support to the plant. Post Trip Review Group (PTRG) efforts have been found to be thorough and technically sound in assessing reactor scrams and transients and determining the root causes. The General Office Review Board (GORB) has been able to address and receive prompt attention from the licensee to correct certain problems.

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In summary, assurance of quality is addressed by management on the divisional level as well as by the QA/QC organization. Management goals, objectives and resources are at an appropriate level but should be more universally understood by lower levels. The licensee action to establish three committees to solve technical problems was perceived as a significant accomplishment. Operations awareness of quality issues remains at a high level and there has been noted improvement by MCF. The various organizations that are responsible for the safe operation of the plant generally are effective in assuring quality through positive approaches that contribute to quality. However, problems have been noted in the review of analytical work in the technical functions division, and in the use of the quality controls function by the Radiological Controls Department.

2. Conclusion

Rating: Category 2.

Trend:

3. Board Recommendations

Licensee:

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NRC:

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2. Conclusion

Rating: Category 2.

3. Board Recommendations

Licensee:

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NRC:

H. Licensing Activities (NA)

1. Analysis

During the previous SALP period, the licensee was rated as Category 2 with the trend improving in this functional area.

During the current SALP period, fifty-nine licensing actions were under review. Of these, twenty-seven were completed. The majority of these were complex and difficult. Thirty-two licensing actions remained at the end of the SALP period.

The significant licensing actions completed in the SALP rating period include the following: Mark I drywell breakers review, main security building post accident shielding review, lattice physics reload topical report, Cycle 11 restart without rod worth minimizer, Cycle 11 reload, postulated high energy level break within emergency condenser drywell penetrations, visual weld acceptance criteria, corrosion of outer thickness of lower region of the drywell shell, and control room habitability.

The licensee has shown consistent evidence of prior planning and assignment of priorities. This has been shown in the productive working relationship between the former and present NRC Project Managers and the licensee. This is also shown in the licensee's positive response to SIMS and the identification of the drywell corrosion problem and active participation in resolving this issue.

The licensee has generally made timely responses and submittals to meet licensing deadlines. Exceptions are the submittal regarding the 10 CFR 50.62 ATWS Rule and responses to requests for additional information regarding several SEP items. With respect to Licensee Event Reports (LERs), 29 of 45 reports were submitted late. Many of these were only a few days late; however, not submitting reports within 30 days as required continues to be a problem. Many supplemental LERs were substantially late also and some 50.59 reports were as much as three years late.

The licensee has been responsive to NRR in meeting on approximately a monthly basis to discuss all active licensing actions including their priorities and future submittals. There have been fourteen meetings in this rating period. These meetings were generally well conducted, well prepared for and helpful in resolving the issues.

The licensee has been responsive to NRR initiatives. The quality of its "no significant hazards consideration" continues to improve. An exception is the "no significant hazards consideration" the licensee submitted related to its request for an amendment regarding corporate reorganization. The licensee has responded promptly to several surveys from the staff during the reporting period. This

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was evident in the licensee's response to SIMS. The licensee, in response to the staff's initiative in Generic Letter 85-07, submitted its Integrated Living Schedule in January 1987.

The previous SALP discussed a concern about the plant's Technical Specifications and the need to improve them. The licensee is involved with the BWR Owners Group sponsored technical specification development effort which does not appear to be making much progress. Consequently, the same concern regarding the need for improved technical specifications remains.

Management organizational changes within GPUN during this period moved the corporate licensing group out of the Technical Functions Division into the Planning and Nuclear Safety Division, thereby, correcting a perceived concern by the NRC of insufficient independence of these functions.

In summary, the licensee's performance in this area has shown some improvement and has been generally effective. Management attention and involvement was responsive to licensing issues. In general, submittals showed a thorough understanding of the issues which have been found to be technically sound. Staffing levels and quality of staff are adequate and communication between operating staff and management is effective. Licensing problems have generally been dealt with effectively and in a timely manner. However, the licensee has been late with LERs and 50.59 reports.

2. Conclusion

Rating: Category 2

Trend:

3. Board Recommendations

Licensee:

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NRC:

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2. Conclusion

Rating: Category 2

3. Board Recommendations

Licensee:

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NRC:

I. Engineering Support (443 hrs., 9%)

1. Analysis

The previous rating in this functional area was Category 2. It was pointed out in the previous SALP (1986) that there had been little progress made towards addressing and correcting concerns regarding lack of timely support, weak engineering support, and lapses in procedural adherence discussed in the 1985 SALP report. Additionally, problems were identified with a large work backlog, weak vendor control, lack of comprehensive design criteria, and lack of management aggressiveness in making responsible individual accountable. The previous SALP also discussed the many improvements, good initiatives, and timely support to help sustain plant operations. In summary, engineering support was considered to be inconsistent and a SALP Board Recommendation was made that GPUN undertake a self-assessment to determine and correct the causes of the inconsistent performance.

A review of engineering support for this evaluation period again indicates that most of the same problems exist. This continues to be contrasted by many examples of successful plant upgrades, good solutions to problems, and timely responses to plant demands. A licensee self-assessment in an attempt to determine the causes for inconsistent performance was initiated during this period but no results were available to the NRC prior to the end of the period. The NRC was briefed by the licensee regarding the methodology of performing the self-assessment and felt it was capable of yielding useful results.

Inadequate technical support continues to result, in part, from lack of an indepth approach to solving problems. The reasons for this may involve inadequate understanding of the problem, thereby, indicating a lack of time, effort, or involvement during early development stages of a task. Examples of this include initial engineering responses to evaluation of the concrete cracks in major structural beams, disposition of corroded reinforcing bar in a floor in the reactor building, and analysis of pipe stresses in a portion of the core spray system that was being subjected to water hammer loading. In all of these instances, the NRC questioned the technical adequacy of the response because it was not sufficiently comprehensive. The subsequent response, in each case, was well done and indicated that a lack of technical expertise is not the concern.

Problems involving inadequate compensatory measures to control air inleakage into the control room, lack of solutions to problems that occurred just once and were not able to be repeated, inadequate review of temporary modifications, and at times an ineffective and misunderstood safety review process indicated confusion as to the most effective way to solve a problem. Examples included an attempt

at administratively controlling the position of a control room bathroom fan and damper instead of modifying the damper to close automatically when required; a repeat of an emergency service water (ESW) surveillance test that previously failed due to low flow during the cold winter months but gave good results the second attempt ignored the cause of the problem; and a safety review process that was not well understood, proceduralized, and implemented was tolerated rather than promptly corrected.

Other examples indicate weaknesses in engineering support result from poor technical reviews: a scheme was developed and implemented to replace a reactor water level instrument, but the jumpers installed bypassed the automatic start capability of the standby gas treatment system; engineering personnel were improperly logging bypassed LPRMs; and an independent STA review of a temporary modification did not identify the fact that it would render the primary containment inoperable.

The previous SALP identified a concern over long outstanding unsolved problems. This concern remains, some examples include a substantial GEMAC reactor water level discrepancy between redundant indicators, continued failure of trunnion room fans, repetitive failure of the offgas sample pump that has no redundancy and is required by Technical Specifications, and recurring problems with the recirculation pump drive electrical system.

The licensee continues to demonstrate insensitivity to implementing NRC requirements. Examples include tardy Licensee Event Reports (LERs) and long overdue supplemental LERs, 10 CFR 50.59 reports that are submitted up to three years late, failure to comply with Technical Specification requirements to perform an instrument surveillance using an approved procedure, and failure to meet Technical Specification requirements that requires an explanation in the Semiannual Radioactive Effluent Release Report as to why an inoperable instrument was not returned to an operable status within 30 days. In addition the licensee, in several instances, has made commitments and then not followed through with them. Examples include failure to non-destructively examine an isolation condenser piping containment penetration weld until identified by NRC, failure to meet certain requirements of a 1980 NRC Bulletin, and failure to submit Technical Specifications for Reactor Protection System Electrical Protection Assemblies prior to startup from the recent 11R outage. These types of problems indicate that there may be confusion within the corporate structure as to where responsibility lies, a cumbersome management review and approval circuit, and inadequate communications.

Communication both within engineering support groups and between interfacing divisions has improved but further improvement is warranted. Miscommunication resulted in a valve back seating error

and failure to pressure test a new weld in the feedwater system. On some occasion communication problems with the licensee's organization led to inaccurate submittals to the NRC. One example was in response to Regulatory Guide 1.97 regarding SLC poison storage tank level indicating system.

Problems still remain with control of vendors, as indicated by miswiring of 600-700 computer tie-in points associated, in part, with the safety parameter display system. Also, the vendor responsible for operation of the solid radwaste process made unacceptable changes to the procedures that ultimately resulted in a shipment containing an excess of free standing water.

Many examples of good work performed by engineering support groups were evident. Some major examples included Appendix R, drywell s ell thinning, intermediate range failed detectors, loose electrical leads, pipe wall thinning, drywell cooling, control of electrical load growth, and the inservice test program. Technical support onsite has become more aggressive in tackling day to day problems rather than deferring to the maintenance group or corporate based engineering.

