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December 5, 1985

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Dr. Thomas E. Murley  
Regional Administrator  
United States Nuclear Regulatory Commission  
Region I  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

Dear Dr. Murley:

Subject: United States Nuclear Regulatory Commission  
Systematic Assessment of Licensee Performance (SALP) Report  
Inspection No. 50-219/85-99  
Oyster Creek Nuclear Generating Station

This letter and its attachments provide the GPU Nuclear Corporation response to the NRC Systematic Assessment of Licensee Performance (SALP) Report for the period May 1, 1984 to June 30, 1985 as requested by your letter of October 11, 1985. It documents and, in some cases, expands upon the information provided to you and your staff during our meeting at your offices on October 28, 1985.

In our meeting you extended the time for our reply to thirty days from the date of your letter. This was helpful in allowing us to complete the one-month outage at Oyster Creek which finished on schedule on November 18, 1985. The generator problem on November 20, 1985 and the Thanksgiving Holiday have delayed this response several more days to enable us to respond fully.

First let me say that GPU Nuclear Corporation continues to be fully committed to continually improving our nuclear activities and takes very seriously the comments and observations in your assessment. There is no disagreement regarding the need for further improvements.

We have carefully reviewed the report including the amplifying and clarifying discussions at our meeting. Each of your recommendations and many of the comments identifying apparent weaknesses or problems is addressed directly in the attachments.

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As noted in your assessment, the period it covers was an active one covering the last six months of the most extensive overhaul ever conducted at Oyster Creek, refueling, major facility construction, major effort to return spent fuel to the plant from West Valley, as well as the first eight months of subsequent operation. In addition, throughout the period GPU Nuclear carried out a number of major initiatives to upgrade its operations and, in particular, to further strengthen all aspects of maintenance.

We believe that the period covered saw real and substantive improvements in all areas. We had expected your SALP and assessment to recognize that. Your report does include many positive comments.

Since both your assessment and ours are to a considerable extent subjective there seems to be little value in discussing the overall rating provided in each area.

However, the rating of 3 in Maintenance is, in our view, unwarranted; and we request your reconsideration of that rating.

As defined in your report, a rating of 3 means:

"Both NRC and licensee attention should be increased. 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 or construction is being achieved."

While the facts in your assessment are generally correct, we believe the following points are pertinent:

1. The individual deficiencies or events discussed in your assessment are the most significant that occurred during the period. In many cases we believe they are relatively unique and do not constitute "examples" in the generally understood sense. Nor do we believe they are indicative of "trends".
2. Almost without exception such events were recognized by GPU Nuclear management, analyzed, and steps taken to help prevent similar ones. However, in light of the enormous amount of work done during the period we believe the number is not indicative of major weakness or lack of management attention or resources. The attachments provide a picture of the total work done against which the deficiencies should be measured.
3. The plant returned from the outage in demonstrably much improved materiel condition than it has been in many years. Many major systems and equipment were returned to service. Major examples are listed in Attachment G. Housekeeping and radiological conditions were dramatically improved and have stayed that way.

4. Two major quantitative indications of the overall effectiveness of maintenance of the plant are reactor leakage and water chemistry. Total leakage, identified and unidentified, was below 6 gpm and unidentified leakage below 1.0 gpm throughout the major portion of the operating period after the outage. Both values are very good for plants of this type and significantly better than before the outage. In addition, water chemistry with conductivity of approximately 0.1 is excellent--perhaps the best for any BWR in the country.

These indicators confirm the good condition of the overall plant and could only have been achieved by extensive and effective maintenance, and reflect management attention and a careful conservative approach giving priority to operational safety.

5. We particularly disagree that the events or deficiencies noted in your assessment constitute a potential safety concern as implied by a rating of 3. To the contrary, we believe that they reflect management's conscious decision to prevent potential safety concerns by responding conservatively to observed conditions. Most notably, the several shutdowns in February reflect this.

First, of course, none of them involved a challenge to safety systems or an automatic shutdown or scram. Each was a controlled deliberate shutdown as a result of planned inspections. A number of these inspections involved drywell entries at higher system pressures than required and beyond those we and others normally conduct. The purpose of these entries was to gain added assurance of low plant leakage before operating. Even though the inspection results were well within specification limits, we chose to take additional time to conduct further repairs to avoid later problems.

6. No area received more management attention during this period than did maintenance. The resources applied include additional dedicated management and a broad systematic approach. Preventive maintenance has been greatly increased.

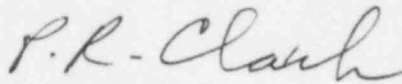
Our review and the discussions at King of Prussia lead us to conclude that many of the differences between our assessment and yours result from the fact that full appreciation of Oyster Creek activities requires significantly greater interaction between NRC and all of our site-located Divisions; and in some cases, the off-site support in Parsippany and Reading.

To that end, we have, as you know, initiated direct periodic discussions between your residents and management of our Maintenance, Construction & Facilities; Radiological & Environmental Controls; and Nuclear Assurance Divisions and other personnel. We encourage NRC personnel to seek out representatives of these Divisions and to visit Training and other facilities located adjacent to the plant site as well as Corporate Headquarters.

We believe the SALP process and, in particular, the direct discussions it promotes between you and your staff and GPU Nuclear management is of considerable value. This letter and its attachments are aimed at furthering our common understanding. To that end, we have included as Attachment F several general suggestions we believe would improve the SALP reports.

Finally, I believe you will find the attachments address each pertinent item positively with the continuing goal of learning and improving.

Sincerely,

A handwritten signature in cursive script that reads "P. R. Clark".

P. R. Clark  
President

pfk 1090k

Attachments



ATTACHMENTS TO

GPU NUCLEAR CORPORATIONS

RESPONSE TO

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE

INSPECTION REPORT 50-219/85-99

OYSTER CREEK NUCLEAR GENERATING STATION

ASSESSMENT PERIOD: MAY 1, 1984 - JUNE 30, 1985

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OYSTER CREEK SALP RESPONSE  
IN THE AREA OF OPERATIONS

(a) Initiatives

During this SALP period emphasis was placed on procedure upgrading (3500 procedures rewritten or revised), chemistry improvement (new laboratory, new equipment, analytical procedures completely rewritten and upgraded training), attainment of 6 shift rotation for operators, expansion of the preventive maintenance program to include predictive maintenance, increased training for operators, higher standards for housekeeping including elimination of contaminated areas, sources of contamination and removal or cleanup of contaminated material and lastly, outage recovery.

The major emphasis, however, was on increased formality of operations and resolution of repeated plant problems. To this end events investigated and the depth and scope of the critiques involved have been greatly increased to better identify causes, responsibility and lessons learned. More complex incidents are assigned to a task force for resolution. This effort has led to correction of many long standing problems, particularly in the maintenance area. In the same vein procedural adherence has received significant attention at all levels within and outside the company. It is being stressed in training, staff meetings, seminars and in one-on-one interviews with licensed operators.

As our operational and maintenance procedures improve, so does compliance. Formality of operation is not yet where we want it to be, but it is getting better as all of our people are beginning to understand its importance and management emphasis.

(b) General Comments

In the areas of operations, refueling, radwaste, chemistry and housekeeping we strongly believe that significant progress has been achieved and the SALP report supports this. Operators have been quick to respond to unusual and/or emergency situations while keeping the plant entirely under control. Additionally, they accounted for over 3200 fuel moves without a single incident including the handling of the old returned fuel assemblies from West Valley, NY. Operator requalification training results this period were uniformly outstanding as were the 100% successful SRO and RO license candidates. In the area of operator performance we feel that we are on the right track with our current programs to raise standards, improve formality, and increase accountability until we become true professionals in every sense of the word.

Radwaste, despite a 20-month long maintenance outage, has more than held its own in that the quantity of waste material on site at the end of the period was less than there was at the beginning. Volume reduction, sorting and decontamination programs were all highly successful. Formalized training and qualification of radwaste operators was also achieved.

A major achievement is, we believe, the success we've had with our chemistry program. Our new facilities, improved training and strong leadership are all the ingredients for a highly successful plant chemistry operations. We have achieved a water quality which pushes theoretical limits for purity, placing us among the best, if not the best, in the country.

Housekeeping also represents a major area of improvement. Every level of management has been actively involved in this effort with remarkable results. Contaminated areas have been nearly eliminated - now they are the exception rather than the rule. Cleanliness has reached the point that now the floors actually shine as does most of the equipment. We consider this aspect of plant operation to be vitally important, since it sets the tone for everything else.

c. Board Recommendation

Comment

"Licensee should conduct reviews of the control room environment and procedural adherence".

Response

Professionalism in the Conduct of Operations and strict procedural adherence continue to be strong objectives of Management. Both of these areas are continuously stressed, monitored, reviewed and observed by management, both daily and in the Off Shift Tour Program. In the area of procedures, Operations has gone through extensive revision to procedures to incorporate new surveillance criteria, incorporate plant needs, and generally upgrade the procedures to make them more workable to assure plant operators have procedures they can work with and strictly adhere to. The operators have made many changes to these procedures to reflect actual plant conditions and the temporary change process reflects the operators efforts to adhere to procedural requirements.

Management has made many improvements to the professional atmosphere of the Control Room and upgraded the Conduct of Operations. Included in the upgrade is the continuous emphasis placed in the quality and quantity of log entries and the professional performance of Control Room operators. Positive steps will be taken to address the concerns expressed in the SALP Report which will add to the professional environment of the Control Room. Management is

reviewing the Control Room access procedures and is in the process of dedicating an area to assemble the relief crews and equipment operators so as to lessen the impact on Control Room activities.

Comment

"Administrative controls should be established to specify proper control room job performance".

Response

The SALP report identified NRC concerns with the conduct of operations in the area of Control Room operations; specifically mentioned were log keeping, procedural compliance and access control. Operations management understood these concerns to reflect on the environment and professionalism of Control Room operations. The VP/Director has issued a memorandum to all GSS/GOS stressing the need for quality Control Room job performance. He also covers this in great detail during his one-on-one interviews with each licensed operator. The environment of the Control Room and the performance of plant operations is being given high priority.

Administrative controls governing Control Room job performance are detailed in Procedure 108, Conduct of Operations, particularly sections 4.4. - Shift Operations, 4.9 - Personnel Conduct, Practice and Policies, and 4.10 - Procedural Compliance. Commencing in October 1985 Operations Management identified and corrected certain practices in Control Room operations which detracted from a professional environment. This area is being aggressively followed up by Operations Management in daily tours, night orders and general interaction with Control Room Supervisors and Operators. The results have demonstrated a marked improvement in the Control Room environment.

Included in the upgrade is a continuing upward trend in the quality and quantity of log entries and the professional performance of the Control Room Operators. Operations Management is reviewing the Control Room access procedures and is in the process of securing space to assemble the relief crews and Equipment Operators so as to limit their access to the Control Room and ensure operators can be easily found when needed.

Comment

"An evaluation should be conducted to review procedural adherence".

Response

Procedural adherence has been a major focus of management's attention for sometime, and the trend of compliance is positive. In any event, Management will continue to evaluate, stress and enforce the requirement for strict procedural adherence and provide the oversight to insure the plant continues to operate safely in accordance with approved procedures.



Considering the outage and the return to service of the plant after a major overhaul, the process of performing in excess of 3,500 outage requests for components and return to service of same, the extensive startup test plan which incorporates in excess of 100 procedures, and the routine performance of the plant surveillance program which entails approximately 200 procedures on a monthly basis, Management believes procedural adherence is not a major deficiency, but an improving and strong part of Oyster Creek's commitment to achieve its stated corporate objective.

Comment

"The licensee should make an effort to clarify safety-related equipment operability criteria contained in the surveillance procedures".

Response

Current GPUN procedure acceptance criteria exceeds the minimum requirements to assure operability. Further clarification in procedures to define that limited set of acceptance criteria required to meet minimum Technical Specification operability requirements will be initiated. This is projected to be a long term project which will be started during the 11R Outage and completed at the end of 1987. This task will require in excess of 4800 hours of engineering and Plant Review Group effort.

Comment

"Take steps to improve quality of procedure reviews".

Response

Thousands of procedural changes have been effectively reviewed and implemented. The cited examples, although factual, do not represent programmatic deficiencies. We will continue to exert maximum effort to continue upgrading this area.

Comment

"Evaluate the conflict in fire protection and safety system objectives especially as to the effectiveness of installed spray shields and ability of safety-related equipment to operate when wet".

Response

An engineering evaluation and subsequent modification to protect vulnerable safety related equipment from fire suppression water impingement was completed in 1982. Results of the evaluation and modification provided for installation of spray shields, gasketing material and sealing of equipment openings on vulnerable safety related equipment and support equipment in the areas of fire protection water systems.

As required by a commitment made in the Standard Review Plan 9.5-1 Appendix "A" Section (A.5), GPUN conducted an assessment of the effects of fire suppression water system initiation on safety related and support equipment.

The evaluation and subsequent plant modifications were completed in 1982 and documented in the following packages:

1. Plant Engineering Task 82-009, Shields for Equipment Protection During Fire Protection Initiation;
2. Special Procedure 81-81, Sealing of Conduits and Electrical Equipment in Reactor Building Elevation 23' and 51' for Fire Protection;
3. M&C Task C-155A;
4. Installation Specification 218-77-65, Sealing of Conduits and Electrical Equipment in Reactor Building Elevations 23' and 51' for Fire Protection;
5. Installation Specification 218-77-66, Drip Protection for Reactor Building Switch Gear and MCC's;
6. Installation Specification 217-77-58, Drip Protection for Equipment in Cable Spreading Room; and
7. Safety Evaluation 315302-007, Protection of MCC's From Fire System Spray.

Results of the above evaluation required the sealing of equipment openings, the installation of gasketing material and the installation of spray shields over vital safety related equipment and support equipment in the areas of fire protection water systems.

Subsequent inadvertent initiations of Reactor Building deluge systems in December 1984 and June 1985 confirm the efforts taken in the above modification adequately protect the associated equipment from fire suppression water damage.

To ensure the penetrations, gaskets and drip shields are intact, the following Preventive Maintenance check sheets/surveillances have been generated:

- 1221 "Water Tightness Inspection"
- 1133 "Drip Shield Inspection"
- 3421I "Drip Shield Inspection"
- 303F "Drip Shield Inspection - Fire Protection"

Motor Control Centers are additionally protected by plastic deflectors to preclude direct stream and splash impingement. Permanent fastening of deflectors is being evaluated.

#### Comment

"Continue refueling floor cleanup activities".

### Response

Significant progress has been made in this regard and we will continue to push this effort.

#### (d) Response to Specific Comments in SALP Report

##### Comment

"In reviewing overall performance there appear to be several examples of a lack of effective communication within and among the various divisions (i.e., operations, engineering support and maintenance)".

"The coordination and communication among the various groups during plant operations is not as effective as when the plant was shut down for the outage". (Page 8 - Paragraph 3)

"Improvement in assignment of responsibility and in communication between operations and the other divisions of GPUN would significantly contribute to improved accountability". (Page 14 - Paragraph 3)

##### Response

Specific examples of "lack of effective communication" or coordination are not provided. There undoubtedly were some such instances, however, during the final months of a very complex 20 month-long outage, GPUN management, at Oyster Creek and in Headquarters dealt with many highly-technical problems, in some cases industry firsts, requiring intense coordination, cooperation and "effective communication", so as not to further extend the outage duration. Specific examples include cracks in the Isolation Condenser System piping and IRM/SRM dry tubes. Most of these unforeseen problems were handled via a task force approach, comprised of representatives from all GPUN divisions. During the outage recovery process and the operating period that followed, the GPUN organization dealt with these problems through close coordination and effective communication. GPUN's ability to do so resulted in a year-to-date capacity factor above the national average, despite a month-long outage to accomplish EQ modifications and perform corrective maintenance.

##### Comment

"... appears to be a lack of an objective, collective self assessment process on site to analyze the day-to-day activities and to focus attention on identifying/resolving the underlying causes of problems, not just the symptoms;". (Page 8 - Paragraph 1)

## Response

GPU Nuclear is deliberately organized and staffed to identify problems and assure that all considerations are analyzed. In addition to the required quality assurance, quality control and audit function, an independent on-site safety review group has been assigned to Oyster Creek. Unique in the nuclear industry is the concept of a Nuclear Safety and Compliance Committee with its own staffing. One of NSCC Staff's principal activities is identification of problems to management. The experience and expertise embodied in all of these groups allow them to contribute to solutions.

Where needed GPUN uses inter-divisional task groups to conduct in-depth analysis of significant problems in addition to normal management function of problem sharing. For example, following the 1983/84 refueling outages, two task forces made up of senior management were appointed to study and to make recommendations for improvement in the following areas:

- a. "OC Radiological Controls During Outages"
- b. "Control and Implementation of Plant Modifications done with Specific O&M Funds (Not Capital)"

After extensive efforts, these task groups provided reports containing numerous recommendations. Following a suitable time for consideration, the Executive Vice President met with appropriate division directors and formalized the assignment of the recommendations. These recommendations were included in the computer supported Station Action Item Tracking System and periodic followup meetings have been held to monitor progress and achieve the recommended action.

In support of the above, we suggest review of the following items as indicative of "root cause determinations" and either completed corrective actions or corrective actions in process of implementation:

1. IRM/SRM Dry Tube Replacements
2. MOVATS
3. HFA Relay Window Fogging
4. Post-Transient Reviews/Transient Assessment Reports
5. Drywell Entry of November 23, 1984
6. Inadvertent Containment Isolation Valve Actuation
7. List of Numerous "Root Cause Self-Assessment" Programs

## Details

1. The discovery, examinations and analyses of the IRM/SRM dry tubes by GPUN with assistance by others was the initial discovery and reporting of a generic problem. Seven other BWR units discovered a similar problem prior to any incident, due to the diligence of GPUN's efforts. It should be noted that

General Electric Company's recommendation was, "two dry tubes to be replaced prior to startup with the other ten capable of an additional fuel cycle prior to replacement." It was GPUN's decision, in the interest of absolute safety, that all twelve dry tubes be replaced even if it extended the outage schedule.

2. The implementation of MOVATS testing for all fifty-seven (57) isolation and/or safety related valves by GPUN is another example of "root cause determination" and implementation of corrective action. On January 5, 1984, an LER reported the torque switch setpoints on many motor-operated valves had been set lower than the manufacturer's data. Due to conservatism in establishing baseline setpoints by either Limitorque or each valve manufacturer, Oyster Creek had not been able to determine that any valve would not have operated during accident conditions with setpoints lower than originally identified. The investigations, analyses and actions included the following:

- o Investigation of the actual design basis for torque switch settings;
- o Determining the appropriate switch setpoints;
- o Resetting the torque switch setpoints on all applicable valves; and
- o Issuing administrative controls to eliminate recurrence of this incident.

GPUN contracted with Torrey Pines Technology to calculate the required torque switch setpoints for each valve. In addition, GPUN contracted with MOVATS, Inc. to test, analyze and set the torque switches for each valve. This was an industry pioneering effort now being adopted by many other units. The details of these efforts and results are presented in GPUN Technical Data Report No. 623, entitled, "Oyster Creek Motor Operated Valve Torque Switch Settings," a ninety-three (93) page report.

3. The "HFA Relay Window Fogging" was first discovered and reported by Oyster Creek in LER 84-015. GPUN considered the issue to be generic even though no previous events or failures were reported. This is another example where GPUN's perserverance disclosed a situation to the industry and followed through with considerable effort by many to determine the root cause and appropriate corrective action. Information has been received in a recent telecon and will be confirmed in a letter shortly by GE that the oily film on the relay windows is a compound generated from offgases from various components within the relay. The fogging will clear up (literally burn up by heat generated) with use and result in little black specks on the window. No problem exists with initial or continued use of the relays. It is recommended that the glass be cleaned and contacts be burnished as a conserve action in and when



discovered. In the process of investigating and analyzing the various components and film, considerable efforts were expended in a number of laboratories and preparation of a forty-two (42) page detail procedure, 719.3.009, entitled, "Contact Resistance Check of HFA Relays in the Reactor Protection System." In addition, two (2) special resistance measuring meters costing approximately \$16,000 were purchased to measure contact currents in the milliohm range.

4. The Post-Transient Review process at Oyster Creek is outlined in two procedures, 130.2 and EP-029. The 130.2 procedure spells out specific actions to be followed by plant personnel in the event of a transient event. The EP-029 procedure by Technical Functions is for guidance during and after a transient. These procedures implement root cause determination and that the plant response is normal and as expected.
5. The investigation of the "Drywell Entry of November 23, 1984" is another example of "root cause determination," formulation of corrective action and implementation of same. D. T. Leighton's (a long time consultant) letter of December 10, 1984 contains his investigation and conclusions with a number of recommended short and long term corrective actions to Oyster Creek NGS Procedure 233 entitled, "Drywell Access and Control." All of the recommendations have been or are being implemented.
6. A modification was in progress which involved Plant Computer System tie-ins. A neutral electrical lead was lifted which caused fifteen (15) primary containment isolation valves, including MSIVs, to change position. No violation of the Technical Specifications occurred since primary containment integrity was not required at the time of the incident. The valves changed position due to an abnormal current flow path which was established through their solenoids when the neutral lead was lifted.

This lifted lead would not have prevented the containment isolation function, under any circumstances. Therefore, safety significance of the incident is nil. To completely investigate the failure mechanism and assess the full significance, two (2) tests were performed on the circuit with the transient currents and voltages monitored and recorded for analyses. The tests simulated the before and after incident conditions. The tests were conclusive and verified the suspected cause of the incident. The following actions were taken to correct the situation and assess the failure of other safety circuits due to a similar phenomenon:

- o A check of all plant safety circuits was made to determine if similar neutral wiring deficiencies existed elsewhere;

- o Incorporated specific cautions for lifting neutral leads into station administrative procedures;
  - o Modified the current 10F/11F neutral circuit configuration to prevent this event from occurring in the future; and
  - o An outside contractor independently analyzed the circuits of other safety systems.
7. Listed below are a number of "Root Cause Self-Assessment" programs that are "ongoing" continuously:
- o Quarterly IST Performance Report - monthly trending
  - o Formal Critiques
  - o Outage Reports and Management Reviews
  - o QA Program QDR Corrective Action
  - o Quarterly Lifted Leads and Jumpers/Temporary Variations
  - o PRG Reviews
  - o GORB Reviews
  - o Technical Functions Review of Baseline Plant Operating Procedures
  - o NSCC Overview
  - o IOSRG/NSAC
  - o KT Training - Heavy involvement by all Divisions
  - o Mort Training (completed by all Plant Engineering Department Directors/Managers)
  - o Plant Materiel's Quarterly Trending Report
  - o Development of MOVATS Technology
  - o Post Trip Transient Review/TARs
  - o Special Task Forces established by the Office of the President to solve problems
  - o Independent Consultant Reviews and Audits
  - o TAG review of Start-Up & Test procedures verifying operability

#### Comment

"A significant event which occurred during the startup was a containment entry without the Group Shift Supervisor's knowledge or permission. During this entry higher than expected radiation levels were encountered. These high radiation levels were due to nitrogen-16 radiation from the main steam lines. The reactor should have been taken subcritical prior to the entry. This event resulted from a failure to follow procedures because of a communications problem between radiological control and plant operations personnel. No overexposure resulted from this event"; (Page 10 - Paragraph 4)

## Response

The drywell entry identified in the report was prepared for adequately. The Group Shift Supervisor (GSS) and Radiological Controls Supervisor (RCS) had discussed the entry process and developed appropriate plans. The GSS was aware that an entry was to be made and that it would require a reduction in power. The primary cause of the incident was a breakdown in phone communications, which resulted when the Rad Tech called the Control Room. The Radiological Controls Supervisor had planned to call the GSS, but became involved in other business and instructed a Rad Tech to call the Control Room. Poor phone communications between the Rad Tech and Control Room Operator resulted, and personnel at the drywell entrance assumed that permission for entry had been properly granted.

The following corrective actions have been taken to prevent recurrence:

Immediately subsequent to the incident, a memo, "Conduct of Business in the Control Room" was issued to all Operations personnel. The thrust of the memo was to impress the need for formal communications and to emphasize Operations role in controlling all activities that affect the operation of the plant.

As followup, the Plant Operations Director and the Manager, Plant Operations met with the Group Shift Supervisor (GSS) and Group Operating Supervisor (GOS) on each shift. The purpose of these meetings was to stress the following:

1. Communications
  - a. within shift - use of radios/phones, shift briefings
  - b. with other plant departments conducting activities in the operating plant
  - c. with Management - notifications, discussion of significant events.
2. Control of Plant Activities
  - a. Operations role as central authority
  - b. Shift management philosophy.
- c. Formality in Control Room
  - a. Logs - need to clearly, accurately describe plant operation
  - b. Conduct of Business in Control Room - Housekeeping, organization, access control, and overall appearance of Control Room and operators.

The Plant Operations Director attends a two (2) hour status update with the operating shifts during the training week for the purpose of improving communication between the operating shift and Management. Management stresses to the operators the purpose behind the formality requirement and the need for strict control over shift communications and plant work activities.

Operations Management will continue to address and monitor the progress toward achieving our goals during their daily interaction with Plant operators and supervisors. While progress cannot be quantitatively determined, Operations supplement their own observations, those of the shift assistants and other plant management during off-shift tour reports to gauge our success in improving shift operations.

In addition to the above, the following specific corrective actions have been taken:

1. Drywell Access Control Procedure - A new drywell access control procedure has been issued as an administrative procedure. The procedure was developed with input from Rad Con, Plant Engineering, Operations and D. T. Leighton. This procedure supersedes old Rad Con incident report.
2. Operating Procedures - Startup and shutdown procedures (201.2 and 203.2) have been revised to include reference to the drywell access control procedures.
3. Training - The drywell access control procedure was issued to all licensed operators and Rad Con personnel as required reading. In addition, the Rad Con report on "Lessons Learned" was incorporated into training for Operations, Rad Con, Health and Safety, Chemistry and Tech Functions.

#### Comment

"On many occasions, delays were encountered during the startup which were due, in large part, to scheduling problems. In particular, scheduling of prerequisites to support testing did not exist. This resulted in an overall startup test coordination problem that was exacerbated by lack of management direction to the shift on watch. On a positive side, management foresight was evident in assuring operator competence when training criticalities were scheduled for available operators. A number of these criticalities were observed by the NRC and no deficiencies noted". (Page 11 - Paragraph 4)

#### Response

Although some delays were encountered during the startup due to scheduling problems, few if any were caused by lack of management direction. During the entire outage, startup program, and during daily plant operation, management provided direction to the operating

shifts. This direction is provided to the Control Room via meetings, minutes from the daily 9:00 a.m. and 1:00 p.m. outage meetings, by way of "Manager's Nite Orders" and also by personal communication. During the startup process alone, twenty-nine issues of the "Manager's Nite Orders" were distributed.

The test that appears to be the primary cause of this "observation" or finding was the feedwater regulator valve test (TP 246/1) being conducted during startup. Delays were encountered during the execution of this test, but we do not consider it indicative of our overall management control. Although the test had been thoroughly reviewed by Operations Management and an agreement had been reached on its acceptability, the Manager of Plant Operations still had some reservations about its effect on the plant and plant stability/safety. At the time the test was to be conducted the Manager of Plant Operations made the judgement that due to the instability of the plant at that time (approximately 15% power) he did not want to perform the test at that power. Even though this concern had been previously discussed, the procedure did not provide for "optional" steps. The result was of course a delay in completion of the test. While regrettable, this is not a safety concern but was rather a deliberate management action taken to ensure safety. There were, of course, a large number of modifications and major tests (approximately 213 startup tests) performed during the outage and subsequent startup process that were completed successfully, without delay and without incident. These included the Scram Discharge Volume (SDV), Computer Modification, Control Room Alarms and Sneak Circuit Test, all of which took considerable preparation, coordination and execution.

A very comprehensive startup plan was developed for the plant startup which included operator training evolutions, surveillance tests, modification testing and fuel conditioning covering a four week period. Approximately 100 surveillance and startup tests were conducted during the plant startup process, all of which were executed without a serious problem or major incident.

#### Comment

"NRC review of procedures did not disclose any major discrepancies; however, one violation was identified wherein temporary changes to procedures were not reviewed within time limits specified by the Technical Specifications". (Page 12 - Paragraph 2)

#### Response

The period of time analyzed by the NRC which resulted in the issuance of a violation (June, 1985) because of non-compliance with the 14-day Technical Specification has been characterized to be only 80% of the procedure completing the reviews in the allowed time period. Since that violation two significant accomplishments have occurred:



1. During the period following the violation, June 10, 1985 to September 9, 1985, the number completing the review process in the necessary time has increased to 89%.
2. A Temporary Change Task Force was organized to determine:
  - a. actions required to reduce the total number of temporary changes generated.
  - b. actions required to assure reviews are completed in the 14-day period.