The IPAT inspection focused attention on the onsite engineering support group and determined that several recently implemented and pending changes could result in an improved onsite engineering capability. It noted that Plant Engineering appeared to have high morale, was a motivated group, and seemed capable of handling the new challenges posed by the changes. The team felt there were inadequacies in the procedures controlling calculations and a newly implemented mini-mod design process. Additionally, they felt tighter controls were required over temporary modifications, and the Plant Review Group was under-utilized in the safety review process and other safety issues. It was observed that progress, although slow, was being made to reduce the backlog.

In conclusion, little change was noted in this functional area during this evaluation period. For that matter, little change has been noted over the period of time covered by the past three SALPs. Examples of inadequate root cause analysis, ineffective problem solution once the root cause is known, poor technical reviews, long outstanding unsolved problems, delays in implementation of and insensitivity to NRC requirements and issues, failure to meet commitments, communication problems, and weaknesses in vendor control continue to reappear in sufficient quantity to suggest that corrective action by the licensee has been relatively ineffective. Good work has been accomplished by all those involved in engineering support. The IPAT inspection results were generally positive, although they were based primarily on newly instituted or pending changes. Inconsistent performance again appears to describe engineering support.

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2. Conclusion

Rating: Category 3.

Trend:

3. Board Recommendations

Licensee:

-- Expedite completion of self-assessment and initiation of corrective action plan. Report results of self-assessment to NRC.

NRC:

-- Review results of self-assessment and corrective action plan.

2. Conclusion

Rating: Category 3.

3. Board Recommendations

Licensee:

-- Expedite completion of self-assessment and initiation of corrective action plan. Report results of self-assessment to NRC.

NRC:

-- Review results of self-assessment and corrective action plan.

J. Training and Qualification Effectiveness (N/A)

1. Analysis

Technical training and qualification effectiveness, while being considered a separate functional area, continues to be an evaluation criterion for each functional area. This functional area was considered and discussed as an integral part of other functional areas and the respective inspection hours were included in each one. Consequently, this discussion is a synopsis of the assessments related to training conducted in other areas. Technical training effectiveness was measured primarily by the observed performance of personnel and, to a lesser degree, as a review of program adequacy. The discussion below addresses three principal areas: licensed operator training, nonlicensed staff training, and status of training accreditation by the Institute of Nuclear Power Operations (INPO).

GPUN demonstrates a strong commitment to improved performance through effective training programs. Operations, Maintenance Construction and Facility (MCF), Radiological Controls, Security, and Quality Assurance have implemented quality training programs to improve personnel performance. In general, personnel performance has been noted to improve since the last SALP, but has been marred by a large number of personnel errors as indicated by Table 4. Section "E" describes an increase in the frequency and number of LERs attributable to personnel error in comparison to the last assessment period. The licensee previously achieved INPO accreditation during the last SALP evaluation period in all ten training programs. Overall management support of training programs at Oyster Creek is evident by program improvements.

During this assessment period, one senior operator oral re-examination was given with successful results.

Operator performance during transients has been very good in comparison to the last assessment period. Again, as in the past, the operators are required to respond to equipment failure induced transients. Responding to this concern and operator performance during feedwater transients, the licensee conducted appropriate operator training in this area which seems to have benefitted operator performance. One area for operator improvement may be in the understanding of motor operated valve (MOV) operation. Two significant events have occurred as a result of operator knowledge in this area. One problem resulted in a scram and the second contributed to the safety limit violation late in the period. A review of the MOV training program indicates recipients should have been aware that valves are not electrically backseated from the control switch. In addition, procedures require overriding a local contactor to accomplish electrical backseating which has been accomplished

many times in backseating valve's during startup at Oyster Creek. Therefore, the operators should have been fully cognizant of MOV electrical backseating procedures.

Some operator errors indicate a need for improved training in specific areas. An inadvertent IRM upranging to range 10 during a reactor startup resulted in an MSIV isolation signal and in addition a rod withdrawal error resulted from lack of operator attention to and understanding of rod worth minimizer operation. Also LERs 86-25, an inadvertent bus grounding and 87-18 an operators inability to manually close an air operated valve indicate a lack of appreciation and understanding of the significance of plant and equipment operation.

In addition, some recent operating errors by equipment operators may indicate more attention should be given to the equipment operator on-the-job training program. Two examples of note were fire pump diesel surveillance where a series of procedural noncompliance due to lack of understanding of equipment operation rendered the fire pump diesels inoperable for an automatic start and a plant trip from power narrowly avoided when an operator neglected to valve in a second instrument air filter after isolating the on-line prefilter.

MCF has established comprehensive training programs for Instrumentation and Control (I&C) technicians, mechanics, and electricians. It appears the licensee management is placing additional emphasis on the MCF training program with some improvement noted. One concern arose, though, that the maintenance personnel are pressured to complete their training program prior to establishing full competency to perform assigned tasks. LERs 86-25, 86-35, and 87-19 depict problems that indicate the maintenance training programs have not been entirely effective.

In response to concerns raised in the last SALP report, Radiological Controls has developed a unique interdisciplinary ALARA awareness seminar that has become part of the cyclic training program. Another area that the licensee has implemented corrective action in response to SALP comments was in the establishment of radiological engineering training program. Some areas of concern were developed, though in that Radiological Controls technicians are not required to pass cyclic quizzes. The licensee has recognized that there is no incentive for the technicians to do well in their cyclic training and is investigating corrective measures.

The security officer training and requalification program is well developed and administered. One minor violation, which was not reflective of overall performance, occurred as a result of exceeding a time requirement to accomplish a portion of the cyclic training.

Quality assurance has developed training programs to increase inspector effectiveness in the field by developing specific programs to enable individuals to become knowledgeable in areas outside their discipline. This will increase inspector ability to recognize other field deficiencies outside their particular areas of expertise. One inspector's lack of knowledge of Raychem splices resulted in subsequent identification and repair of 5 discrepant splices and reinspection of additional Raychem splices. As a result, the licensee conducted additional training and appears to have corrected this problem.

Emergency Preparedness training has generally been effective at Oyster Creek. Some minor concerns did develop, though, with the Emergency Director's familiarity with Emergency Operating Procedures. Upon NRC identification of this concern the licensee initiated EOP training for emergency directors. Additionally a problem appeared with operator ability to locate procedures for a given scenario. The deficiency appears to be a result of the manner in which training was conducted and in the procedure identification method. The licensee subsequently conducted additional training to correct the deficiency. Another training concern developed as a result of the Emergency Support Director's failure to formulate and communicate a Protective Action Recommendation (PAR) in a timely manner and to use Evacuation Time Estimates.

A significant concern developed as a result of NRC review of the safety review process after the drywell/torus vacuum breaker event. Some members of the operations staff appeared not to have a comprehensive understanding of the Technical Specifications and the plant's safety design basis. As part of corrective action for the event, safety review training was conducted for operations staff, responsible technical reviewers, and independent safety reviewers. Later inspection activity in this area showed that the safety review training may be inadequate. Safety review training consists of a four hour oral presentation with no measure of effectiveness of the training. In addition, other training concerns were developed including confusion on some signature procedural requirements and lack of a formal program for preparers of safety evaluations as not all are qualified as responsible technical reviewers. Some recent changes were made by the licensee to upgrade the program.

Further operational events seem to emphasize the need to improve understanding of Technical Specification and plant safety design basis. Recent events involving a startup with an inoperable IRM system, operational night orders directing an emergency service water (ESW) pump to be taken out of service while the diesel supporting the redundant ESW system was already out of service (LER 87-04), and allowing a hydraulic control unit to remain at zero

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pressure without taking timely action nor declaring the corresponding control rod inoperable are examples that indicate additional training is required in this area.

In summary, the licensee has a strong commitment to quality training programs and, as weaknesses are identified, responds to develop programs to address the weaknesses. Senior management involvement is evident in its emphasis to improve performance through effective training programs. Senior management has placed considerable resources in training programs and has expanded its team building training from corporate level officers to first line supervisors. Measures are being taken to improve the maintenance training and training performance in this area. The emphasis that is placed on training programs and the improvement of those programs is not consistent with the increasing number of personnel errors being identified and may be indicative of training program deficiencies, although none were identified.

2. Conclusion

Rating: Category 2.

Trend:

3. Board Recommendations

Licensee:

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2. Conclusion

Rating: Category 2.

3. Board Recommendations

Licensee:

V. SUPPORTING DATA AND SUMMARIES

A. Investigations and Allegations Review

1. Investigations

The NRC Office of Investigations was pursuing two separate investigations at the end of the SALP period. One involved a self-initiated investigation to determine whether or not licensee statements made to NRC inspectors constituted a willful material false statement. The other involved investigation into the reported destruction of a portion of an alarm tape by a licensed control room operator following the violation of a Technical Specification Safety Limit.

2. Allegations

During this assessment period, five allegations were received and acted on. Four remain open and one was closed. In addition, one allegation remains open from the previous SALP period, making a total of five open allegations. Of these five, three involve security issues, one safeguards information control, and one radioactive contamination. The closed allegation and the contamination allegation were not substantiated. As a result of reviews to date no substantial concerns have resulted from follow-up of the three security and one safeguards information allegations.