The task force has completed its work and provided the results to management. A commitment to be in full compliance with the Technical Specifications was established to be December 31, 1985.

#### Comments

"Three violations for not following procedures were identified. ....These procedural violations may be indicative of an adverse trend regarding compliance with procedures and requires licensee analysis to determine the validity of the trend". (Page 12 - Paragraph 2 and Page 13 - Paragraph 1)

#### Response

Although three violations were issued during the report period for not following procedures, we do not believe that this is indicative of a trend. We have reviewed License Events and IE Inspection Reports issued during the report period and identified eight incidents that were attributed to Operations personnel failure to follow procedures. Increased management attention at all levels has been focused on procedural compliance. The process for making temporary changes and revisions to procedures has undergone review and change. Continued emphasis in this area is provided during weekly discussions between Operations Management and shift personnel at plant status update sessions (during training). We conclude that the procedure problems during the period are not indicative of an adverse trend.

#### Comment

"....involved failure to perform a valve lineup of a portion of the Core Spray System after modifications were completed". (Page 12 - Paragraph 2)

#### Response

The violation was issued as a result of failure to perform a valve lineup on a portion of the Core Spray System following modification. It did not affect system operability, and involved test instrument cutout valves. In fact, a complete operability test was performed and the system determined operable. During review of the incident

and subsequent review of the appropriate procedures, it was determined that an inadequacy existed in the procedure (124) used to control the modification process. This procedure has since been reviewed and appropriate changes submitted for approval.

Comment

"(Log) Entries are generally sketchy and instances have occurred where required entries were not made". (Page 13 - Paragraph 2)

Response

The recent training cycle at the simulator (September - October 1985) heavily stressed accurate and sufficient log taking for each of the shifts. Additionally, logs are reviewed daily by management.

Comment

"A review of the scrams and licensee's post reactor trip review meetings indicates that feedwater control problems have resulted in two scrams and complicated the recovery from a third. The licensee should review operator training and assure reactor water level control is appropriately addressed". (Page 13 - Paragraph 4)

Response

Reactor water level control has received management attention. A significant increase in operator training time has been allotted to reactor water level and feedwater control. Approximately 25% of licensed operator training at the Simulator this year is being devoted to problems directly related to reactor water level control. The on-site requal lecture series has been reviewed and training in feedwater operations now includes "hands on" operation of feedwater regulating valves.

In addition to increasing operator training in this area, operators are continually reminded of problems associated with feedwater control and other transients. The Required Reading Program is used extensively by Operations to ensure that operators are aware of Lessons Learned, License Event Reports, Inspection Reports and Incident Critiques. In addition to plant required reading, Operations issued seventeen (17) items of required reading during the report period that specifically addressed operator problems or operator/system response.

Comment

"Licensee attention is needed in the area of correcting or removing older radwaste equipment which is inoperable or no longer in service. For example, radwaste operators had been recording erroneous data from tank level indicators that were out of service, even though the tank level was controlled procedurally". (Page 18 - Paragraph 6)

### Response

The above statement addresses two primary concerns:

1. The first concern is dispositioning inoperable and/or equipment which is no longer utilized. This appears to be referring to NRC followup items from Inspection 85-04. This is a two-fold problem with returning inoperable equipment to service through maintenance or modification and retiring old unused equipment. Both are being given more attention.
2. The second concern is whether Radwaste operators fully understand the purpose of taking specific readings and if they have the proficiency to determine the significance of readings which are other than normal. This is being addressed by both Operations and Training Departments. The Training Department has developed and implemented operational tours and log recording training. Operation Management has reinforced this training through OJT and implemented an administrative control system to identify and correct deficiencies noted during supervisory review of logs.

### Comment

"The problem discussed in the previous SALP involving a need for increased attention to the overall integrity of the Standby Gas Treatment System (SGTS) was partially addressed by the licensee. Based on a LER review, the licensee still has problems in this area but has made some improvements". (Page 20 - Paragraph 2)

### Response

There were three (3) LER's on the SGTS during the SALP period of 5/01/84 through 6/30/85. Because of the previously identified problems with the SGTS, a review of the LER's from the previous SALP was conducted, as well as the previous identified problems and a recent IE Notice. This review was completed and documented on April 30, 1985. The results of the review indicated the completion of the SGTS Modifications, during the 83-84 Outage, resolved many of the concerns reported in the previous SALP or they are in the process of being resolved actively within GPUN, as illustrated below:

- a. Corrective Modification: (Reference: GPUN SDD 901A Div. II). Instrument air tubing has been replaced with new air tubing routed to new control panels. All new tubing is combined into multiple bundles and heat traced. Heat tracing the tube bundles will prevent moisture accumulation and freezing of moisture inside the tubes. In addition, instrument air supplied to the SGTS is "dried out" by a dessicant provided in the instrument air supply line to the control panels.

- b. Corrective Modification: (Reference GPUN SDD 901A). The addition of an annubar flow element, flow transmitter, temperature element in the calibrated flow section of the exhaust duct and the addition of the digital flow indicator in the ATC P15 panel will improve the accuracy of flow measurements.
- c. Corrective Modification: [Reference GPUN SDD 901A, R 4 (Div. II)]. The inlet and outlet filter isolation valves were modified to fail in the close position when the circuit breaker of the system associated with the isolation valves is removed (loss of power). Closure of these isolation valves on loss of power will prevent short circuiting of discharge air of the operating system. In addition, the fail positions (on loss of power) of the other isolation valves that are required for the secondary containment were verified.
- d. Corrective Modification: (Reference: GPUN SDD 901A Div. II). All plastic tubing has been replaced with new tubing material consisting of 1/4" O.D. copper tubing with a fire retardant polyethylene protective coating. This tubing is located away from the cabinet heater. However, heat tracing is provided on the tube bundle to prevent condensation and freezing of moisture inside the tube. In addition, the SGTS control logic was redesigned. The solenoid valves are required to be energized in order to open the inlet and outlet isolation valves of the SGTS. Two normally closed contacts of K4 (K5) and Y(2) are connected in parallel to insure that the solenoid valve will be energized to open the valves. The function of these contacts is to close the inlet/outlet valves when flow is established in the lead unit.
- e. Corrective Modification: As indicated in Section 3.7 of SDD 901A (Div. II), the power supply to each control panel is now derived from two separate power sources. The electric heaters are powered from their own ATC panel. Panel ATC-P15 is powered from MCC-1A24 (Diesel Generator #1) and Panel ATC-P16 is powered from MCC-1B24 (Diesel Generator #2). Failure of one diesel will not affect the performance of the electric heater of the redundant system.

As indicated in this response, the capability of the SGTS to perform its safety function and mitigate the consequences of a Design Basis Accident is assured by the SGTS Modification under BA 402526. However, two deficiencies in the SGTS control logic have been identified. One deficiency is the automatic shutdown of the lead system fan after low-flow swap over operation to the standby system and the other is the annunciation of the low-flow alarm during manual operation of the SGTS. Although these are not safety concerns, they will be corrected. The engineering to correct these deficiencies is complete.

The applicability to OCNGS of NRC IE Information Notice #84-88 was evaluated, and the result of the evaluation indicates that the concerns identified by the NRC do not apply to OCNGS or they have been corrected by the SGTS Modification under BA 402526.

The SALP report indicates there are still problems with the SGTS as evidenced by three (3) LER's on the SGTS during the SALP period of 5/01/84 through 6/30/85.

The three LER's are:

1. 84-007 Failure to test SGTS within required time
2. 84-011 Both trains of SGTS inoperable
3. 84-018 SGTS #2 flow below Tech Spec Limits

Each of the identified LER's is discussed below. While requiring corrective action they are causally unrelative and we do not see any safety significance.

LER 84-007 This LER was a failure to test SGTS #2 within two hours of declaring SGTS #1 inoperable. SGTS #1 was declared inoperable because Emergency Diesel Generator #1 was intentionally removed from service for scheduled maintenance. Corrective action has been taken.

LER 84-011 This LER reported both trains of the SGTS were rendered inoperable for nine (9) minutes while performing preventative maintenance on a circuit breaker. Recurrence of this event is precluded by a modification which was in process at the time of the event and is now complete.

LER 84-018 This LER reported a low flow condition for SGTS #2. The apparent cause of the low flow condition could not be determined between the possibilities of a change in the system's damper position or maintenance associated with the process of a changeover to a new flow measuring device. Corrective action involved placing more attention on the manual positioning of the systems damper and the changeover to the new flow instrumentation which was completed during the last refueling outage.

Overall integrity of the SGTS was substantially improved during the last outage.

#### Comment

"One violation was identified during the assessment period and resulted from maintaining a reactor low water level instrument out of service during the performance of a surveillance test for greater than one hour per month as limited by the Technical Specifications".  
(Page 26 - Paragraph 1)



### Response

The finding is accurate. Our review of surveillance files indicated several violations of the one hour rule during the SALP period. All this occurred before the procedure was changed as a result of the LER. Review of times and dates verifies that the 28-day month used in surveillance scheduling, and the lack of direct control on each surveillance (Out-of-Service Sheet) both contributed. No problems since procedure revised.

### Comment

"During the assessment period, ten Licensee Event Reports (LER's) associated with surveillance testing were reported". (Page 26 - Paragraph 2)

### Response

Cause codes are not specified on LER's except for component failures; therefore, a judgement must have been made by the SALP Board. Our review of "Apparent Cause of Occurrence", results in a count of 15 LER's associated with surveillance testing. The statement "the most frequently noted cause or contributing factor identified in the LER's was the interface problems..." is simply not accurate. It is the cause for only one, the "missed" acoustics valve monitoring surveillance. On July 1, 1985 MCF Division took all production responsibility, reducing the interface risks here. Additionally, we have the benefits of independent review of surveillances by different departments and take corrective action before surveillance documents get filed. Our breakdown of the causes is as follows:

Procedural inadequacy/administrative controls - 8 LER's

- 84-007 Failure to test a standby gas treatment system train within required time.
- 84-016 Failure to functionally test all excess flow check valves.
- 84-019 Scram discharge volume drain valve closure failure.
- 84-022 Scram discharge volume vent and drain valves exceeded allowable closing time.
- 84-024 Reactor low-low water level sensor were inadequately surveilled.
- 84-025 Inadvertent initiation of Core Spray System during reactor low-low sensor calibration.
- 85-001 Reactor low-low-low level sensor out of service longer than permitted.
- 85-010 IRM setpoints exceeded Technical Specification limits.

Hardware problems including Instrument Drift, Equipment Failure, Biofouling - 5 LER's

- 84-018 Standby gas treatment system flow below Technical Specification limit
- 84-026 Emergency Service Water - Containment Spray negative delta pressure.
- 84-028 Failure of B and E electromatic relief valve to open.
- 84-031 Failure of main steam drain valves to operate
- 84-034 Two of four main steam line low pressure sensors out of spec.
- 85-011 Three out of four isolation condenser actuation pressure sensors out of spec.

Interface Problems - 1 LER

- 84-032 Missed acoustic valve monitoring system surveillance.

Comment

"Results of inservice testing has not yet been incorporated into the preventive maintenance program". (Page 27 - Paragraph 1)

Response

Plant Engineering generates Short Forms to take action based on IST results. They also send summary results to Plant Materiel for review, and consideration in PM activities. Plant Engineering regularly gets copies of PM program for review, and makes requests for changes as needed.

Comment

"Delays in the IST Program implementation have limited the amount of inservice testing data accumulated since the program was initiated late in 1982". (Page 27 - Paragraph 1)

Response

The main reason for lack of data accumulation was the major outage shutdown, when systems were unavailable for test, from January 1983 to November 1984. Since return to operation, all required data are being accumulated and effectively evaluated.

OYSTER CREEK SALP RESPONSE  
IN THE AREA OF RADIOLOGICAL AND  
ENVIRONMENTAL CONTROLS

(a) General Comments

None.

(b) Initiatives

In 1980, a major overhaul and upgrading of the on-site radiological program and the off-site environmental monitoring program was initiated at Oyster Creek. This upgrade was broadbased and involved substantial changes in organization, policy, procedures, equipment, and practices. In general, the goal was to implement a high standard of excellence and establish a high degree of credibility with workers, the public, and regulators alike. In the past five years we have continued to critique our performance in order to better achieve our goal. We feel we have made significant gains but we believe more improvement is both attainable and desirable.

A formal self-examination conducted in February of 1985 has confirmed our belief and established a basis for further improvement in the implementation of our on-site radiological program.

(c) Response to SALP Recommendations

No Recommendation.

(d) Response to Specific Comments in SALP Report

Comment

"The licensee has also implemented a formalized training program for the Radiological Engineering Staff Members." (Section B - Page 16)

Response

We have formalized Radiological Assessment Coordinator training in-house for our Radiological Engineers, and we have provided formalized Radiological Engineer training for many of our Radiological Engineers through an offsite facility. We plan to formalize Radiological Engineering training in-house, in a manner somewhat similar to that done for Field Operations and Support Technicians.

Comment

"For example, thirty candidates were interviewed for a radiological engineering position." (Section B - Page 16)

Response

Thirteen candidates were formally interviewed for this position.

Comment

"The entry into containment resulted in poor communications between operations, rad con, and maintenance personnel." (Section B - Page 17)

Response

The communication fault related to this event existed between Operations and Radiological Controls. We are unaware of any participation by Maintenance personnel. The problem was critiqued with the root cause established and corrected, prior to subsequent drywell entries being made. This incident is more fully described under our response in "Operations". (See Section D)

Comment

"The licensee should not be reluctant to benefit from other industry experience." (Section B - Page 19)

Response

We are not reluctant to benefit from industry experience. We participate actively in many industry wide initiatives, including NPRDS, NOMIS, INPO Workshops, INPO Industry Review Groups, NUMARC, etc., as well as active dialogues with other individual utilities. We send professional and supervisory people to other utility installations specifically to examine their practices. Relative to the West Valley to Oyster Creek fuel shipments, we were cognizant of surface contamination problems with stainless steel fuel casks prior to the event. We reviewed the problem both with West Valley and Commonwealth Edison prior to shipment of the fuel. All the provisions of the Commonwealth Edison Procedure, except the smear efficiency test, were implemented by us prior to delivery of the fuel. With regard to that test we had questions regarding its use due in part to a recent change to the DOT regulations. After the noncompliance and discussion with Region I, we implemented the smear efficiency test. Had I&E Information Notice No. 85-46 of June 10, 1985, been issued before the shipments, the efficiency tests would have been incorporated in the procedure because the notice clarified the DOT and NRC positions.