B. Escalated Enforcement Actions

1. Civil Penalties

As a result of the event dealing with operability of containment vacuum breakers and the subsequent NRC inspection, several civil penalties were issued to the licensee as follows:

$80,000 - Violation of LCO dealing with torus to drywell vacuum breakers (Level II Violation).

$50,000 - Failure to adhere to procedures dealing with temporary variations.

$75,000 - Violation of LCO dealing with torus to reactor building vacuum breakers (Level III Violation).

2. Orders

None.

C. Confirmatory Action Letters

Two Confirmatory Action Letters (CALs) were issued during the report period as follows:

-- CAL 87-05: Violation of primary containment due to blocked open vacuum breakers.

-- CAL 87-12: Violation of Technical Specification Safety Limit and subsequent operator actions.

D. Licensee Event Reports

During the last assessment period, 36 LERs were generated and during this period 45 were reported. Reports for the last SALP were generated at the rate of 2.2/month and for this period at the rate of 3.9/month.

The largest single cause for the events reported is personnel error. Twenty-nine of the 45 LERs reported (64%) were attributed to personnel error. The frequency of LERs attributed to personnel error appears to be increasing with 15 of the last 21 reports (71%) attributed to personnel error. During the last assessment period, only 30% of the LERs resulted from personnel error. Analysis of the cause of personnel errors did not indicate a generic training problem.

A review of these reports shows that no single group is responsible for a disproportionate number of these events. The groups associated with the personnel error LERs are Operations (10), Maintenance (5), Surveillance (6), and Engineering Support (7).

To the extent possible during the NRC review of the LERs, where applicable, a contributing cause was assigned. The most frequently noted contributing cause was inadequate or poor procedure which was noted for 9 of the 45 LERs reported during the assessment period.

During the assessment period, four LERs reported containment isolations and standby gas treatment system isolation events. These all resulted from the automatic bus transfer of power to vital AC power panel No.1 following some disturbance on incoming power. The transfer time to an alternate power is not sufficiently fast to prevent protective relays from deenergizing. These events only occur during periods when the generator is off the line. Engineering has proposed a modification to prevent recurrence which is being considered by management.

Also noted is the fact that 29 of the 45 reports were submitted in over 30 days. Although many of these were only several days late, submitting reports within 30 days as required continues to be a problem. This finding was also noted during a licensee QA audit and corrective action was initiated on September 24, 1987. In addition, supplementary reports are generally submitted far beyond the expected submission date specified in the initial report.

E. Licensing Activities

1. NRR/Licensee Meetings - Location

Round Table Discussion of issues affecting Boiling Water Reactor Directorate # 1 operating reactors NRC - Bethesda	10/16/86
Drywell shell corrosion - Bethesda	12/01/86
Drywell shell corrosion - Bethesda	12/10/86
Drywell shell corrosion - Bethesda	12/19/86
Mark I Containment combustible gas control systems information - Bethesda	1/20/87
Status of Licensing Actions - Oyster Creek Plant site	2/04/87
Conceptual Design - Four Containment penetrations for the isolation condensers - Bethesda	2/11/87
Program to mitigate Drywell shell corrosion - Bethesda	2/26/87
SALP Management Meeting - Forked River, NJ	4/01/87
Status of Piping Reverification - IE Bulletins 79-02 and 79-14 - Region 1	4/01/87
Management Meeting (Inspection 87-18). Licensee's response to CAL 87-05, related to events concerning tieing open containment vacuum breakers and a problem of water hammer in core spray test lines during system testing - Region I	5/11/87
Licensing Activity Review - Bethesda	5/15/87
Enforcement Conference (Inspection Report 87-16). Events concerning operability of Drywell-torus vacuum breakers - Region I	6/10/87
Status of Systematic Evaluation Program and the status of drywell shell corrosion program - Bethesda	6/11/87
Licensing Activity Review - Bethesda	6/30/87
Methodology to develop new seismic floor - response spectra - Bethesda	7/07/87
Methodology to develop new seismic floor - response spectra - Bethesda	9/03/87
Safety Limit Violation Discussion - Region I	9/29/87

2. Commission Meetings

None

3. Relief Granted

None

4. Schedular Exemptions Granted

None

5. Exemptions Granted

None

6. Licensee Amendments Issued

Amendment	Title	Date
108	Radiological Effluent Technical Specifications	10/06/86
109	Automatic Depressurization System Surveillance	10/27/86
110	Inoperable Protective Instrumentation Channels	10/27/86
111	Cycle 11 Reload	10/27/86
112	Drywell Pressure Setpoint	10/31/86
113	Rod Worth Minimizer	11/07/86
114	Fire Protection	3/20/87
115	Control Room Habitability	3/31/87
116	Containment High Range Radiation	3/31/87
117	Organization	9/30/87

TABLE 1

INSPECTION REPORT ACTIVITIES

REPORT/DATES	INSPECTOR	HOURS	AREAS INSPECTED
86-33 10/29/86	RESIDENT	10	SPECIAL REPORT TO DOCUMENT THE FACTS ASSOCIATED WITH THE INADEQUATE MOUNTING OF 80 OF 137 HYDRAULIC CONTROL UNITS.
86-34 10/6-11/16/86	RESIDENT	190	REVIEWED COMPLETION STATUS OF IE BULLETIN 80-08, INVESTIGATED RECIC SYSTEM PUMP TRIP SYSTEM, AND THE CAUSE OF FAILED FUEL.
86-35 10/21-19/86	SPECIALIST	76	CONTAINMENT INTEGRATED LEAK RATE TEST
86-36 11/17-21/86	SPECIALIST	39	CYCLE 11 STARTUP PHYSICS TESTING AND CYCLE 10 FUEL FAILURE FOLLOW UP
86-37 11/17-21/86	SPECIALIST	132	ANNOUNCED TEAM INSPECTION OF ELECTRIC POWER SYSTEM INCLUDING DESIGN FEATURES, VERIFICATION OF AS-BUILT DRAWINGS, PLANT MODS, REVIEW LOAD STUDIES
86-38 11/17/86-01/16/87	RESIDENT	606	OUTAGE MANAGEMENT PREPARATIONS FOR RESTART AND RESUMPTION OF NORMAL OPERATION
86-39 12/8-11/86	SPECIALIST	29	ROUTINE UNANNOUNCED PHYSICAL SECURITY INSPECTION
86-40 12/9-16/86	SPECIALIST	31	DRYWELL WALL CORROSION
86-41 12/15-19/86	SPECIALIST	82	A REACTIVE INSPECTION TO REVIEW THE CIRCUMSTANCES RELATED TO UNPLANNED EXPOSURE DURING PREPARATION OF A RESIN LINER/CASK FOR SHIPMENT
87-01 1/5-9/87	SPECIALIST	164	SPECIAL TEAM INSPECTION OF APPENDIX R REQUIREMENTS
87-02 1/12-16/87	SPECIALIST	60	INSPECTION OF PREVIOUSLY IDENTIFIED ITEMS
87-03	CANCELLED	0	
87-04 1/16-3/8/87	RESIDENT	319	ROUTINE INSPECTION INCLUDING PERFORMANCE DURING TWO DECLARED UNUSUAL EVENTS AND CORRECTIVE ACTION RE: INTERMEDIATE RANGE INSTR. PERFORMANCE

Table 1

REPORT/DATES	INSPECTOR	HOURS	AREAS INSPECTED
87-05 1/27-30/87	SPECIALIST	130	INSPECTION OF EMERG. PREP. AND INFORMATION NOTICE 83-28. OBSERVED RESPONSE TO UNUSUAL EVENT. EVALUATED LICENSEE SECURITY-EMERGENCY PREPAREDNESS INTERFACE.
87-06 2/9-13/87	SPECIALIST	37	UNANNOUNCED REVIEW OF THE LICENSEE'S WATER CHEMISTRY CONTROL PROGRAM.
87-07 2/17-20/87	SPECIALIST	66	UNANNOUNCED INSPECT RE: IMPLEMENTATION OF NUREG 0737-ITEM II.K.3.16 COMMITMENT
87-08 3/9-4/19/87	RESIDENT	206	INSPECTION OF PIPE SUPPORT INSPECTIONS, SURVEILLANCE TESTING, AND EMER. PREP. FOLLOWED UP NUREG-0737 AND 0822 COMMITMENTS.
87-09 2/27/87	SPECIALIST	0	SENIOR REACTOR OPERATOR LICENSEE EXAMINATION
87-10 3/31-4/3/87	SPECIALIST	72	SPECIAL UNANNOUNCED SAFETY INSPEC. OF STATUS OF THE INSPECTOR FOLLOW-UP ITEMS RELATED TO IMPLEMENTATION OF NUREG-0737
87-11 5/11-14/87	SPECIALIST	237	EMERGENCY PREPAREDNESS INSPECTION OF FEMA OBSERVED, FULL PARTICIPATION, EMERGENCY EXERCISE CONDUCTED ON 5/12/87
87-12 4/22-27/87	SPECIALIST	42	SPECIAL UNANNOUNCED INSPECTION OF SOLID RADIOACTIVE WASTE PREPARATION, PACKAGING AND SHIPPING ACTIVITIES.
87-13 4/20-6/28/87	RESIDENT	379	ROUTINE RESIDENT INSPECTION
87-14 5/18-22/87	SPECIALIST	120	UNANNOUNCED SAFETY INSPECTION OF RADIOLOGICAL PROTECTION ACTIVITIES ON SITE.
87-15 5/4-8/87	SPECIALIST	36	PROCUREMENT, RECEIVING OPERATIONS, STORAGE AND PREVENTIVE MAINTENANCE IN STORAGE.
87-16 4/24-5/6/87	SPECIALIST	179	SPECIAL TEAM INSPECTION TO FOLLOW UP 4/24/87 EVENT (SHIFT PERSONNEL VIOLATED CONTAINMENT OPERABILITY)
87-17 5/11-15/87	SPECIALIST	75	INSPECTION OF LICENSEE ACTION ON PREVIOUS INSPECTION FINDINGS, LICENSEE SURVEILLANCE ACTIVITIES, AND INSERVICE TESTING OF PUMPS AND VALVES