OYSTER CREEK SALP RESPONSE  
IN THE AREA OF MAINTENANCE AND  
OUTAGE MANAGEMENT

In October 1982 the Oyster Creek plant maintenance work force was integrated into the Maintenance, Construction and Facilities Division. This realignment was accomplished to provide:

- o Increased focus and attention by Plant management on operational and materiel matters.
- o Improvements in the accomplishment of maintenance and modification work.
- o Continued development of an improved maintenance management system.

Soon after that the Work Management System (WMS), which is GPUNC's program for managing modification and maintenance work, was introduced. Shortly thereafter the 1983/1984 Outage started.

The Systematic Assessment of Licensee Performance (SALP) assessment period included the latter stages of the 1983-1984 Outage, the transition to startup activities and a period of time during Plant operations, including other outages in support of Plant betterment modifications (Core Spray Logic Modification).

The period of assessment for this SALP saw the Plant come out of one of the most extensive overhauls in the history of the commercial nuclear power industry. The twenty-month-long refueling, maintenance and refurbishment outage substantially restored the Plant's material condition and its compliance with current requirements and standards.

The conclusion of the outage, the operation of the Plant with an availability factor that compares favorably with the industry average, and this SALP suggest that the objectives identified for consolidating the work force in Maintenance, Construction and Facilities are being accomplished.

We feel that we have made significant improvement in the maintenance process since the realignment, but also recognize that there is still much room for improvement in many areas, some of which have been identified in this SALP. We also recognize that the process is continually evolving and as improvements are recognized, additional changes may be implemented.

(a) General Comments

Fundamental to improving the conduct of maintenance is the establishment of a comprehensive systematic program. This program has been put in place. It is designated as the Work Management System (WMS).



The purpose of this program is to provide GPUNC management with the tools to insure that work is performed in a timely and cost effective manner and to allow any necessary corrective action based on effective schedule/cost reporting and analysis.

We believe it will be useful in your ongoing assessment in this area to have an understanding of our WMS system.

The WMS provides for:

- Integration of project planning between Engineering and Maintenance, Construction and Facilities.
- Effective coordination of support division activities.
- Proper definition of work scope.
- Controlled revisions to work scope.
- Effective and timely work closeout/turnover process.
- Schedule and cost reporting and analysis.

The Work Management System utilizes the following methodology to identify, control and integrate completion of work activities.

The Work Request is the principal work scoping document and authorizes project funding to the MCF Division. It establishes the work inventory and initiates the planning process.

Each Work Request is broken down into manageable packages of work called Work Authorizations. The Work Authorization is the fundamental element for schedule and cost control. In addition, it is the primary communications document between divisions.

For Important-to-Safety (ITS) jobs, an integral part of each Work Authorization is the Special ITS Requirements Document. It provides special plant input on nuclear safety considerations and work constraints. All input from this document is incorporated into a Work Authorization Installation Procedure and/or Job Order.

A Work Authorization Installation Procedure provides the applicable references, precautions, prerequisites, responsibilities and detailed step-by-step installation requirements that shall be adhered to in performance of a job. Each Work Authorization Installation Procedure receives a safety review, a technical review, quality control review and approval of the applicable Site Director in accordance with Technical Specifications.

The MCF Job Order is the primary work document and is the vehicle used to implement the Work Authorization Installation Procedure, if one has been prepared. Job Orders are issued to Production as discrete manageable portions of the Work Authorization and/or Installation Procedure Work Scope. It provides specific direction to the Production foreman and allows Plant supervision to have a status of working jobs.

Changes to work scope originally identified via a Work Request are controlled through a formal Revision Procedure. The scope, cost and schedule impact of each revision is identified and formal approval

obtained before incorporation into work control documents. The procedure also ensures all required safety reviews are obtained and a history of as-built conditions is recorded in support of configuration management.

The Closeout and Turnover Procedure ensures that proper work documentation, including work completion sign-offs and as-installed drawings, are maintained for document control. Any incomplete work items are identified and assigned to specific individuals or divisions for completion. Turnover notifications are utilized to transfer project responsibility to the testing organization or the Plant.

Project/2 (P/2), an automated Critical Path Method (CPM) Scheduling System, is used for scheduling, reporting and analysis. P/2, widely used throughout the utility industry, provides the capability to schedule thousands of interdependent tasks and allows for integrated resource and area planning. Work scope revisions are evaluated through P/2 for effects on resources and outage duration/critical path.

Project Cost Processor (PCP), an automated Cost Performance System, is used in conjunction with P/2 for project cost control. PCP utilizes work breakdown structures and job estimates to develop a value earned assessment and an estimate at completion (EAC). Used in conjunction with P/2, it provides the analytical tools needed to monitor and evaluate cost and schedule performance.

#### Identification of Work Requirements

The Oyster Creek Plant Division has prime responsibility to identify preventive and corrective maintenance requirements. Within the Oyster Creek Division, a Plant Materiel Department has been established to define maintenance requirements. The Maintenance, Construction and Facilities Division (MCF) is responsible for carrying out all maintenance and modification tasks utilizing either in-house personnel or by managing outside contractors. Routine corrective maintenance tasks are generally handled via an MCF Work Request. More complex maintenance tasks, inspections and modifications require engineering evaluations and specific instructions prior to work proceeding. Many day-to-day items are referred to the Plant Engineering Department within the Oyster Creek Division via a Plant Engineering Task Assignment. These assignments are tracked by the Plant Engineering group and often result in an MCF Work Request with specific engineering guidance.

Larger and longer term maintenance tasks and almost all plant modification requests are referred to the Technical Functions Division which maintains a corporate engineering, design and project engineering management staff as well as off-site chemistry and materials laboratory facilities. Work Requests to Technical Functions initiated internally by various GPUN Divisions/Departments are tracked via a Technical Functions Work Request (TFWR) System

operated by the Engineering Planning and Scheduling Section - TFWRs are assigned to lead engineering sections based upon pre-defined responsibilities for various plant systems and structures for engineering evaluation and disposition. Specialized engineering support for radiation and contamination problems is provided by the Radiological Engineering Section within the Radiological and Environmental Controls Division and support for welding and non-destructive examination techniques is provided by the Special Processes Section within the Nuclear Assurance Division.

Construction work is formally initiated via an MCF Work Request and transmittal of an installation specification; however, numerous planning meetings, plant walkdowns and other informal communications take place prior to transmittal of the formal Work Request. During the engineering phase, the Engineering Planning and Scheduling group issues "Engineering Work in Process" Reports showing the current schedule for various engineering milestones. Once construction has started, requirements for additional engineering additions or corrections are handled via Field Change Requests. The Engineering Planning and Scheduling group issues a "Field Engineering Work in Process Report" to track action assignments and required turnaround times on Field Change Requests.

#### Technical Support Responsiveness

MCF interfaces with the various functional divisions, utilizing the Work Management System and employs the Plant Engineering Work Request or Tech Functions Work Request through their supervisory planning efforts to identify in accordance with the functional divisions' requirements those actions necessary for MCF to carry out its function. During the performance of work, Field Change Requests and Field Questionnaires are initiated as required to support the work in progress. Timely response to actions requires constant attention by all personnel. The long-range planning effort recently established has allowed a boundary to be placed upon the work to be incorporated into a given time frame such that the resources necessary to accommodate that work can be better understood and identified. Where resources are insufficient to meet the demand, that work is programmed for another time frame or other arrangements are made to accommodate.

Upgrading the quality of personnel involved in modifications, repairs, maintenance, and surveillances requires action in several areas including training, selection process, and field assignment.

Direct field observation and verification of work activities by first-line supervision needs management attention. The addition of Job Supervisors to increase the MCF supervisory corps will aid in providing time for the first-line supervisor to be in the field. The supervision selection and screening process also needs to be finalized.

The GPUN Functional Management Organization has been maturing over the last few years. It is encouraging to note that the middle management has exhibited increased cooperation in the conduct of their assignments. However, MCF, in carrying out its functions, interfaces very closely with all groups and has been concentrating on team building in an effort to, by example, bring about a more cooperative attitude in support of its assignments. Additional effort in enforcing compliance with the Corporate Work Management System is being applied.

Divisional interface problems, when they arise, are of concern and GPUNC does address these on an individual basis and at the Corporate level. GPUNC recognizes that material availability requires the identification of material requirements so that procurement efforts can be initiated. The lack of availability of material for performing maintenance, when and as required, has to do with, not only the timely identification of material requirements, but also with the pre-planning, recognition and forecasting of parts required. Significant during the outage was the realization that some parts that vendors supplied had been modified over the years, although the information was not available to GPUNC. In fact, some material was supplied where the manufacturer had made a modification, retaining the same part number that was in the material parts catalog for the specific equipment on order and when received, met all requirements, but was dimensionally incorrect for the application involved. GPUNC is committed to an AMMS System to identify material requirements and have that material on hand and is also increasingly using the Preliminary Engineering Design Review (PEDR) to identify long lead time material and is coordinating with the Technical Functions Division and the Plant Engineering group to identify consumables required for maintenance so that the Materials Management effort in the Admin Division has on hand those items necessary to conduct required maintenance.

(b) Initiatives

We have identified the following categories of concerns from the SALP Report and have identified some initiatives that have been taken in specific areas as follows:

1. Communications
  2. Post Maintenance Testing
  3. Rework
  4. Maintenance - including Supervision, Training, Work, Quality
  5. General
1. Communications between and among the various groups located at Oyster Creek is essential in order to be able to conduct work and accomplish tasks.



- a. The coordination of activities between Maintenance, Construction and Facilities and Plant Operations is of the utmost concern. MCF work processes require Plant Operations to be knowledgeable of work activities and, in fact, participate in the release of work for performance prior to the performance of that work. To this end, daily meetings are conducted by MCF which Plant Operations personnel attend and the work that is to be performed and actions to be taken are identified and reviewed during the meeting. Problem areas are elevated to Plant Operations management for resolution and work is not conducted until such resolution is forthcoming and the work performance authorization is released by the Operations Dept.
- b. Maintenance, Construction and Facilities has, as a means of improving communications with various interfacing support groups who participate in the accomplishment of work, undertaken to incorporate where possible personnel from the interfacing group into the MCF work environment, e.g., maintenance personnel's understanding of the quality control function is being enhanced through the participation of quality control personnel interfacing directly with maintenance planning and management personnel to identify quality concerns at the very beginning of the work planning process. This heightened awareness early in the planning/management/supervisory phase of the maintenance process has resulted in a better defined quality procedure for field personnel to follow. The performance in the field reflects that input with procedure compliance and the quality of work performance showing improvement. Use of quality control personnel to conduct orientation seminars for maintenance personnel has commenced and is expected to continue as a means of providing quality awareness to the maintenance personnel to preclude shortcomings in work quality. Problems associated with the work are reviewed by quality personnel and corrective actions of a programmatic nature are developed and passed along to maintenance personnel.
- c. Adjustments in the organizational structure within MCF are being made to accommodate the need to supervise work and to bring such work into compliance with the Corporate Work Management System. The necessary controls to insure that work is conducted safely, properly, on time and within budget form the basis of the WMS and requires GPUNC supervisory personnel to be available to follow the work activities. This is being accomplished through the addition of qualified personnel and the temporary assignment of personnel from other functional divisions in support of MCF's responsibilities.



## 2. Post Maintenance Testing

A comprehensive Post Maintenance Testing Program which provides generic guidance to affected divisions for the conduct of Post Maintenance Testing has not yet been developed. Plant Engineering, in conjunction with MCF, has reviewed the present Post Maintenance Testing (PMT) practices and identified the need to provide technical support and guidance to personnel involved in the PMT decision process. MCF Planners, Job Supervisors and Area Supervisors involved in the PMT decision process have been instructed in the necessity to properly identify, require, and document PMT efforts. Development of an administrative procedure that will define PMT and assign responsibilities is underway and should be available in March 1986. Management attention is being applied to this area to ensure timely completion.

## 3. Rework

- a. GPUNC is concerned about the amount of rework that has been performed and is reviewing alternatives to improve this area. Included in the review process is the upgrade of craft personnel, upgrade of supervisory personnel, improvement in the technical direction received for the performance of maintenance, and the establishment of accountability for rework when it is appropriately identified and can be properly dispositioned.

In this regard we believe it is vital to identify the cause of rework. It can be improper specification of the work to be done as well as improper conduct of the specified work.

- b. We are also preparing a program that will identify and report rework as well as recurring maintenance on a periodic basis. It will identify the cause of the rework. This will insure that rework as opposed to recurring maintenance will be tied to accountability so that it can be properly dispositioned. The objective is to reduce the amount of recurring maintenance and rework being performed on both equipment and systems.

## 4. Maintenance

This category includes supervision of contractors, training, workmanship, attention to detail and Work Management System (WMS):

### a. Supervision of Contractor Activities

- 1) GPUNC has recognized the need to employ additional Company personnel to monitor and oversee contractor activities to insure compliance with Company procedures and regulations. To this end, GPUNC has provided an increase of personnel in the Maintenance, Construction and Facilities area and has instituted a program whereby GPUNC personnel from within the Company from different divisions may be temporarily assigned to the Maintenance, Construction and Facilities group in support of those functions during outages. For example, the IOM Outage had personnel assigned from various Functional Divisions to Maintenance, Construction and Facilities.

- 2) Additionally, the station and MCF procedure for the control of maintenance work while the Plant is operating requires that a GPUNC supervisor monitor work in progress to insure that contractor activities are conducted in such a way as to preclude damage to equipment or actions which may cause an interference with Plant operations or occasion a safety hazard to personnel or the Plant.

b. Craft Knowledge/Quality

GPUNC has previously recognized the need to develop and conduct necessary training. As a result:

- 1) GPUNC has developed a training program based on a job task analysis in the area of the Instrumentation and Control Technician, Electrical Maintenance Mechanic and the Mechanical Maintenance Mechanic. This training program places heavy emphasis on on-the-job training and a significant increase in the number of formal training hours for the individual craft has been recognized. This training program, implemented in 1985, was under development throughout 1984. The program, as defined, should result in significant improvement in the worker's knowledge and demonstrated ability through completion of the On-the-Job Training Assignment Sheets in his particular craft area.
- 2) The Training Program for the Instrumentation and Control Technicians has begun and individuals are being put through the classroom portion of the training on a not-to-interfere basis, as appropriate for outage requirements, and then placed in the field to continue the training through the on-the-job training portion. Approximately nine individuals have either been through the training or are currently engaged in this effort with significant accomplishments in the completion of the On-the-Job Training Assignment Sheets. The Instrumentation and Control Department has established a personnel tracking matrix that is displayed in the Instrumentation and Control Shop for personnel to note their progress in completing On-the-Job Training Assignment Sheets. Progress to date clearly shows that this activity is continuing at a high level and has the support of MCF management and specifically the Instrumentation and Control supervision. MCF expects to model other craft areas after the Instrumentation and Control Technicians to develop a positive attitude towards training.

- c. A Critique Report process to determine corrective actions relative to identified problem areas as defined by the MCF Site Director has been established. This process has been proceduralized, implemented and proven to be of benefit.

d. Training of Contractors

Familiarization of personnel with the station procedures and their specific requirements for the conduct of work is necessary: Immediately prior to the 10M Outage, contractor supervisory personnel and in-house personnel were provided the opportunity to participate in a three-day training session to acquaint them with site specific requirements. Emphasis was placed on the Work Management System (WMS), including documentation of work performed. Improvement in work performance and procedure compliance has been noted and personnel who are knowledgeable of site requirements are better able to perform their assigned tasks.

5. General

a. SIMS

Station Information Management System (SIMS) is an automated maintenance management system which is currently being customized for implementation at Oyster Creek.

It will provide:

- 1) A component data base containing equipment nameplate data, design characteristics and spare parts information.
- 2) On-line inquiry of Work Request/Work Order status by component, work center or system.
- 3) On-line electronic approval and processing of a work document through its life cycle.
- 4) Storage of maintenance history by task, component and system.
- 5) NPRD (INPO) reporting directly from the Work Order Data Base.
- 6) Visibility of maintenance backlog, priorities and approval delays.
- 7) Scheduling of Preventive Maintenance (P.M.) tasks and technical specification surveillances.

Terminals will be provided to Maintenance, Plant Operations, and Plant Engineering personnel. Approximately forty-five terminals will be installed throughout the site for system access. SIMS is scheduled for implementation by the Third Quarter of 1986.

This system will provide the ability to inquire on-line about the outstanding and/or scheduled work for a given piece of equipment or an entire Plant system. This system shall contain preventive maintenance, surveillances and unique O&M. One can ascertain the status of outstanding work for a component or system.

b. Self Assessment

GPUNC recognizes the need for self-evaluation and assessment on a continuing basis to identify areas for improvement and to exercise management control over actions of a continuing nature which will preclude degradation of satisfactory performances previously achieved or identify areas for improvement in the existing environment.

GPUNC utilizes individuals from the Functional Divisions in developing task force assignments such that the Functional Division input with respect to a given task is recognized, and the aspect of that division's responsibilities is included in the overall assessment that the task force generates. This has applied in the area of Plant Modifications, Specific O&M, and more recently in the Rad Con Evaluation for Oyster Creek. The mutual identification of problems and solutions generates an atmosphere more conducive to the carrying out of the defined corrective actions and has already resulted in improved communications among the Functional Divisions.

(c) Response to Recommendations

Comment

"Conduct an assessment of the maintenance area and discuss results with NRC." (Page 29 - Paragraph 2)

Response

GPUN will conduct an assessment of the maintenance area during 1986 and establish a schedule to review results of the assessment with Region I NRC personnel.

Assessment will include a review of previous SALPs in the maintenance area to identify common problems to be considered for review.

(d) Specific Responses

Comment

"Efforts should be made by all on-site management to make cleanup a part of every craftsman's job."

Response

During the assessment period the Plant underwent a dramatic change in its appearance. It has effectively been cleaned up and is being maintained in this condition.

GPUNC recognizes that, in the area of housekeeping, all personnel are involved and that a significant shift in the attitude of craft personnel is required in order to bring about the necessary improvement in this area. The ability to maintain the Plant in a proper cleanliness state is currently being achieved through management/supervisory controls and not through the everyday performance of craft personnel. Continued emphasis is being applied in this area by management/supervision, and a program for reviewing the individual craftsman's job-related accountabilities, specifically including the housekeeping aspect, will be undertaken by MCF supervision. Individual craftsmen will be held accountable, in accordance with the bargaining unit agreement, for their actions to correct performance not up to standards in this area.

While improvement is needed the current situation does not constitute a safety issue.

#### Comment

The SALP report contains many comments on EMRV's, specifically:

Page 3 - Line 16/17 "In addition two unexpected shutdowns were made to repair electromatic relief valves."

Page 11 - Line 21/22 "...and the failure of two EMRVs to open which necessitated a reactor shutdown."

Page 21 - Line 21/22 "...became evident during the electromatic relief valve (EMRV) repair activities."

Page 21 - Line 30/31 "...Significant problems have been experienced with the electromatic relief valves (EMRVs), ..."

Page 22 - Line 17/18 "... as a result of EMRV poblems which could have been avoided if the proper post-maintenance testing had been conducted."

Page 22 - Line 27/28 "...conducted a leak/actuation test of the electromatic relief valves (EMRVs) with nitrogen, ..."

Page 23 - Line 9-11 "The licensee's investigation of the EMRV inoperability revealed that steam leakage past the retainer threads caused the valves to malfunction."

Page 23 - Line 16/17 "----. Also, during the February shutdown period, EMRV flange leakage was discovered to be a significant ...."

Page 23 - Line 25-27 "----. The EMRV inlet flange leakage problems were indications of a lack of structured evaluation and poor communication."



## Response

Prior to the shutdown in question we had never experienced failure of an EMRV to open. Nor were we aware of problems elsewhere, having received no information from the vendor or other utilities of a potential problem and therefore we had no work to address this concern during the 1983/84 Outage. Of course when it did occur, we did go to industry to obtain information. When the problem was discovered, we believe it was addressed properly given the information available at each point in time as shown by the following discussion:

Pilot valve stem stroke required adjustment. The procedure was changed to activate the solenoids electrically while making the 3/16" pilot valve stem stroke adjustment. A stepped rule was devised to allow workers to measure the pilot valve stem travel of 3/16" in a more convenient manner. On November 7-8, 1984 the two (2) readjusted electromatic relief valves were tested. "E" EMRV was found to be leaking through the seat, and "B" EMRV did not operate. Following the reactor shutdown on November 10, 1984 to repair the "B" and "E" EMRVs, inspection of the "B" valve components (it failed to open) and test of the electrical circuit failed to disclose any obvious reasons for failure of that valve to operate during the test. A Job Critique was held which resulted in determination that the threaded valve retaining plugs should be seal welded to prevent uncontrolled steam path into the chamber under the poppet. In addition, since the operability margin of the remaining three (3) valves could not be determined, decision was made to seal weld all five (5) electromatic relief valves.

The pilot valve stem stroke was rechecked prior to any other work. It was found to be correct (3/16").

The main poppet was checked for ease of operation. The main poppet moved freely.

No major corrosion was found on internals.

Telecon to Nine Mile Point and Dresden Stations resulted in information of similar failures at their stations. Their failures were due to excessive leakage by disc retainer threads. Dresser informed these utilities to weld entirely the disc retainer in place to remedy this leakage.

NOTE: This type of leakage, if excessive, would allow equal or more steam into spring cavity than the pilot valve would relieve, thereby, causing a non-lift situation.

MCF conducted a "bubble" test on "B" EMRV disc retainer threaded area to see if leakage existed. This test proved there was excessive leakage.

Last overhaul of "B" EMRV was in 1980.

Previous work during the 1983-84 Outage on "B" EMRV consisted of installation of new inlet gasket (outage scope) and installation of new pilot valve assembly (hydro leak).

"B" EMRV worked properly prior to shutdown in 1983 and did not leak at all; therefore, its rebuilding was eliminated from outage scope.

Visual inspection of all disassembled "B" EMRV parts revealed no abnormalities.

The spring in "B" was found to be the old (weaker) type.

The "new" pilot valve on "B" showed slight discoloration upon disassembly, indicating that steam did blow off.

It was found that Dresser has designed new pilot valve parts and routinely sends these new parts as we (GPUN) order them; however, they did not tell us that we are only to use the new parts in matched sets (no mix and match).

It appears that the valve manufacturer, Dresser, did not notify Oyster Creek of the problems at Dresden and Nine Mile Point.

One of the problems with EMRVs is lack of repairability of tight reseating regardless of how well the main seat passes the nitrogen bench test (less than ten [10] bubbles per minute), the valves often fail to reseat tight at full pressure and temperature. This often requires numerous activations before they seat tightly and the discharge temperature settles around normal value. We think that the reason for that may be individual seating configurations and variances of poppets combined with their critical seat contact configuration. At times the valve discharge temperature fails to come down to the acceptable level and the valve needs to be reworked. In this case we find that either the seat is slightly distorted after the temperature/pressure transient or the seat is "nicked" by minute foreign particles caught in it, or both. In any case, no matter how good our PMT could have been, it could not have prevented these problems or the shutdowns necessitated by slight seat leakage.

On February 14, 1985 "A" EMRV inlet flange gasket was found to be blowing steam. That leak was not present during the 1,000 lb. inspection on February 2, 1985. That leak required Reactor shutdown for its repair. Replacement of "A" EMRV flange gasket was completed on the morning of February 17.

The 500 lb. inspection revealed the inlet flange gasket of "C" EMRV to be blowing steam. That leak necessitated Reactor shutdown for its repairs. It was also noted that "A" EMRV inlet flange was "steaming".

Although the EMRVs' inlet flanges did hold following the 1983/1984 outage, their sporadic and unpredictable leakage led to complete refurbishing of the flanges. Deteriorating performance of the flanges was thought to be caused by degrading sealing surface condition which reduced sealing margin.

The outage started on February 2, 1985 to perform modification on the Core Spray Booster Pump Instrumentation and was extended to repair two (2) EMRVs and re-machine five (5) EMRV inlet flanges. Three (3) restarts were attempted and each time various EMRV inlet flange gaskets were found to be leaking. Progressive tightening of the flange inspection tolerances and gasket crush requirements ended up with having to re-machine all five (5) inlet flanges on the steam header, replacing .125" thick gaskets with .175" thick gaskets with better circumferential fit and improved filler material. "D" and "C" EMRVs were overhauled as the result of not seating properly during the restart attempt on February 23, 1985. Engineering was closely involved in evaluating the problems, coming up with engineering solutions to achieve proper seal, and lending close engineering support throughout all phases of repair work.

The shutdown in question was for the purpose of Core Spray Booster Pump Instrumentation Modification and at the same time V-2-36 bonnet leak was discovered; it took several attempts to have it sealed properly. "D" EMRV inlet flange gasket was found to be steaming. EMRV inlet gaskets did in the past, on occasion, exhibit slight leaks and replacement was the cure for these leaks. At this time the leak was repaired by replacing the gaskets. That action was considered to be proper and normal. During the subsequent restart it was noted that V-2-36 bonnet was still leaking, "D" EMRV inlet gasket was tight, but "A" EMRV inlet gasket developed a steam leak. That gasket was replaced for the same reason as the one above. It was considered that temperature and pressure cycling of the spiral wound gaskets did contribute to the steam leaks. At the same time other EMRV flanges were retightened.

During the subsequent restart, "C" EMRV gasket was noted to be leaking steam, and V-2-36 was still slightly leaking. At this time a decision was made to inspect and readjust all gaskets to improve gasket compressions. During the inspection of gasket grooves, the condition of "B" EMRV gasket groove was determined to require re-machining. Remaining gasket grooves were judged to be acceptable. During reassembly of the valves, gasket thicknesses were chosen such as to give good compression.

During the subsequent restart, the first Drywell entry showed no EMRV leaks. After cycling all five (5) EMRVs at 1,000 psig, inspection of EMRV reflected no flange leaks. Reactor power was increased to accommodate CRD scrams. After that the entry was scheduled into the Drywell to inject sealant into V-2-36 pressure seal area. During power manipulations the Reactor scrambled on low Reactor water level.

During the subsequent restart, "A" and "C" EMRV inlet flanges were found to be leaking steam. A decision was made to re-machine all remaining EMRV gasket grooves for the best possible gasket seat condition and to obtain optimum gasket compressions; that was accomplished. In addition, special gaskets were installed for better centering in the grooves.

Feedwater Valve V-2-36 was the only significant contributor to the Drywell unidentified leak, and "D" EMRV inlet flange gasket leak was not contributing significantly to it.

#### Comment

Page 24 - Line 2-8 "----. A concern did develop during the assessment period with MCF bypassing QC holdpoints and performing safety-related work prior to QC awareness of the work activity, thus precluding QC from establishing holdpoints. This was the subject of a Quality Deficiency Report (QDR). MCF's lack of responsiveness to the QDR was the cause of an NRC violation. Management attention appears warranted to improve responsiveness to QA/QC program requirements."

#### Response

It has been recognized that in some cases responses to QA deficiency findings were not provided in a timely manner, and corrective actions not always implemented expeditiously.

MCF has established, in its Tech Support Section, responsibility to coordinate timely processing of QDRs, track progress of responses, and escalate to upper management deficiencies relative to lack of timely responses. QC monitoring of effectiveness of corrective actions provides independent assessment.

MCF has also issued a "Job Supervisor's Manual" and initiated training sessions for Supervisors where quality concerns are discussed.

#### Comment

Page 19 - Line 21/22 "....However, the licensee needs to address the issue of worker inattention to job details. ----"

#### Response

Attention of workers to the details of the job being performed by the worker is addressed in the pre-job briefings, reviewed during General Employee Training, and taken up with the individual worker when he demonstrates that he is inattentive to the details of the job. Supervision will continue to stress this area with their employees routinely and on a continuing basis.

#### Comment

Page 29 - Line 1-4 "There is a problem with craft personnel in that they do not feel cleanup is part of the job. This has resulted in occasional lapses in housekeeping that were quickly identified by operations management during their frequent tours of the plant."

#### Response

Tours of the Plant are conducted by management personnel from all of the functional divisions. The Off-Shift Tour Program has identified many housekeeping/cleanliness items. It took an effort on the part of all organizations on site and commitment of their management to put the Plant in the condition in which it presently finds itself. We take pride in what has been accomplished and intend to continue improvements in this area.



We are continuing to work on improving housekeeping in work areas and are making it a standard mode of operation. Housekeeping of work areas is presently a part of every job and MCF supervisors are being held accountable for failure to properly maintain the cleanliness of areas where work is performed.