Table 1

REPORT/DATES	INSPECTOR	HOURS	AREAS INSPECTED
87-18 5/11/87	SPECIALIST	12	MGT. MEETING TO DISCUSS LICENSEE ACTIONS IN RESPONSE TO CAL 87-05 RE:4/24/87 CONT. VAC BREAKER AND WATER HAMMER IN CORE SPRAY TEST LINES
87-19 5/21-28/87	SPECIALIST	33	INSPECTION OF THE GASEOUS AND LIQUID RADIO-ACTIVE EFFLUENTS CONTROL PROGRAM
87-20 6/1-5/87	SPECIALIST	40	INSPECTION OF INSERVICE TESTING PROGRAM FOR PUMPS AND VALVES AND QUALITY ASSURANCE.
87-21 6/8-12/87	SPECIALIST	38	REVIEW THE IMPLEMENTATION OF SECTIONS OF NUREG-0737 RELATIVE TO CONTAINMENT ISOLATION DEPEND-ABILITY AND CERTAIN ACCIDENT-MONITORING INSTR.
87-22 6/19-8/9/87	RESIDENT	319	ROUTINE INSPECTIONS
87-23 7/2/87	SPECIALIST	27	QA RECORDS PROGRAM REVIEW AND REVIEW OF OPEN ITEMS
87-24 8/10-21/87	SPECIALIST	830	INTEGRATED PERFORMANCE APPRAISAL TEAM INSPECTION
87-25 8/24-28/87	SPECIALIST	109	ROUTINE SECURITY INSPECTION
87-26 8/24-28/87	SPECIALIST	74	CONFIRMATORY MEASUREMENTS AND ENVIRONMENTAL CONTROL
87-29 9/11-17/87	SPECIALIST	290	AUGMENTED INSPECTION TEAM TO FOLLOW UP SAFETY LIMIT VIOLATION

TABLE 2

INSPECTION HOUR SUMMARY

		Actual	Percent
1.	Plant Operations	1820	36
2.	Radiological Controls	813	16
3.	Maintenance	964	19
4.	Surveillance	464	9
5.	Emergency Preparedness	420	8
6.	Security and Safeguards	165	3
7.	Assurance of Quality	N/A	N/A
8.	Licensing Activities	N/A	N/A
9.	Engineering Support	443	9
10.	Training and Qualification Effectiveness	N/A	N/A
		5089	100

TABLE 3

ENFORCEMENT ACTIVITY

A. Violations Versus Functional Area By Severity Level

Functional Area	No. of Violations in Each Severity Level V	IV	III	II	I	Total
1. Plant Operations		2	2	1		5
2. Radiological Controls		1				1
3. Maintenance						1
4. Surveillance		1				1
5. Emergency Preparedness						
6. Security and Safeguards	1					1
7. Assurance of Quality						
8. Licensing Activities						
9. Engineering Support	1	3				4
10. Training and Qualification Effectiveness						
Total	2	8	2	1	—	13

Table 3

B. SUMMARY

Inspection Number	Requirements	Severity Level	Functional Area	Brief Description
86-37	10 CFR 50, App.B, Crit. V, VI	IV	Engineering Support	Changes to safety-related electrical systems not documented prior to being implemented.
86-37	Technical Specification 6.8.1	IV	Plant Operations	Three examples of failure to follow procedures.
87-08	Technical Specification 6.8.1	IV	Surveillance	Failure to prepare a procedure for a Tech Spec required surveillance.
87-12	10 CFR 20.311 (d)(1)	IV	Radiological Controls	Solidified waste contained excessive water.
87-13	10 CFR 50.55 a.(g)(4)	IV	Maintenance	Failure to perform hydro after weld repair.
	Technical Specification 3.12.I.1	IV	Engineering Support	Failure to perform required instrument surveillances.
	10 CFR 50.59	IV	Engineering Support	Failure to submit reports required by 10 CFR 50.59.
87-16	10 CFR 50.59 (a)(1) and Technical Specification 3.5.A.3	II	Plant Operations	Tied open suppression chamber to drywell vacuum breakers.
	10 CFR 50.72 (b)(1)(ii)	IV	Plant Operations	Failure to make required one hour report.
	Technical Specification 6.8	III	Plant Operations	Five examples of failure to follow procedures.

Table 3

Inspection Number	Requirements	Severity Level	Functional Area	Brief Description
87-16 (Cont.)	10 CFR 50.59 (a)(1) and Technical Specification 3.5.A.3	III	Plant Operations	Tied open reactor building to suppression chamber vacuum breakers.
87-20	Technical Specification 4.3.C	V	Engineering Support	Use of improper test gauge during inservice testing.
87-25	10 CFR 73	V	Security	Training

TABLE 4

LICENSEE EVENT REPORTS

A. LER By Functional Area

Functional Area	Number by Cause Code A	B	C	D	E	X
1. Plant Operations	10				2	1
2. Radiological Controls						
3. Maintenance	5			4	2	
4. Surveillance	6	2				1
5. Emergency Preparedness						
6. Security and Safeguards						
7. Assurance of Quality						
8. Licensing Activities						
9. Engineering Support	7	5				
10. Training and Qualification Effectiveness						
Total	28	7	0	4	4	2

Cause Codes:

A - Personnel Error
B - Design, Manufacturing, Construction, or Installation Error
C - External Cause
D - Defective Procedures
E - Component Failure
X - Other

Table 4

B. LER Synopsis

86-23	SINGLE FAILURE OF CONTAINMENT SPRAY AUTOMATIC INITIATION LOGIC	B
86-24	POSTULATED HIGH ENERGY LINE BREAK IN ISOLATION CONDENSER PENETRATIONS	B
86-25	GROUNDING OF 4160V ELECTRICAL BUS CAUSED BY PERSONNEL ERROR	A
86-26	REACTOR SCRAM DURING EXCESS FLOW CHECK VALVE TESTING	A
86-27	STANDBY GAS TREATMENT SYSTEM INITIATION CAUSED BY PERSONNEL ERROR	A
86-28	PERSONNEL ERROR DEFEATS AN AUTOMATIC INITIATION FUNCTION OF STANDBY GAS TREATMENT SYSTEM	A
86-29	POTENTIAL INOPERABILITY OF CORE SPRAY EMERGENCY SERVICE WATER PUMPS DUE TO INADEQUATE DESIGN AND PROCEDURE REVIEWS	A
86-30	ISOLATION CONDENSER "A" ISOLATION ON SPURIOUS HIGH FLOW SIGNAL	D
86-31	REACTOR BUILDING CLOSED COOLING WATER TO DRYWELL ISOLATION CAUSED BY PERSONNEL ERROR DURING INSTRUMENT FILLING ACTIVITIES	A
86-32	REACTOR TRIP ON HIGH NEUTRON FLUX CAUSED BY COLD FEEDWATER ADDITION DUE TO OPERATOR ERROR	A
86-33	STANDBY GAS TREATMENT INITIATION CAUSED BY GROUND ON ARM RIBBON CABLE DUE TO PERSONNEL ERROR	A
86-34	MANUAL SCRAM DUE TO INABILITY TO MAINTAIN CONDENSER VACUUM CAUSED BY EQUIPMENT FAILURE	E
86-35	CONTAINMENT PENETRATION FOUND DEGRADED DUE TO ISOLATION VALUES ACTUATOR/VALVE LINKAGE OUT OF ADJUSTMENT	A
87-01	ABSENCE OF NEUTRON FLUX CONTROL ROD BLOCK CLAMPING CIRCUIT DUE TO INCONSISTENCY BETWEEN TECH SPEC AND PLANT HARDWARE	X