#### Comment

Page 35 - Line 23-39 "The licensee's planned workload for the outage was large with regard to the number of licensee employees present onsite to supervise contractor work. The number of major jobs planned to be accomplished coupled with the number of unforeseen major maintenance actions strained the contractor and subcontractor management capabilities of GPUN. This was poignantly illustrated during the startup when major equipment failed to perform its design function despite maintenance conducted during the outage by contractor personnel. (Sections C and I provide more detail of specific equipment failure during startup.) The licensee has recognized this deficiency and has taken actions to reorganize onsite Maintenance and Construction personnel. Such actions include the assignment of a job supervisor to every major maintenance activity conducted by contractor personnel during the next outage. In addition, the licensee is planning to sequence the number of major modifications and job activities according to maintenance assets during the next outage. The effectiveness of this licensee action will be evaluated during upcoming outages."

#### Response

The 10M Outage which commenced in October 1985 was scaled to the assets available to perform work and to be managed. Personnel from other functional divisions were assigned to MCF to provide required management control over work assigned to contractors. Work not absolutely necessary to be accomplished which could have a deleterious impact on the successful completion of the Outage is not being accepted for inclusion in the time frame of this Outage. The initial start of the Outage was well controlled and the improved productivity of all personnel indicates that the proper planning had taken place and that that planning was adequate.

Plans are in place to assure an adequate match of GPUN management and supervisory resources with work load in the future.



OYSTER CREEK SALP RESPONSE  
IN THE AREA OF SECURITY

(a) Initiatives

GPU Nuclear has taken several significant initiatives in the security area that are intended to strengthen and improve the Security Program at Oyster Creek.

The following initiatives have been taken to strengthen the management support and organization effectiveness.

- ° The formulation of Security as an independent department. This has created a specific focus in the security related issues at the nuclear facilities while at the same time has expanded the capabilities of the Corporate Security staff.
- ° The establishment of a career ladder within the Security force. The Oyster Creek Security force is a company proprietary force and was established that way to foster high morale and loyalty. In order to assure career growth for those individuals who had the desire and capability, a career path was created within the Security Department by the addition of the Corporal, Lieutenant, SPO II and Security Analyst positions.
- ° Merit Pay for All Security Personnel - In an effort to reward and recognize outstanding performance, all Security personnel - including SPO's - are on a merit pay or pay-for-performance system. As part of the merit pay system, all Security personnel are given a performance evaluation at least once each year.

The following initiatives have been taken to strengthen the Security Operations.

- ° Self Inspections - At least twice a year, a self inspection team consisting of Security personnel from each nuclear site and Corporate Security perform an indepth review of the Security Program at each site. This program has been very effective as the self identification of areas for improvement, and at the same time, provides training and experience for the inspection team members.
- ° Security Directives - A system for the rapid issuance of orders and management guidance has been established.
- ° Psychological Screening for Contractors - Effective November 1, 1985, all contractors requiring access to the protected area are required to be psychologically screened. This company imposed requirement was backfit to include all contractor personnel and was completely implemented by November 1, 1985.

- ° Fitness for Duty Training - In recognition of the unique position of the Security force to observe all personnel entering the protected area, all security personnel have received Fitness for Duty training.
- ° Security Planning - In an effort to better manage resources and ensure a high level of security, the Site Security Manager provides input to Corporate Security management for his short term and long term (Five Year) needs. These needs are incorporated in a plan which is updated on an annual basis. This planning includes as an example; a program for upgrading the access control computers at Oyster Creek, then TMI and a program for the phased upgrading of the Intrusion Detection System at Oyster Creek and TMI.

GPU Nuclear will continue to aggressively pursue these and other initiatives in its effort to ensure that the Security Program and its implementation is as effective as possible.

(b) General Comments

The Oyster Creek SALP report recognizes the improving trend in the Oyster Creek security program and the fact that all deficiencies in the security program had been identified by GPU Nuclear programs and inspections.

(c) Responses to Recommendations

Recommendation (Section G - Page 34)

Elicit commitment from licensee to establish and implement a security equipment Preventive Maintenance Program.

Response:

The need to establish and implement a formal Preventive Maintenance Program for the Oyster Creek security system was previously recognized by the Security Department and subsequently incorporated into the department's goals and objectives program. Since that time, significant progress has been made in resolving this issue.

Currently, a Preventive Maintenance Program, which addresses approximately 50 percent of the security equipment, has been implemented. As an adjunct to the Preventive Maintenance Program, the Security Department, in concert with the Technical Support Departments, has assessed some of the security equipment to determine if it is more effective to repair or replace the equipment with high failure rates. As a result of this assessment, the personnel search equipment, CCTV units, TV monitors, intrusion detection hardware and other hardware are being replaced in a prescribed schedule.

An ongoing effort to develop and implement the remainder of the program has continued to make progress and we anticipate full implementation of the Oyster Creek Security Preventive Maintenance Program by the end of January 1986. All new equipment will be included in the Preventive Maintenance Program.

#### Recommendation

Action should be taken to eliminate nuisance alarms. (Section G - Page 34)

#### Response

The need to reduce the frequency of nuisance alarms was previously recognized by the Security Department and subsequently incorporated into the department's goals and objectives program.

Having determined that the Oyster Creek environment is not conducive to the Motion Detection Unit (MDU), a portion of the Oyster Creek protected area perimeter was recently equipped with a combination of several state of the art intrusion detection systems to evaluate their effectiveness as a replacement for the MDU system. Although the new systems have only been in operation for a short period of time (approximately two months), the initial evaluation has been encouraging.

In terms of reducing vital area door alarms caused by differential air pressure, the Oyster Creek Security Department, with the assistance of Plant Engineering, is currently addressing this issue. Corrective actions already taken include: (1) a survey to identify problem vital area doors and (2) the development and distribution of written vital area access instructions to employees. In addition, because we feel the problem is not limited to Oyster Creek, we are currently canvassing the nuclear industry via NOMIS to determine how others are addressing this issue.

#### (d) Responses to Comments

##### Comment

Need for management to further assess and correct the root cause of inattentive guards. (Page 32 - Paragraph 2)

##### Response

The report indicates that there were three instances of inattentive guards during the reporting period. The Security Officer's employment was terminated in each instance. Further, that during the period when the violations occurred, the Oyster Creek Security Department had been maintaining five fixed, 24 hour, seven day a week Security posts along sections of the protected area boundary for several months. After the two incidents in September 1984, it became apparent that the inherent boredom associated with the post duties was a root cause for the inattentive guards. Since that time, the Security Department has initiated actions, i.e., hourly radio check, increased post rotation, and increased supervisor patrol checks. In any case, current projects to upgrade the

protected area perimeter intrusion detection system will eliminate the need for the fixed posts during 1986. Lastly, the discovery of the inattentive guards was the result of alert and responsible Security Department supervision. The factors contributing to these incidents have been or are being taken to minimize the likelihood of future incidents of this nature.

Comment

"The lost badge incident received reasonably prompt and comprehensive attention by site and corporate security management after it was brought to their attention, it was not reported to the NRC in accordance with NRC regulations." (Page 32 - Paragraph 4)

Response

The GPUN position on this incident was discussed in a management meeting held in Region I offices on June 17, 1985. Also discussed at this meeting were the corrective actions taken by GPUN to strengthen the Security Badge Control systems.

OYSTER CREEK SALP  
RESPONSE IN THE AREA OF  
TECHNICAL SUPPORT & LICENSING

Scope of Technical Support

GPUN considers the general subject of technical support to be a significant program element and one of the major focuses of the GPUN organization which is structured to provide the maximum technical involvement and support of all aspects of operations. This section of the SALP response covers the area of technical support including Sections I. and J. of the NRC assessment (i.e., Technical Support and Licensing) plus some additional topics related to planning. Both the Technical Support and Licensing areas received scores of 2 with the identification of both some good practices as well as specific problems.

(a) General Comments

Technical support within GPUN has a broad involvement in, and responsibility for, plant performance. Within the GPUN organizational framework both the Technical Functions Division as well as the Plant Engineering Group within the Plant Division have significant responsibilities in the technical support area. In addition to responding to plant operations requests these groups have independent responsibilities for identification and resolution of technical problems. The Technical Functions Division, in particular, has the responsibility to assure the technical adequacy of the plant and GPUN activities and to maintain configuration control. As a result of this independent responsibility, the technical groups are substantially involved both in decision making and direct plant support. For example, some of the activities undertaken in the technical support area include preparation of, review and technical analysis for operating and emergency procedures; initiatives on significant plant upgrading; maintenance of plant licensability; plant performance analysis/industry experience assessment including initiating corrective actions at the plant; trouble shooting in support of equipment performance problems; providing qualified STA's; technical review of operator and other training material; maintenance of major technical data bases such as drawings, manuals, equipment lists, QCL lists, etc.; spare parts provisioning; independent plant trip and other operational assessments; and long range operational and outage cycle planning.

The NRC technical support assessment concentrated principally on issues associated with modifications, equipment troubleshooting, backfitting of prior NRC bulletin work, licensing and general responsiveness to NRC initiatives. While these areas are important parts of technical support, they do not encompass all, nor a majority of, technical support activities as defined at GPUN. GPUN believe that full NRC understanding of the scope and perspective of our technical support would be helpful, and we would encourage dialogue between GPUN and Region I on this.



Some observations in the NRC SALP review concerned items previously recognized by the Licensee and for which we believe corrective action is in place. However, because of the long time frame needed to obtain visibility of corrective action, that measurement doesn't come within the one or one and one-half year SALP review period. For example, comments made about the significant number of Field Change Requests and Field Questionnaires observed during the 1983/84 outage, we believe, have been effectively addressed, but the results of those actions will not be quantitatively visible until probably after the 1986 refueling outage.

(b) Initiatives

A broad issue raised in the SALP review was the question of responsiveness of technical organizations to the plant needs. As identified above, the technical groups in GPUN are charged not simply with being responsive to requests from the plant but to step back from day-to-day plant matters and take a longer term view of plant and material needs, then to take the initiative on a broad range of technical and material improvements. Some of these initiatives over the past few years, now coming to fruition, include the following:

o Major Plant Physical Upgrading

Several years ago the technical groups undertook a comprehensive review of the long term plant needs. This review was conducted by the GPUN technical organizations with support from General Electric and MPR Associates. The assessment identified over 300 significant areas for plant upgrading. These upgrades included both issues driven by regulatory concerns as well as Company safety and operability concerns. At the completion of the 1983/84 refueling outage, some 35% of these had been accomplished, and at the end of the 1986 refueling outage, we believe some 65-70% will have been completed.

o Symptom Oriented Procedures

On returning from the 1983/84 refueling outage, the plant was operated under a set of new symptom oriented emergency procedures. It was the technical support groups which interacted on the basic development of the procedural guidelines within the BWR Owner's Group, wrote the plant specific guidelines, technically reviewed the procedures and provided as needed basic analytical confirmation of procedural requirements. This overall activity included human factors input, review and walkdown of the procedures with the operators on a control room mockup and a simulator, and significant input to training to ensure proper operator utilization. We believe that this initiative has contributed substantially to operational safety.

o Improved Timeliness of Regulatory Submittals

GPUN has been conducting a program designed to improve the timeliness of regulatory submittals. The program includes emphasis on

- Improved efficiency in the handling process
- Early identification of problem areas
- Greater communication during the formative stage
- Sensitivity to responsibilities by the affected individuals
- Increased management awareness.

Over the last year there has been an improving trend in this area. The proportion of late submittals is declining and the average lateness is reduced.

o Plant Analysis/Experience

The technical groups provide an ongoing analysis of plant performance which includes the efficiency of the plant, availability issues with the plant, post trip review including root cause determination, and assessment of industry experience including its applicability to Oyster Creek. These activities include not simply the performance of the assessment but the initiation of corrective action whether it be changing procedures, changes in plant maintenance practices, the priority of system or equipment modifications or impact on training.

o Plant Modifications

The technical support groups have provided the initiative and resources for many of the major modifications at the plant. This includes torus protective coatings such that pure water rather than chromate inhibited water can be used in the torus; a major upgrading to the plant computer system which will commence operation at the end of 1986; major upgrades in the existing radwaste processing systems including process testing and provisions for long term controlled interim waste storage; a new chemistry laboratory; the use of computer monitored core power shaping; and a large number of similar type projects. While some of these modifications are in response to NRC regulatory issues they are increasingly the result of independent technical assessments of operational needs or needs identified by the operating staff. All of these plant upgrades are directed toward increasing operator confidence in plant equipment, allowing plant operations to more carefully and safely control the plant, and generally contribute to future long term safe operations.

o Long Range Planning

During the SALP review period, the Company put in place within the technical support area an activity to provide longer range planning for plant modification and maintenance work to be performed during outages and operating cycles. The planning has the objective to clearly identify and prioritize work scope, provide a Company focus for the various Divisions' functional activities and thereby improve the efficiency of the actual conduct of the work and minimize outage duration. The results of this longer range planning were not apparent during the SALP review period, but early indications from the October mini-outage are clearly identifying its effectiveness.

GPUN believes these and many other initiatives are clearly the result of an active problem solving attitude on the part of the technical support organization. There are checks and balances, for quality, safety and setting of priorities, built into the technical support organization which sometimes can, on specific problems, give the superficial impression of non-responsiveness. There is not, however, an insensitivity to operational problems, and it is clear management policy to provide high quality, conservative, safety oriented technical support.

In summary, we recognize the concern raised in the NRC SALP review. Action had already been taken on many of them and the balance are being examined further. We also believe future NRC reviews need to more fully assess and consider the total breadth and depth of technical support at GPUN.

(c) Response to SALP Recommendations

"Management involvement is needed in deciding on dates to respond to licensing actions and in meeting those dates."  
(Section J - Page 43)

Response

The improved long term planning process initiated in the fall of 1984 will increasingly be useful in establishing priorities and allocation of resources. In addition, division management will provide additional guidance including direct involvement, as appropriate, in the establishment of future licensing commitment dates. Division management will also renew the emphasis on performance to meet established commitments including periodically meeting with tasked first line supervision for the performance of work supporting licensing submittals. The objective will be to further reduce both late commitment responses and backlog of open items. We will continue to meet with the NRC to review status, prioritize, and seek other opportunities to simplify and speed up the resolution of Licensee/NRC licensing actions.

(d) Response to Specific Comments in SALP Report

Comment

"..., the facility Technical Specifications, have, on a number of occasions during the assessment period, been noted as being difficult to interpret or ambiguous".  
(Section IV, A, 2 - Page 14)

### Response

GPUN agrees that the facility Technical Specifications need improvement with respect to both generic and plant specific aspects. We have been accumulating plant specific items and are working with the BWR Owners Group in the generic area. Once the Owners Group establishes their schedule we will establish ours so that a coordinated revision can be accomplished.