Table 4

LER NUMBER	SUMMARY	CAUSE
87-02	MAIN STEAM ISOLATION VALVE CLOSURE CAUSED BY OPERATOR ERROR	A
87-03	STANDBY GAS TREATMENT SYSTEM INITIATION CAUSED BY POWER SUPPLY PERTURBATION	E
87-04	TECHNICAL SPECIFICATION VIOLATION CAUSED BY IMPROPER REMOVAL OF EQUIPMENT FROM SERVICE DUE TO PERSONNEL ERROR	A
87-05	HIGH FLUX SCRAM DURING RECIRCULATION PUMP START DUE TO DISCHARGE VALVE PARTIALLY OPEN	A
87-06	TECHNICAL SPECIFICATION VIOLATION CAUSED BY IMPROPER STORAGE OF HIGHER ENRICHMENT FUEL DUE TO PERSONNEL ERROR	A
87-07	BACKUP SAMPLE ANALYSIS INVALID DUE TO PERSONNEL ERROR	A
87-08	LIMITING SAFETY SYSTEM SETPOINT FOR TOTAL RECIRCULATION FLOW EXCEEDS TECHNICAL SPECIFICATIONS DUE TO INSTRUMENT DRIFT	B
87-09	VOLUNTARY RPT.-OPERATION OF PLANT WITH FLOW BIASED SCRAM & ROD BLOCK SETPOINTS OUTSIDE ANALYZED REGION DUE TO RECIRC LOOP FLOW BACKFLOW	E
87-10	ELECTRICAL TRANSIENT CAUSES CONTAINMENT ISOLATION AND STANDBY GAS TREATMENT INITIATION DUE TO DESIGN CONFIGURATION	X
87-11	HIGH RPV LEVEL TURBINE TRIP/SCRAM CAUSED BY LOST FEEDWATER FLOW SIGNAL DUE TO PROCEDURAL INADEQUACY	D
87-12	INOPERABLE OFFGAS DRAIN LINE ISOLATION VALVE CAUSED BY DEBRIS ACCUMULATION DUE TO INADEQUATE PREVENTIVE MAINTENANCE	E
87-13	SGTS INITIATION CAUSED BY IMPROPERLY INSTALLED WIRE CONNECTOR DUE TO PERSONNEL ERROR	A
87-14	DRYWELL ISOLATION CAUSED BY LIFTING A LEAD	A
87-15	INOPERABLE INTERMEDIATE RANGE MONITORS DUE TO BROKEN FLEXIBLE CONNECTION CAUSE BY PROPER MAINTENANCE	D

Table 4

LER NUMBER	SUMMARY	CAUSE
87-16	SETPOINTS FOR THREE OF EIGHT ISOLATION CONDENSER PIPE BREAK SENSORS OUT OF SPECIFICATION DUE TO INSTRUMENT DRIFT	B
87-17	TECH SPEC VIOLATION CAUSED BY INAPPROPRIATE REMOVAL OF SNUBBERS FROM SURVEILLANCE PROGRAM DUE TO PERSONNEL ERROR	A
87-18	REACTOR BUILDING VENTILATION VALVE INOPERABLE FOR MAINTENANCE AND NOT SECURED CLOSED DUE TO PERSONNEL ERROR	A
87-19	LIMITING SAFETY SYSTEM SETPOINT FOR TOTAL RECIRCULATION FLOW EXCEEDS TECHNICAL SPECIFICATIONS DUE TO PERSONNEL ERROR	A
87-20	TECHNICAL SPECIFICATION REQUIRED SURVEILLANCE OVERDUE DUE TO INADEQUATE SHIFT TURNOVER CAUSED BY PERSONNEL ERROR	A
87-21	TECHNICAL SPECIFICATION VIOLATION CAUSED BY BLOCKING OPEN CONTAINMENT VACUUM BREAKERS DUE TO PERSONNEL ERROR	A
87-22	PLANT SHUTDOWN REQUIRED BY INOPERABLE ACOUSTIC MONITOR DUE TO MARGINAL SPLICE DESIGN RESULTING IN CABLE DAMAGE DURING INSTALLATION	B
87-23	PARTIAL PRIMARY CONTAINMENT ISOLATION DURING TESTING DUE TO PROCEDURAL INADEQUACY	A
87-24	FAILURE TO POST A FIRE WATCH FOR A NON-FUNCTIONAL FIRE BARRIER DUE TO PERSONNEL ERROR IN FAILING TO FOLLOW PROCEDURE	A
87-25	PRIMARY CONTAINMENT VENT AND PURGE VALVES HAD MAXIMUM STROKE IN EXCESS OF DESIGN LIMIT DUE TO INSTALLATION PROCEDURE INADEQUACY	D
87-26	TEMPORARY VARIATIONS FOUND UNACCEPTABLE DUE TO INADEQUATE SAFETY REVIEWS	A
87-27	ELECTRICAL STORM INDUCED CONTAINMENT ISOLATION AND STANDBY GAS TREATMENT SYSTEM INITIATION DUE TO AUTOMATIC BUS TRANSFER TIME EXCEEDING RPS RELAY DROPOUT TIME	B

Table 4

LER NUMBER	SUMMARY	CAUSE
87-28	MAIN STEAM ISOLATION VALVE CLOSURE CAUSED BY DESIGN DEFICIENCY DURING SURVEILLANCE TEST	A
87-29	HIGH REACTOR PRESSURE SCRAM DUE TO AIR LEAK FROM DISLODGED AIR TEST PILOT VALVE CAUSED BY INCORRECT MOUNTING CAP SCREW LENGTH	A
87-30	LIGHTING ARRESTOR INSULATOR FAILURE INDUCED VOLTAGE TRANSIENT CAUSED CONTAINMENT ISOLATION AND SBGTS INITIATION DUE TO AUTOMATIC BUS TRANSFER TIME EXCEEDING RPS DELAY DROPOUT TIME	B
87-31	VIOLATION OF HIGH RADIATION AREA TECHNICAL SPECIFICATIONS CAUSED BY PERSONNEL ERROR DURING RESPONSE TO FIRE ALARM	A
87-32	AOG HYDROGEN ANALYZER NOT CALIBRATED IN ACCORDANCE WITH TECH SPEC REQUIREMENTS DUE TO INADEQUATE REVIEW OF RETS AMENDMENT	A

ENCLOSURE 2

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406

FEB 12 1988

Docket No. 50-219

GPU Nuclear Corporation
ATTN: Mr. P. B. Fiedler
Vice President and Director
Oyster Creek Nuclear Generating Station
P. O. Box 388
Forked River, NJ 08731

Gentlemen:

Subject: Systematic Assessment of Licensee Performance (SALP) Report No. 50-219/86-99

The NRC Region I SALP Board conducted a review on November 17, 1987, and evaluated the performance of activities associated with the Oyster Creek Nuclear Generating Station. The results of this assessment are documented in the enclosed SALP report, which covers the period October 16, 1986 to September 30, 1987. We will contact you shortly to schedule a meeting to discuss the report.

At the meeting, you should be prepared to discuss our assessment and any plans you may have to improve performance. In particular, you should be prepared to discuss the plans you have to upgrade performance in Plant Operations and Technical Support in light of the reduction in performance in these areas.

Following our meeting and receipt of your response, the enclosed report, your response, and summary of our findings and planned actions will be placed in the NRC Public Document Room.

Your cooperation is appreciated.

Sincerely,

W T Russell

William T. Russell
Regional Administrator

Enclosure: NRC Region I SALP Report No. 50-219/86-99

cc w/encl:
M. Laggart, BWR Licensing Manager
Licensing Manager, Oyster Creek
Chairman Zech
Commissioner Roberts
Commissioner Bernthal
Commissioner Carr
Commissioner Rogers
K. Abraham, PAO, RI (11 copies)
Public Document Room (PDR)
Local Public Document Room (LPDR)
Nuclear Safety Information Center (NSIC)
NRC Resident Inspector
State of New Jersey

bcc w/encl:
Region I Docket Room (with concurrences)
Management Assistant, DRMA (w/o encl)
J. Taylor, DEDO
J. Lieberman, OE
W. Russell, RI
T. Martin, RI
W. Johnston, RI
D. Holody, RI
SALP Board Meeting Attendees
R. Brady, RI
C. Cowgill, Section Chief, DRP
Robert J. Bores, DRSS

ENCLOSURE 3

LIST OF ATTENDEES

SALP MANAGEMENT MEETING, MARCH 3, 1988

GPU Nuclear Corporation (GPUN)