### Comment

"... [T]he licensee had assembled a task force to review the applicability of Generic Letter 83-28 to Oyster Creek, that the task force had completed its review and made recommendations, but that six months later, no action plans were available to demonstrate licensee action or scheduled action to implement the task force recommendations." (Section IV, I - Page 38)

### Response

The task force was formed by GPUN in March 1983, in response to the Salem ATWS event, rather than GL 83-28. Also, the task force investigations were GPUN wide rather than restricted to Oyster Creek. The report of the task force included 27 recommendations, many of which were well beyond the scope of GL 83-28. Our latest review indicated that all 27 are at least partially implemented and that over 1/2 of these are fully implemented.

GPUN considers that we were well in front of NRC requirements on this item and that we are currently in much better condition than we would have been if we had waited for NRC direction and then simply complied. We have responded to NRC direction plus taken other actions that we believe appropriate.

### Comment

"During this evaluation period, a major effort was made by NRC inspectors to address licensee action taken on old outstanding NRC inspection findings. This effort resulted in the discovery that the licensee's action item tracking system to address NRC items was incomplete and that inter- and intra-divisional responses to the Technical Function's Licensing Division's action items were, in many cases, late and superficial. In response to this NRC concern, the licensee implemented a task force to review the status of NRC open items and improve the adequacy of the responses." (Page 38 - 2nd paragraph.)

### Response

In early 1985 the new NRC Resident Inspector identified that there were 242 open NRC follow-up items (items identified in NRC Inspections, IE Bulletins and Circulars) going back as far as 1977 and not yet closed out by the NRC. Members of the Licensing and QA organization were assigned to assist in improving this situation.

### Response

The analysis in question was being conducted because it was recognized that the bulk temperature in the drywell was exceeding 135°F that was identified in the FD&SAR and the FSAR as a starting condition of an accident analysis. The analysis showed that even with a starting temperature of 150°F the design conditions of the drywell were not exceeded, and it was concluded that an unreviewed safety question did not exist, and the appropriate procedure could be modified per 10 CFR 50.59.

### Comment

"Inspection activities have shown that generally adequate technical support is provided to plant operations, although corporate engineers' responsiveness to operating problems is of concern due to their inconsistent sensitivity for timely support. However, in the design of the new scram discharge volume drain valves, the incorrect specification of the valve operator closing spring caused the valve to reopen following a MSIV closure scram. Additional problems have been experienced in the installation of modifications resulting from poor designs, design evaluations, specifications, and as-builts. Examples include drywell equipment drain tank heat removal, control room instrumentation, recirculation pump seal flow switches, Radioactive Gaseous Effluent Monitoring System, and sequence of events recorder. Additional effort is needed to improve overall technical support performance to eliminate adequate designs."

(Section IV, I - Page 39)

### Response

GPUN agrees that instances of inadequate technical performance have occurred. There were special circumstances associated with some of the examples cited.

For example, problems with the cooling modification to the drywell equipment drain tank arose primarily because the existing equipment was unavailable for inspection or test during plant operation and the existing pumps were found degraded from debris from the Equipment Drain Tank.

Nevertheless, Technical Functions has taken several steps to avoid similar problems in the future. Those steps initiated in 1983 were not fully in place for all the work done during the assessment period. They include improved design reviews, more emphasis on plant walkdowns where feasible, and assignment of greater accountability to external engineering organizations for the adequacy and accuracy of their technical work.

### Comment

"Management involvement in licensing activities is evident, in that, reviews have been generally timely, thorough, and of good quality. One exception to these generally good quality reviews was the proposed amendment on water quality studies in the Appendix B Technical Specification." (Section IV, J - Page 42)



#### Response

We agree that the proposed Technical Specification Change Request (TSCR) on water quality studies was deficient in that the significant hazards discussion did not address all changes contained within the proposed amendment. TSCR's are normally prepared by the Nuclear Licensing section within GPUN. This submittal, because of the subject, was prepared by the Environmental Licensing section. Although, highly qualified in their field, they were not totally familiar with the appropriate format of a TSCR.

At the meeting held on October 24, 1985 between the State of New Jersey, the NRC, and GPUN, we expressed our intention to submit a TSCR which would delete the majority of Appendix B from the Oyster Creek License and Technical Specifications. This is based on the fact that most Tech Spec requirements duplicate those in the NJPDES permit and that there is extensive data that has already been developed for certain environmental monitoring programs, that eliminate the need for many of the requirements. The submittal will be prepared by the environmental section, however, to ensure format and content are appropriate, the submittal will be reviewed by the the nuclear licensing section prior to submittal. This should eliminate any future submittals of this type in the future.

#### Comment

"Prior planning and the assignment of priorities by management is also evident except for 1) the implementation of the Post Accident Sampling System, 2) the request for the schedular extention to 10 CFR Part 50, Appendix H, and 3) the delay in the documentation of work that the licensee believes should be deferred from the Cycle 11 refueling outage of the Cycle 12 refueling outage." (Section IV, J - Page 42)

#### Response

We agree that better planning within GPUN could have avoided the examples identified above. Preparation and submittal of documents under exigent circumstances, taxes resources and detracts from the planned activities of both GPUN and the NRC. As stated in the assessment, GPUN management has properly planned and prioritized the majority of licensing items, and we believe an improving trend will be noted in the future.

#### Comment

"Within the licensee organization, licensing positions are identified, authorities and responsibilities of the licensing group are well defined; however, the licensing staffing is at best adequate because there are difficulties with the backlog and with timely responses from the licensee to the staff. Also, there is a need to strengthen the authority of the licensing staff within the licensee's corporate organization to improve timeliness of responses to GPU Licensing and in turn to the NRC." (Section IV, J - Page 42)

### Response

Although improvement has been noted since the last SALP assessment, we agree with the concerns expressed with the backlog of items and timely responses from the licensee to the staff. Some specific corrective actions for these concerns are addressed in our response to the Board's recommendations. The following addresses the recommendations of authority and staffing for the licensing organization.

Timeliness of submittals involves not only the licensing department, but to an even greater degree other responsible departments within GPUN.

We believe the authority of licensing staff as currently defined is appropriate. They have responsibility and authority to identify and prioritize regulatory items for upper management action.

GPUN will address the staffing level concern identified in the report as one possible factor in the corrective action for the backlog of items and timeliness of responses. As identified in our response to the 'board recommendations', GPUN management is committed to improvements in this area.

### Comment

"..., [T]he licensee's changes were indicated throughout the page revisions to highlight and facilitate the review. However, summary of changes to ensure clarity of intent was not provided. This substantially hindered Region I's timely review. (Page 43 - Paragraph 1)

### Response

We have attempted in our submittals to specifically identify the changes being proposed in a clear, concise manner. While not a specific regulatory requirement, we do agree that a "Summary of Change" form does facilitate both management and NRC review. Future proposed revisions will contain a summary page to facilitate Region I's review.

If other, issues such as the summary page are substantially hindering Region I's reviews, we would welcome having you identify them during our periodic reviews or at any time rather than waiting for the SALP assessment.

OYSTER CREEK SALP RESPONSE  
IN THE AREAS OF SAFETY REVIEW  
AND QUALITY ASSURANCE

(a) Initiatives

Initiatives for improvement by the Quality Assurance Department derived primarily from a detailed self-review with feedback from executive management. Initiatives taken during the past year have included:

- o greater emphasis on equipment maintainability and performance through quality control;
- o development of quality engineering standards to enhance inspection planning and engineering document reviews;
- o expansion of quality control into areas not directly safety related but requiring high reliability;
- o training of the audit staffs in problem and management analysis techniques;
- o development of statistical sampling techniques.

These initiatives were and are cumulatively directed towards improved management reporting, inspection planning, program assessment, problem detection and analysis and the expansion of QA program application. These initiatives are a direct result of the Quality Assurance Departments efforts to assess the need for and provide improved methods to enhance the effectiveness of its own as well as GPUN activities.

Initiatives in the Safety Review Process

One of the lessons learned from the TMI-2 accident was that there were substantial problems with the committee process for safety review (the PORC process). In testimony to the ASLB, and described to ACRS and the commission, a revised safety review process developed by senior technical management was described as part of an overall safety review program. This safety review process (SRP) seeks to emphasize the GPUN philosophy that the first line of reliance for safety is having whoever is doing the job feel and accept the responsibility for safety, and then to perform a 100% review by someone other than the person doing the work. This function is assumed, primarily, by the various functional groups established within GPU Nuclear.

The new safety review process provides:

- a. Strong emphasis on responsibilities of the line functional organization which is the foundation of GPUN.
- b. Knowledge and responsibility closer to the action being evaluated.
- c. Assignment of the review activity to the responsible functional organization within GPUN.

- d. A better utilization of plant staff resources. Senior plant staff have more time to manage day-to-day activities for which they are responsible.

While we are continuing to refine the process and assure full understanding and effective implementation throughout all parts of GPUN we are convinced it is sound and significantly better than the previous PORC process. We have installed it, with ASLB and NRC knowledge and approval, at TMI-1 in August 1982 and at Oyster Creek in February 1984.

(b) General Comments

We believe specific comments on Quality Assurance in the SALP assessment confirm the breadth and overall effectiveness of the GPUN QA Program. However, we have made a careful review of the entire SALP report to see what else we may need to do to continue to provide more effective control of the quality of GPUN work activities.

(c) Response to Recommendations

"Evaluate effectiveness of the new on-site (sic) safety review process as compared to the old."

Response

The value of an evaluation of the effectiveness of the SRP at Oyster Creek was recognized by GPUN prior to receipt of the SALP Report. This was identified as an accountability of a Safety Review Coordinators Meeting on September 12, 1985. It is intended to be performed three to six months after implementation of the revised 1000-ADM-1291.01 Safety Review Procedure.

In addition:

1. Audits have been conducted by Quality Assurance personnel to assure compliance with the established procedures which implement the program. These have been conducted on a periodic basis throughout the assessment period. Action is underway to correct deficiencies noted.
2. Safety Review Coordinators from different divisions meet frequently to discuss the SRP, including process effectiveness. This provides an overview of the SRP with perspectives from various disciplines and functional responsibilities. This provides synergy to the review and development of the safety review process.

(d) Response to Specific Comments in GALP Report

Comments

"However, although QA/QC findings are generally perceptive and informative, it appears that the QA organizational responsibility is perceived to be limited to the identification of problems." (Page 9)

"Accordingly, QA effectiveness is not fully realized." (Page 9)

Response

The QA Department's mission is not limited to identifying deficiencies. They are responsible to follow up until items identified are corrected. The results of the QA Department activities are effectively utilized by management. Management has and continues to consistently request Quality Assurance support and leadership in the resolution of major problems.

During the report period increasing attention was devoted to assuring that open findings were being addressed in a timely way. This included more aggressive use of the 'escalation' procedure to assure senior management awareness and attention.

The results of our efforts indicate that GPUN knowledge of regulatory and QA program requirements, procedural programs, and management controls have benefitted. On-going improvements in material management, maintenance of security equipment, control of modifications and the reduction of the number of open licensing action items are specific examples of the benefits derived.

Management has also initiated and endorsed an expanded application of QA Plan controls and increased Quality Control involvement to selected balance of plant components.

Comments

"Followup by either QA/QC or management is needed to ensure that adequate and timely corrective action is taken." (Page 9)

"Similarly, QA/QC findings that do identify problems need to be brought to management's attention quickly and pursued aggressively." (Page 9)

Response

GPUN has been focusing on these concerns. The volume of deficiencies identified and resolved, as well as improving trends indicate that substantial progress has been made and corrective actions taken have generally resolved previously reported deficient conditions. We will strive for further improvement.



Over a four year period, approximately 3000 Material Nonconformance Reports and Quality Deficiency Reports and 400 Audit Findings have been closed. Escalation has been utilized to assure prompt resolution. Instances of lack of management response, inadequate response, tardy completion, and/or tardy QA followup have occurred. This will receive continuing attention.

While the scope of QA monitoring and auditing activities has remained constant, the number of deficiency reports written has decreased. The timeliness of response and the timeliness of completion of corrective actions have improved. The number of open items and the durations the items have been open have and is continuing to be reduced. All deficiencies are openly reported and they are not closed out until the issues, even small ones, are resolved.

Management continues to focus on root cause identification and completion of action(s) to resolve deficiencies. QA has initiated actions to assist management in further improving these areas.

#### Comment

"Problems need to be highlighted and pursued, such that appropriate and timely resolution can be achieved." (Page 9)

#### Response

A monthly report to the Oyster Creek Plant Director identifies significant events, problem areas, and concerns. Various special reports are also prepared which analyze results and highlight areas needing improvement. Bi-weekly significant event reports to the Nuclear Assurance Division Director provide additional detail on the activities of the QA Department and performance of GPUN work activities. The Director of Quality Assurance makes quarterly presentations to the GPUN Board of Directors in which he has an opportunity to get senior management attention to any persistent, unresolved quality problems.

#### Comment

"In this regard, for example, QA audits that focus on very narrow issues detract from managements ability to be aware of broader problems such as interdisciplinary communications." (Page 9)

#### Response

GPUN does not believe that QA audits detracted from management's ability to be aware of broader problems. Such a situation is prevented, we believe, by the design and conduct of audits, the total sources of information utilized by GPUN to assess its activities and GPUN management initiatives taken to continuously improve the conduct of our activities and respond to major industry and regulatory initiatives.

The conduct of audits has been and remains consistently comprehensive. This conclusion is partially supported by the SALP report. The results of audits have addressed, reported, catalyzed and helped the resolution of major programmatic problems, deficiencies, and management issues. Audits are designed and conducted to continuously assess organizational interfaces through a review of program implementation. Audit reports are detailed and balanced and help place deficient conditions, whether real or perceived, into perspective for further management review and/or action.

Initiatives have been taken and are continuing to further improve the audit process through the application of problem and management analysis techniques. These initiatives should result in improved problem detection, problem analysis, and audit finding response evaluations.

The information derived from the audit process is augmented by other GPUN, industry and regulatory initiatives. GPUN management has formed task forces of senior management personnel, conducted management seminars and conducted special evaluations to further improve the conduct of our work activities.

#### Comment

"This type of review has eliminated the synergistic effects that result from a group type process, such as the old PORC, and does not appear as effective. During the last assessment period, it was noted that review process took a significantly long time." (Section A - Page 12)

#### Response

Synergistic effects are not eliminated. It is recognized there are benefits from inter-disciplinary meetings. Inter-disciplinary reviews are sought and encouraged, as needed. The Safety Review Manager has conducted Plant Review Group inter-disciplinary meetings to review issues which require such meetings. However this type of review is very inefficient on items which are not complicated and simply don't need committee review.