P. F. Ahern, Senior Staff Specialist, NSCC-TMI
G. R. Bond, Director, Systems Engineering
R. P. Clark, President, GPUN
C. Clawson, Director, Communications
D. K. Croneberger, Director, Engineering Projects
B. DeMerchant, Oyster Creek Licensing Engineer
P. B. Fiedler, Vice President and Director, Oyster Creek
R. F. Fenti, Manager, Oyster Creek, Mods/Ops
I. R. Finfrock, Chairman, GORBs
L. Graibian, Civil/Structural Manager
D. V. Hassler, TMI-1 Licensing Engineer
J. E. Hildebrand, Industrial Safety/Environmental Control Director
J. D. Kowalski, Oyster Creek Licensing Manager
R. L. Long, Vice President and Director, Division of Planning and Nuclear Safety
F. F. Manganaro, Vice President and Director, Administration
R. S. Markowski, Manager, QA Program Development and Audit
R. J. McGoey, Manager, TMI Licensing
B. T. Moroney, Senior Staff Specialist, NSCC-OC
D. W. Myers, Vice President/Comptroller
K. R. Meddenien, Senior Media Representative
W. Popow, MCF Production and Technical Director
M. B. Roche, Vice President and Director, Division of Quality and Radiological Controls
A. P. Rochino, Manager, Engineering Mechanics
A. H. Rone, Plant Engineering Director, Oyster Creek
M. O. Sanford, Manager, Mechanical Systems
J. L. Sullivan, Jr., Plant Operations Director, Oyster Creek
J. R. Thorpe, Director, Licensing and Regulatory Affairs
G. E. VonMieda, Chemistry/Materials Director
E. G. Wallace, Engineering Services Director
P. F. Wells, Safety Review Engineer
R. F. Wilson, Vice President and Director, Technical Functions
K. G. Wolf, Radiological Engineering Manager

U.S. Nuclear Regulatory Commission (NRC)

L. H. Bettenhausen, Chief, Projects Branch No. 1, Division of Reactor Projects (DRP)
R. J. Conte, Senior Resident Inspector, TMI
C. J. Cowgill, Chief, Reactor Projects Section 1A, DRP
A. W. Dromerick, Project Manager, Oyster Creek, NRR
R. Hernan, Project Manager, TMI-1, NRR
W. V. Johnston, Director, Division of Reactor Safety (DRS)
W. F. Kane, Director, DRP
W. T. Russell, Regional Administrator
J. F. Wechselberger, Senior Resident Inspector, Oyster Creek

New Jersey Department of Environmental Protection - Bureau of Nuclear Engineering

L. H. Hamersky, Nuclear Engineering Supervisor
M. Jacobs, Nuclear Engineer

ENCLOSURE 4

Nuclear

GPU Nuclear Corporation
Post Office Box 388
Route 9 South
Forked River, New Jersey 08731-0388
609 971-4000
Writer's Direct Dial Number:

U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

April 4, 1988

Dear Sir:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Systematic Assessment of Licensee Performance (SALP) Response

As discussed with you at our meeting held in Parsippany on March 3, 1988, this letter and its attachments provide our response to the Systematic Assessment of Licensee Performance (SALP) report as requested by your letter of February 12, 1988.

Attachment I provides our response to your two areas of concern which include Plant Operations and Engineering Support. Attachment II provides additional information and clarification for areas we feel misunderstandings may exist, such as Emergency Preparedness and Surveillance. Attachment III provides general comments in other areas.

We thank you for the opportunity to share our thoughts with you during the March meeting. We continue to feel that the SALP is a useful tool in the nuclear industry.

Very truly yours,

P R Clark

P. R. Clark
President

PRC:dmd(0454A)
Attachments

cc: Mr. William T. Russell, Administrator
Region I
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

Mr. Alexander W. Dromerick, Project Manager
U.S. Nuclear Regulatory Commission
Washington, DC 20555

NRC Resident Inspector
Oyster Creek Nuclear Generating Station

8804130252 15 pp.

ATTACHMENT I

PLANT OPERATIONS

Introduction

The most recent NRC Region I SALP Board review period ended on September 30, 1987. Strengths were noted in the areas of teamwork and professionalism and in the programs used to improve these areas. In spite of those strengths, the report cited various performance deficiencies which indicated inconsistencies in the application or appreciation of these programs.

Since September 30, 1987, GPUN has expended considerable resources and measurable progress has been made in correcting deficiencies and further improving its strengths. Emphasis has been placed on providing more consistency in the application of programs. This summary provides a discussion of management's focus and of the programs employed. The discussion is divided into the following areas:

1. Management Development and Team Building
2. Elimination of Personnel Errors
3. Procedural Compliance
4. Root Cause

Management Development and Team Building

As noted by the NRC, Management has made a special effort to improve professionalism and teamwork in Operations. To achieve this, several programs have been implemented. These programs are geared towards improving Operations management capabilities, assuring that individual shifts function effectively as a team, and assuring that Oyster Creek management is completely integrated towards a common goal, and accountable for their role in operating the plant safely and efficiently. Some of these programs are described as follows:

Successful Shift Management Skills

This is a workshop presented by a management consultant to shift supervisors and selected plant management. The program stresses the shift supervisor's role as a manager and provides an in-depth analysis of individual management style and personality. It is intended to enhance a supervisor's ability to function as a shift manager by teaching the following key skills:

- communication
- group development and leadership
- conflict management
- general management and motivation
- action planning

Five shift supervisors have already attended, and three more are scheduled to attend the next class. GPUN plans to have all shift supervisors attend this training.

Supervisor Development Course

This is a five day training course presented by GPUN to familiarize the supervisor with current management concepts, methods, practices, and techniques most appropriate for effective and efficient supervisory performance. Some of the concepts which are taught during the program are as follows:

- Role of the Supervisor
- Styles of Supervision
- Communicating and Listening
- Functions of Management
- Interpersonal Relations
- Human Resources
- Labor Relations
- Giving Recognition
- Problem Solving
- Delegating

Four shift supervisors have attended the program and it is intended to have all shift supervisors attend.

Team Skills Training

This is a workshop conducted by a consultant - an ex-naval aviator who specializes in control room team building. The program stresses the existence of team member attitudes and how they may be used to make a team successful. The key concepts that are taught during the program are as follows:

- effective communication
- feedback
- effective influence
- conflict resolution
- leadership

This training was originally presented at the simulator in the fall of 1987 to all licensed operators. Plant management participated in the training and observed sessions with the shift teams. Useful feedback was provided to those involved via video tapes and management critiques. The second phase of this program is continuing at Oyster Creek. A second round of team skills training at the simulator is planned for this spring.

Code of Ethics Training

This is a senior reactor operator workshop presented by INPO to introduce shift personnel to the "code of ethics" concept. Two shift personnel and one operations management representative attended and will be taking the lead in developing a code of ethics for Oyster Creek operations. This effort is designed to solidify a professional and formal approach to operations.

As the training enhanced specific management skills, a separate assessment was made by management to assure that individuals on each shift were compatible. With assistance from corporate staff, each shift member was evaluated regarding personality, behavior, and ability to function without conflict. As a result of this effort, improvements in compatibility were achieved by making several shift team changes, and by a continuing coaching program for various operations personnel.

The work stoppage placed Oyster Creek management in a challenging situation that resulted in developing better team skills. Management completed the maintenance outage, started up the plant, and in the process, gained valuable experience. The firsthand knowledge was beneficial and advantageously applied to the work force upon their return. This experience and the successful integration of the work force back into the plant stand as an example of management commitment to the success of the plant.

The Director of Oyster Creek held a two day workshop in December 1987 involving managers from the Oyster Creek Division and all on-site supporting Divisions to identify individual expectations that are essential for achieving improved plant performance. As a follow-up to the workshop, the group has been meeting weekly. A prime goal that resulted was to direct attention to, and improve support of the first line supervisors. To this end a meeting was held with all first line supervisors to discuss their role in the success of Oyster Creek.

Elimination of Personnel Errors

It is believed that the potential for personnel errors has been reduced by improving teamwork, providing training, reducing unnecessary challenges to the operators, and improving procedures. Control Room personnel have attended team skills training to reinforce the use of existing skills and knowledge. This training encourages interaction within the groups and has been discussed in more detail in the previous section. The result has been improved communication and coordination among shift personnel which has enhanced the formality and professionalism in the conduct of operations.

Various formal training sessions have been provided to all operators on major procedure changes and mishaps in the plant. Examples include training on the equipment control procedure and on the design and operation of motor operated valves. Procedure training has been useful for providing a uniform interpretation and application of procedures. Training related to mishaps has provided feedback to correct performance deficiencies and prevent mishaps from recurring. This approach has been particularly useful at the simulator where hands-on experience has been obtained with a variety of evolutions. The effectiveness of training of this nature has been measured by written examinations. Additionally, simulator training performance was evaluated by Operations and Training management.

Other less formal training has been provided in advance of non-routine evolutions such as implementation of a large freeze seal in the feedwater system. This has provided a forum for becoming familiar with the evolution and resolving concerns. The training has consisted of an explanation of the upcoming evolution, required personnel involvement, and potential safety concerns.

Improvements in Equipment Operator (EO) performance have also been addressed. Considerable effort has been made to assure that EOs increase their attention to non-routine plant conditions. To achieve this, EO training has been upgraded to stress their accountabilities especially related to tours. In addition, shift supervisors have toured the plant with EOs to help identify and correct typical problems. Management will continue to pursue improving EO performance in this area.

In addition, either a turnover checksheet or an equipment status board placed in the EOs' room is being evaluated for implementation. Evaluations of the EOs' performance via Group Operating Supervisor (GOS) observation and Operations QA monitors are also being evaluated for implementation.

Other means for improving training have also been initiated. A special board has been formed to provide a conduit for communication regarding the effectiveness of operator training programs. Members of the board include instructors and operators whose goal it is to improve the overall quality of operator training. A significant improvement, which provides additional hands on training, is that each licensed operator will now attend two rather than one simulator training session during each requalification cycle.

Progress has already been made in alleviating unnecessary challenges to operators. Major emphasis has been placed on reducing the engineering and maintenance backlogs and on reducing long standing materiel problems. As a result, the materiel condition of the plant has been upgraded and is evident in the significant reduction of temporary variations, control room deficiencies, and control room instruments out of service. This is the result of increased attention by, and improved communication among maintenance, engineering, and operations personnel. Additionally significant operating challenges are being addressed by implementing modifications such as the modification to the range switch which will prevent errors in operating it.

Numerous procedure changes have been implemented to further reduce unnecessary challenges to operators. Many of these changes were submitted by Plant Operations personnel with considerable experience in operating the plant. Most notable are the major changes to Equipment Control Procedure 108 which included more stringent controls over the temporary variation and safety review processes. Many of the changes were improvements to procedures used by operators to operate equipment, perform tests, and conduct maintenance activities.

Reducing personnel errors will require a commitment to high standards from those most directly involved. For this reason these personnel will participate in developing a code of ethics during 1988 to stand as their statement of this commitment.

Procedural Compliance

Management is cognizant of incidents involving procedural non-compliance, and is committed to eliminating contributing causes. There exists an NRC perception that procedures may not have been followed in order to meet scheduling demands. We agree that there have been instances where GPUN personnel have placed perceived schedule performance above strict procedural compliance. This has not been in accordance with previous GPUN management direction. Schedules will continue to be used; however, management will continue to emphasize that at no time should schedules be given priority over plant safety or procedural compliance.

Procedures may exist that do not give clear direction for performing a task at hand. Additionally, in the past, procedure reviews were performed by staff members rather than operators which may have created a situation not conducive to detecting deficiencies. To correct this, operators will be assigned responsibility for reviewing their own procedures. This will provide them with the immediate means for improving procedures. Management will continue to emphasize that procedures must be changed whenever a task cannot be completed as written.

Root Cause

Finding the root cause has become a top priority regarding operating problems. Recently this concept has been reinforced by Plant Operations refusing to accept equipment that was out for maintenance before a positive cause has been identified and corrected. Engineering, operations, and maintenance personnel have been working closely to resolve equipment deficiencies. Recent resolution of a control rod drive pump motor breaker problem and ongoing investigation into acoustic monitor troubles are examples of this.

Oyster Creek Management has become more sensitive to the importance of finding root causes. As a result, a more inquisitive attitude has developed and problems have been pursued to a permanent resolution. The operating performance in the past four to five months stands as testimony to the success of this new attitude. In order to help assure continued success in this effort, Operations Department now chairs the daily 2:30 meeting to coordinate maintenance activities.

The Corporate Safety Review Group has developed Procedure 1000-ADM-1201.01 (Event Critique and Reporting) which establishes the requirements that each division must comply with when performing a critique at GPUN. Included in this procedure are detailed guidelines for determining root cause. Oyster Creek management is in the process of developing a critique procedure that will comply with corporate requirements.

Also, the INPO sponsored Human Performance Evaluation Systems (HPES) is being implemented at Oyster Creek and TMI-1. The program will be facilitated by the Independent On Site Review Group. The purpose of HPES is to identify, evaluate, and correct situations that involve human performance errors. A full time HPES coordinator has been selected for each site and will receive special training by INPO in root cause analysis.

Conclusion

GPUN believes that recent programs to improve management effectiveness, personnel performance, equipment performance, and procedures will be major inputs to the future success of Oyster Creek. Areas that needed improvement received management attention and were thereby improved. Emphasis that was placed on providing more consistency in the application of programs has produced apparent positive results as shown by Oyster Creek's recent outstanding performance.

ENGINEERING SUPPORT

GPUN agrees that the performance in the area of Engineering Support has been inconsistent. We are addressing the NRC comments specific to this area in five broad categories (1) engineering staff accountability, (2) vendor control (both suppliers of engineered equipment and Architect/Engineers), (3) schedule insensitivity related to backlog, NRC issues, and modification engineering, (4) communication of design organizations with other functional groups, and (5) technical reviews.

Consistent with the previous SALP response, we have been performing a self assessment of the engineering support area. Phase I consisted of a structured survey of the engineering staff and the "user community." The summary of results is completed and the final phase, including conclusions and action plan, is to be complete by May, 1988. We look forward to reviewing the results of this assessment with your staff.

We have been working to improve these areas by the following actions:

Modifications

- Implement program changes to
  - Stop splitting design responsibility on individual modifications.
  - Move to use only one A/E per plant for design work not performed by GPUN.
  - Enhanced design reviews with stronger and earlier operations/ maintenance input.
  - Enforce plant walkdowns by design organization.
- Establish schedules to ensure earlier release (target of 6 months) prior to an outage.
- Continually implement corrective actions based upon analysis of quality trends.

Backlog - Focus resources to further reduce engineering action items.

Configuration Control

- Design Document Data Base (CARIRS) improved to further address user issues.

- Vendor Manuals - Essential manuals have been reviewed and are being controlled.

- Completed Equipment Level Quality Classification List and Engineering Data Base. Approximately 25,000 components have been entered into Engineering Data Base.

Owners Group - Increase focus on Owners Group and taking leadership role in them.

Management will continue to emphasize the need for performing thorough and timely responses to technical issues by future actions which include:

(1) Prompt implementation of action plans developed as a result of the self assessment.

(2) Emphasizing the need for operations and maintenance input on plant modifications by adherence to procedural requirement for design reviews.

(3) Strengthening technical and safety reviewer training.

(4) Focusing resources on timely reduction of backlog.

(5) Extending the sound technical support provided by the Start-Up and Test organization to shop testing of engineered vendor hardware.

Certain clarification of examples cited in your report are addressed in Attachment I-A.

The feedback provided in your report will be factored into GPUN's decision making process on these matters.

ATTACHMENT II

EMERGENCY PREPAREDNESS

We believe the substantive aspects of our performance remain strong. We have not noted a performance level change reflected by the lower current SALP rating compared to the prior SALP. The cited differences include the January 27, 1988, callout. We concur with the SALP that the problem was corrected by a subsequent call out response.

The most significant performance problem identified by the SALP was that during the 1987 Annual Exercise, the Emergency Support Director (ESD) did not issue a timely protective action recommendation (PAR). Our drill records show that the PAR was timely and was provided to the state ten minutes after the General Emergency was declared. As for the timeliness of the General Emergency declaration, we believe the ESD was realistic in his declaration. He did not just "declare the inevitable" because it was the annual exercise. Rather, he waited until simulated readings showed that emergency action levels had been exceeded. The timely PAR followed that declaration.

Evacuation Time Estimates (ETE) were known by the ESD. They are an integral part of the PAR Logic Diagram which the ESD used to make his PAR. However, the ETE was not important for the situation in the scenario. At a BWR like OCNGS, the most likely release path for a serious accident is from the primary to secondary containment and then out the stack. This makes for a very long release (e.g., 72 hours). The integrated dose which requires the PAR is based on this long release. The worst case ETE is 5.5 hours; hence, the nonverbal consideration of ETE's by the ESD.

The FEMA observations were related to a Pinelands High School decontamination center not being properly operated and the South Toms River Emergency Management Coordinator not participating in the exercise--both of these issues have been properly dispositioned.

SURVEILLANCE/IN-SERVICE TESTING

In this area we would like to comment on the two examples given (Core Spray Pump and Emergency Service Water [ESW]). We would also like to take exception to your statement on page 34 that "No other troubleshooting of significance was performed to determine the cause of the problem. Management's willingness to accept the results of a repeat surveillance without a satisfactory explanation as to why the first one failed, demonstrates lack of aggressiveness in root cause determination."

The following is a description of our troubleshooting efforts:

Unexplained Trip of Core Spray Booster Pump Breaker

On February 13, 1987, during the performance of a surveillance the circuit breaker for NZ03A failed to operate properly. After the breaker tripped, the Operations Department racked the breaker in and out and then re-performed the surveillance test. This time the breaker closed properly. The pump was then started manually and the breaker again closed properly. The Operations Department then issued a short form to MCF to investigate the original failure. When MCF and Plant Engineering became involved the breaker was performing properly and the failure could not be repeated.

A decision was then made to perform Preventive Maintenance (PM) on the breaker. This began the same day as the failure occurred. The PM included:

1. Long time and instantaneous overload trip settings
2. Trip torque measurements
3. Mechanical adjustments of main and arcing contacts
4. Megger of breaker
5. Megger of breaker with power leads connected.

All data was reviewed by maintenance and engineering. Based on no abnormalities being found and the continued proper operation of the breaker, it was returned to service.

Since this incident, regularly scheduled PMs were performed on this breaker on April 26, 1987 and October 29, 1987 with no abnormalities found on either occasion.