The perception that the SRP is not as effective as the PORC process does not appear to be supported by statements in the SALP Report. We believe the SRP provides a more effective review because:

- a. The Safety Review Manager reviews the content of the document requiring review. Based on the content of that document and his knowledge of the experience, training, and education of certified individuals, he assigns a reviewer. This results in reviews which have more technical depth and completeness than those obtained in the PORC process.
- b. Reviews are assigned and done in the normal work flow. Since time is available to perform the detailed review utilizing support documents, the result is an improved product. The pressures of having 3, 4 or 5 other people waiting on an individual to perform a review are eliminated. Also, time is not wasted by those other individuals awaiting completion of the review.

With increasing attention on fully understanding root causes and all implications of proposed actions the review process may take a "significantly long time". While we are working to have the process proceed more efficiently we do not believe there has been an adverse effect. Our perception of the time impacts of the process follow:

- a. As provided in procedures, the PRG can be convened to review a critical issue and provide a determination to the Director, Oyster Creek. The Director, Oyster Creek can then approve implementation in a short period of time.
- b. The perception of "significantly long time" may apply to a small sample of the total population of reviews conducted with the process. However, in general we believe the process, overall is timely. This is based on the following:
  - i) The SRP allows a larger number of qualified individuals to be utilized for reviews. This allows many more reviews to take place in parallel.
  - ii) Considering the total number of reviews, the mean time to completion is believed to be shorter.
  - iii) The backlog of reviews to be completed has been reduced since implementation of the new SRP. This is to be compared with that which existed under the PORC methodology. The previous SALP identified the backlog as a concern and recognized the change in the process from PORC to SRP as a method for reducing this backlog.

#### Comment

"A concern did develop during the assessment period with M&C bypassing QC holdpoints and performing safety-related work prior to QC awareness of the work activity, thus precluding QC from establishing holdpoints." (Section C - Page 24)

"In addition, communication with and responsiveness to QA/QC requires improvement at all levels of onsite M&C management." (Section C - Page 24)

#### Response

The concern identified was several examples of hold points assigned by QC being bypassed by production (i.e., the work proceeded without the QC inspector there to perform the inspection). These examples were primarily from work performed under contractor supervision during the 1983-1984 outage. This violation was identified in your inspection report #50-219/85-15. Specific corrective action to the violation was identified in GPUN's response dated 8/2/85. While any missed hold point is of concern: (1) the QDR examples represented only a few missed hold points out of several thousand hold points applied and properly inspected, (2) the

failure to promptly resolve one identified problem out of hundreds does not represent significant management inattention to problem resolution, and (3) in each case of a missed hold point, either the inspection was performed or a material nonconformance report was issued and dispositioned by Engineering.

QA will continue to actively interface with MCF. MCF is committed to improving the attention and responsiveness to quality problems and improvement is being made.

#### Comment

"Although QA was not specifically mentioned in the analysis, the fact that the problems exist and remain uncorrected reflects inadequate QA performance." (Section I - Page 40)

#### Response

This comment seems to be addressed to the Technical Support area. First, the basic responsibility for conducting activities properly and correcting deficiencies rests of course with the line organization not QA. Management had taken and has continued initiatives prior to the assessment period to address the apparent specifics. These initiatives have included the formation of task force groups of senior management, the implementation of long range planning, the use of management seminars to address communication and organizational efficiency, and the increased use of Preliminary Engineering Design and Operability, Maintainability and Constructability review meetings for plant modifications. QA participated in these and other ongoing improvements.

This participation was in addition to our QA Engineering document reviews and corporate monitoring and audit activities which have and continue to focus on the conduct of technical support activities. QA initiatives in improving our auditing approach of modification activities were highly supported by the Director of Technical Functions. QA initiatives in developing quality engineering standards to provide improved standardization in engineering document review, inspection planning and manufacturing surveillance activities were also supported by Technical Functions. The scope and frequency of our corporate monitoring program had been expanded. This monitoring program is designed to provide middle management with an assessment of activities so that minor deficiencies can be resolved promptly at the appropriate level and only escalate major problems.

The results of our monitoring and auditing activities continue to indicate improvement in technical support activities through the increased emphasis on standardization, control of AE work, minimization of field changes and reduction in the number of open licensing action items.



## RESOLUTION OF LONG-STANDING EQUIPMENT/SYSTEM DEFICIENCIES AS A RESULT OF 1983-84 OVERHAUL/MAINTENANCE

- ° Generator Amplidyne - Since initial operation would not adequately or reliably function in automatic, thereby requiring manual voltage control. Automatic voltage control now achieved.
- ° Clean-Up System Recirc. Pumps - The plant operated for several cycles with only one operable pump. Both pumps have been completely overhauled and fully operational.
- ° Diesel Generator Governor Control - Erratic with tendency to drift. Both units replaced and necessary adjustments made to now ensure accurate generator load control.
- ° Tip Drive System - Continuous drive problems often requiring high exposure manual manipulations. Entire system refurbished and upgraded; operating exclusively in the remote/auto mode.
- ° Drywell Leak Rate - Achieved lowest unidentified leak rate in plant history (about 1 gpm), due primarily to improved maintenance on valves and pumps.
- ° Drywell Recirc. Fans - Past operating cycles have resulted in at least one inoperable fan during the period. As a result of extensive maintenance, all five fans remained available during the current operating period.
- ° Limitorque Operators - Mixed grease problem identified. Subsequent cleaning and regreasing of all safety related operators has precluded any failures in this area.
- ° 4160V Breakers - Over 50% of 4160V breakers (including all safety related) have been completely overhauled for the first time.
- ° 480V Breakers - All safety related breakers and some non-safety related breakers were overhauled, including replacement of degraded undervoltage relays.
- ° HFA Relays - Replaced HFA relays that were contributing to system trips and other problems experienced during previous operating cycles.
- ° AOG Recombiner - Has previously been a consistent high maintenance item. Work performed during IOR, plus some material upgrade, has virtually eliminated recombiter problems.
- ° Main Chlorination System - Extensive maintenance has turned an on-again/off-again system into a very reliable and even more complete system than ever. Contributed significantly to improved condenser efficiency during present operating cycle.
- ° Limitorque Valve Problems - Extensive outage maintenance and utilization of "MOVATS" for testing and analysis has significantly reduced problems in this area.



## RESOLUTION OF LONG-STANDING EQUIPMENT/SYSTEM DEFICIENCIES (Cont'd.)

- ° CRD Pumps - During operating cycles prior to 10R extensive and repetitive maintenance on both pumps was required. Since then they have been completely rebuilt and are now highly reliable.
- ° Shutdown Cooling Pumps - All three (3) pumps are now available for operation as a result of installing a new 480V electrical breaker and performing pump maintenance.
- ° Refueling Bridge - Extensive pre-outage maintenance and ongoing PM resulted in little or no impact on outage refueling operations or the recent return of fuel from West Valley.
- ° Emergency Diesel Generator Radiators - Replaced radiators in both diesels to improve unit operability and reduce maintenance requirements.
- ° 125V DC Batteries - Replaced both the A & B banks which had seriously degraded and frequently failed during surveillance tests.
- ° Dragon Valve Replacements - Following replacement of many of these valves, we can now properly isolate equipment when required.
- ° Main Condenser Expansion Joints - Replaced joints on all three (3) condensers to eliminate air in-leakage and improve condenser efficiency.
- ° Reactor & Turbine Building HVAC Systems - Seriously degraded and inefficient, i.e.; air washers inoperative, expansion joints torn, fans vibrating excessively, traps and valves inoperable, etc. Much improvement noted as a result of major repair effort with additional work planned.
- ° Fuel Pool Clarity - Fuel pool water clarity is better than it has ever been. This is due to more closely monitoring water turbidity and changing filters based on high turbidity vice Delta-P. Additionally we change filters monthly regardless of turbidity.
- ° Upgraded Circ Water Tunnels - Improved expansion joints installed in Circ Water Tunnels have eliminated previous tunnel leakage and undermining of areas around the tunnels.
- ° Excess Flow Checks - Replaced several excess flow check valves that could not be functionally tested in place. Intend to replace all excess flow checks with a new type with position indication or test fittings during future outages.

## RESOLUTION OF LONG-STANDING EQUIPMENT/SYSTEM DEFICIENCIES (Cont'd.)

- ° Dilution Pumps - Rebuilt all 3 dilution pumps to eliminate past history of unreliability.
- ° Feed Pump Ventilation - Redesigned Feed Pump Ventilation System to reduce high ambient room temperature which caused Feed Pump Motor overheating problems.
- ° Air Systems - Installed new Air Drying Towers which provides better quality instrument air, thereby reducing long-term instrument problems. Additional dryer capability is also being installed.
- ° Intake Screens - Installed a new design stainless steel Intake Screen and completely refurbished remaining 5 Intake Screens to increase their reliability. Additionally, new improved stainless screens have been ordered to replace the remaining screens which will further improve system reliability.
- ° Intake Conduit Replacement - Replaced ESW Pump Conduit at the Intake Structure to ensure reliable operation of these pumps.
- ° Turbine Building Sub Floor Cable Replacement - Replaced 4160V feeder cabling found to be in degraded condition after Hi-Pot testing.

## FACILITY & EQUIPMENT UPGRADES

- o Significant improvements in plant control and Control Room habitability resulted from Control Room modifications during the '83-'84 outage including:
  - New Alarm Annunciator System
  - New Core Spray Controls and logic changes
  - New Control Room Lighting
  - Replacement of numerous Control Room Recorders
  - Improved Fire Separation capacity
- o GPUN built a new Technical Support Center (TSC) which exceeds regulatory criteria. This action was taken in direct response to concerns identified with the old TSC.

## FACILITY & EQUIPMENT UPGRADES (Cont'd.)

- o Have procured and installed at the site, a basic principals training simulator with advanced state-of-the-art modeling to enhance Licensed Operator and Engineer training.
- o Began construction of on-site low level waste storage facility; tentative completion date February 1986.
- o Completed a major Chemistry Laboratory expansion for the plant, upgraded all equipment and installed a rigorous, quality Chemistry Program with increased Plant Operations impact.
- o Initiated a major effort to improve the total Plant Computer System. Vastly augmented operator interfaces will be installed and the ability to display information will be greatly enhanced.
- o A program has been initiated to further expand the Spent Fuel Storage at Oyster Creek satisfying needs through the mid-1990's and perhaps somewhat longer.
- o Environmental plant improvements include - tie-in to local Community Sewage System, Dilution Pump System upgraded, Intake Fish Diversion System installed, soil erosion and sedimentation measures improved.
- o Installed improved Whole Body Counting System - counting time reduced by 75%.
- o Upgraded Augmented Off-Gas (AOG) facility equipment to improve operational reliability.
- o Established one-stop Processing Center, an industry first.
- o New larger compactor installed plus the addition of a shredder.
- o Old Radwaste Building decontaminated.
- o Upgraded search equipment at Main Gate and North Gate Processing Centers. New explosive detectors were installed at the Main Gate and are in the process of being installed at the North Gate.
- o Major upgrade of Access Control Computer Systems in progress: state-of-the-art redundant Central Processing Units, new one-stage low failure rate card readers.

## PROGRAMMATIC IMPROVEMENTS

- o Established shift maintenance concept which assigns personnel 24 hrs/day, 7 days/week to maintain the PM and surveillance schedule, and provide immediate response to operational maintenance problems.
- o Upgraded Maintenance Work Force - coordinated program for On-the-Job Training for Electricians, Mechanics and I&C Technicians was developed and is being used.
- o The Plant Operations Group has developed full six shift capability resulting in greater time in training and improved ability to respond to any operational anomalies.
- o Instituted an Off-Shift Tour Program whereby senior management conducts scheduled plant tour during off-hours to monitor conduct of operations, plant conditions, etc.
- o Implemented long-range planning and formed a Long-Range Planning Organization.
- o Put in place an improved and formalized primary and secondary Chemistry Program. Program exceeds owners group and EPRI recommendations. All analytical procedures upgraded.
- o Reactor water quality has been maintained at a level consistent with the best in the country. Rx water conductivity is routinely about 0.095 MICRO MHOS/CM<sup>2</sup>.
- o Implemented comprehensive Water Inventory Control Program which was a major factor in attaining zero liquid effluent releases since January 1985.
- o Removed chromates from Torus water solving a major operations concern.
- o Housekeeping and cleanliness in all areas has been substantially upgraded, and the plant is generally judged to be in the best condition in this regard that it has been in the last 10 years.
- o Eliminated backlog of radioactive material/waste stored on-site.
- o Have significantly reduced low level Radwaste generation at the plant through formal programs and employee indoctrination.
- o Drywell improvements planned for 11R Outage - Recirc System chemical decon, Drywell surface decon, and air cooling for Drywell will reduce Man Rem, further reduce Respirator and Protective Clothing specification; increase productivity and improve quality of work.

## PROGRAMMATIC IMPROVEMENTS (Cont'd.)

- o Put in place and have operational a Systematic and Quantitative Performance and Availability Monitoring Program. Includes overall plant thermal performance and the performance of major individual components.
- o Initiated a Critical Valve and Valve Actuator Test Program (MOVATS) to ensure valve operability under accident conditions and ensure appropriate limit and torque switch settings.
- o Developed and implemented a Trending Program to monitor selected plant parameters.
- o Developed and implemented Predictive Maintenance Programs:
  - Snubber Inspection/Test
  - Heat Exchanger Inspection
  - Pipe Wall Thinning
  - Trend Analysis
  - Vibration Analysis
  - Lube Oil Analysis
  - Infrared Inspections
- o Developed and implemented a Plant Deficiency Identification Procedure to ensure that equipment/system deficiencies are properly identified, Work Orders written, and repair status tracked until completion of the repair(s).



GENERAL SUGGESTIONS INTENDED TO IMPROVE  
THE VALUE OF THE SALP PROCESS

- o Improving activities and correcting deficiencies requires understanding of the causes of performance deficiencies. It is vital to know whether they are due to design, procedures, operator error, etc. Thus it would be helpful to be more specific in discussing items and in particular to avoid in so far as practical "lumping" together the descriptions of causes. Such statements as "resulted from equipment problems (undefined as to cause - i.e., design or maintenance) and or operator error" are not particularly helpful.
- o Use of consistent description of cause in the summary and detached sections would help avoid ambiguity.
- o The SALP report states that "one or more of the following (seven) evaluation criteria were used to assess each functional area:

Consistent application of all seven criteria or explicit identification of which were or were not applied in a given area would, we believe, significantly improve the usefulness of the assessment.