No further trips of this breaker have occurred during any of the interim surveillance. Due to an increase in problems with these breakers even before this incident, GPUN started during our last refueling outage, to completely overhaul and upgrade these breakers with solid state trip devices. We are well into this program and expect to be complete with all breakers on site (safety and non-safety related) in 1989 with all but a few before the completion of our next refueling outage.

ESW Low Flow Incident

On February 4, 1987 at about 1000 hours, the ESW "B" pump was started for a normal monthly surveillance. The ESW "A" pump surveillance was just completed. According to the operators conducting the test, the following occurred:

The pump was started. The operator at the intake structure noticed that with the pump running, the discharge pressure was reading 0 psig. (normal pressure is approximately 110 psig). Coincidently, the Control Room operator who started the pump noticed that the motor current was reading 20 amps (normal running current is approximately 53 amps). The pump was shutdown. A cognizant plant engineer proceeded to the intake structure. At approximately 1030 hours, the plant engineer requested Operations to start the pump. The pressure rose to normal as did motor current. The surveillance was completed successfully. Assuming the readings reported by Operations to be correct, the following possibilities were considered:

1. The motor became uncoupled from the pump.
2. Obstruction in the piping.
3. Obstruction at the pump suction.

1. The pump shaft is coupled to the motor at the top of the motor via a keyed coupling. If the key had sheared, it is unlikely that the pump would have run when started later.

2. Obstructions in the piping was the first suspicion. The obstruction would have been upstream of the pressure gauge and would have been basically leak tight because any leakage downstream of the obstruction would have caused a pressure indication of some type. An ice plug would have been the only obstruction capable of this because any other material would have had to pass through the pump impellers, which was unlikely. The ice plug theory was discounted for two obvious reasons: 1) the plug could not have melted during the time between pump starts if it was tight enough to deadhead an ESW pump capable of over 200 psig; 2) the temperatures for the previous 3 days were unseasonably high which would not have maintained an ice plug. Other information which discredits the formation of ice in the system upstream of the gauge is based upon a strong suspicion (although not proven) that the water from the discharge check valve back to the pump drains out, due to air in-leakage from the pump shaft packing. This packing is not leak tight and water can be observed leaking out during testing. Additionally, none of the other pumps showed any indication of a problem. If ice blockage was the problem, it should have affected all ESW pumps. There is heat trace and insulation around the ESW piping back to the pump discharge flange. There is no heat trace or insulation upstream of the flange (pump discharge head and discharge column) which is where the ice would have had to form to indicate no pressure on the discharge gauge.

3. An obstruction at the suction seemed like the most probable cause for the condition of low motor current and no discharge pressure. At the time of this test, work on the traveling screens was in progress. It may have been possible that some material (heavy canvas, a heavy rain coat, etc.) was accidentally dropped during the traveling screen work. This object could have gotten caught on the pump end bell and when the pump was started, blocked the suction. When the pump was shutdown, the turbulence could have knocked the obstruction off or the next time the pump was started it could have been sucked into the pump.

Based on this evaluation, the data from the test was analyzed to determine if pump damage had occurred. If something was drawn through the pump and deposited in the Containment Spray Heat Exchanger, the differential pressure across the exchanger would have shown an increase from previous testing. The data showed no such indications of either pump degradation or heat exchanger differential pressure increase. Therefore, an obstruction near the pump suction was identified as the most likely cause of the problem. Engineering judgment determined a need for an increase in the testing frequency in the event an obstruction was still in near proximity of the pump suction. Additional tests were run on February 5, 1987 and February 6, 1987 then weekly for 4 weeks then monthly as normally scheduled. During April, three tests were performed on a daily basis due to problems with the ESW System II flow meter. In all, 11 tests were run on ESW System I from February 4, 1987 to May 20, 1987 with all data within 2 or 3 percent. No similar problems with the ESW "B" pump have been noted since.

ATTACHMENT 1-A

There are certain issues addressed in the SALP Report that require clarification:

1. Although there have been a number of problems with the Recirculation Pumps, problems associated with the pumps themselves have not been of a recurring (i.e., similar) nature. We are addressing continuing problems with the power and control to these pumps.

2. Modifications were made to the Trunnion Room Fans which resulted in acceptable fan vibration levels for the past 1-1/2 years.

3. Problems with the Offgas Sample Pumps (piston chamber flooded with oil) were corrected by installation of vacuum breaker lines.

4. We believe the response to the ESW surveillance test failure of February 4, 1987 was proper and reflected a sound approach. Refer to the Surveillance/In-Service Testing section in Attachment II for details.

5. We believe the response to the Core Spray Pump Breaker (NZ03A) failure on February 13, 1987 was also proper. Refer to the Surveillance/In-Service Testing section in Attachment II for details.

ATTACHMENT III

RADIOLOGICAL CONTROLS

The company agrees that total worker dose should be reduced and has made improvements. We will continue to press this area strongly to improve the general ALARA situation in the company and to reduce collective exposure. We believe the two violations noted were isolated cases; we have corrected the deficient administrative procedures, improved training and pre-job briefings for Radiological Controls technicians, strengthened the quality control functions of Radiological Engineering, and have developed a strategy for improving ALARA and reducing exposure. We disagree with the concern raised about the criteria for an ALARA review. We believe that 90 percent of the exposure received during the last refueling outage had the benefit of an ALARA review. The company has performed a decontamination of a portion of the recirculation loops and is actively planning to conduct another decontamination in a future outage. The 1987 Collective Exposure for Oyster Creek was approximately 520 person-rem. This is the industry average for BWRs.

ASSURANCE OF QUALITY

We agree that improvements are needed and are working to make them in both the performance of the Quality Assurance (QA) Department and more general improvement of work quality at the site. In the area of the QA Department, we have made improvements in the technical knowledge of inspectors and the training conducted, and are presently performing an inspector-training-needs analysis which is expected to be completed by the second quarter of 1988. We have strengthened the mechanisms for involvement of QA/QC in site activities and have improved inspection techniques. While we agree with the general analysis of the technical knowledge of the inspectors, we believe some of the examples presented have errors of information. For example, the alleged improper QC holdpoints for some valve maintenance was described in a company report, but upon completion of a thorough investigation, the allegation was found not to be true and this was reviewed with the Senior Resident. We will review this and other examples with the Resident Inspector. One of the examples cited for QC inspection inadequacy is inappropriate in that the drywell shell thickness readings have extreme variability as a result of the surface conditions. The inability to replicate a result is due to the extreme variability of surface condition and instrumentation limitations, but this does not prevent a valid statistical argument being made to support the conclusions.

ENCLOSURE 5

SALP BOARD REPORT ERRATA SHEET

PAGE	LINE	NOW READS	SHOULD READ
24	40, 41	No other troubleshooting of significance was performed to determine the cause of the problem.	The licensee chose to perform additional surveillance actions as a method of troubleshooting. Initial actions taken by the licensee in each case destroyed as found evidence to use in troubleshooting the problem and resulted in not determining the cause of the problem.

Basis: The wording change was made to reflect the additional surveillance actions the licensee took in troubleshooting these particular problems. In addition, the wording was changed to clarify the licensee's approach to root cause determination.

PAGE	LINE	NOW READS	SHOULD READ
24-25	44	Lack of aggressiveness	Managements willingness to accept the results of a repeat surveillance without a satisfactory explanation as to why the first one failed demonstrates an incomplete approach to root cause determination.

Basis: This wording change was made to more accurately reflect the licensee's approach to root cause determination.

PAGE	LINE	NOW READS	SHOULD READ
27	9, 10	A protective action recommendation (PAR) in a timely manner and that evacuation time estimates were not used in reaching PARs.	A declaration of a general emergency with the associated protective action recommendation in a timely manner. It is not apparent that evacuation times estimates were used in reaching PARs.

SALP BOARD REPORT ERRATA SHEET

PAGE	LINE	NOW READS	SHOULD READ
13	44	Trend	Nothing (omit word).
19	3	Trend	Nothing (omit word).
25	36	Trend	Nothing (omit word).
27	29	Trend	Nothing (omit word).
29	41	Trend	Nothing (omit word).
36	26	Trend	Nothing (omit word).
40	3	Trend	Nothing (omit word).
44	19	Trend	Nothing (omit word).

Basis: Administrative changes.

Basis: The wording was changed to reflect the declaration of a general emergency which should immediately precede the PAR recommendation to the State. This should clarify the actual sequence of events that occurred during the drill. Since the declaration of a general emergency was untimely this delayed the PAR recommendation to the State, which should have been recognized by the licensee if evacuation time estimates (ETE) were effectively employed. Therefore, the effective use of ETE's was only apparent as no verbal communication of ETE use was communicated for this particular situation.

PAGE	LINE	NOW READS	SHOULD READ
13	44	Trend	Nothing (omit word).
19	3	Trend	Nothing (omit word).
25	36	Trend	Nothing (omit word).
27	29	Trend	Nothing (omit word).
29	41	Trend	Nothing (omit word).
36	26	Trend	Nothing (omit word).
40	3	Trend	Nothing (omit word).
44	19	Trend	Nothing (omit word).

Basis: Administrative changes.