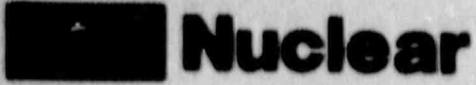


Bruso

Clark



*Docket No's 50-219
50-289*

P.R. Clark
President
GPU Nuclear Corporation
One Upper Pond Road
Parsippany, New Jersey 07054
(201) 316-7797

October 27, 1989

Dr. Thomas E. Murley
Office of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Washington, DC 20555

Dear Dr. Murley:

SUBJECT: NUCLEAR SAFETY & COMPLIANCE COMMITTEE

My letter to you dated April 27, 1989 provided the Semiannual Report of the Nuclear Safety & Compliance Committee (NSCC) to the GPU Nuclear Corporation Board of Directors.

Mr. Standley H. Hoch, Chairman of the Board, GPU Nuclear Corporation, has requested that I provide you the NSCC's Semiannual Report No. 11 for the period April 1, 1989 through September 30, 1989.

Sincerely,

P.R. Clark

P. R. Clark
President

/pfk

Enclosure

cc: Standley H. Hoch, Chairman of the Board

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NUCLEAR SAFETY AND COMPLIANCE COMMITTEE

SEMIANNUAL REPORT NUMBER 11

APRIL 1, 1989 THROUGH SEPTEMBER 30, 1989

OCTOBER 13, 1989

SIGNATURE

P. Lacey

SIGNATURE

J. G. Hughes

SIGNATURE

Warren T. Wittig

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1.0 SUMMARY

Safety and compliance at the General Public Utilities Nuclear (GPUN) Oyster Creek and TMI-1 facilities were the object of independent evaluations by the Nuclear Safety and Compliance Committee (NSCC) of the GPUN Board of Directors and by the NSCC Staff during the period April 1 through September 30, 1989. These evaluations focused on operator performance, procedural compliance and maintenance activities as they relate to compliance and safety. The Committee believes that both plants were operated safely and, with the exceptions noted herein, in compliance with relevant requirements and good practices.

2.0 EVALUATION OF SAFETY AND COMPLIANCE

The following is an evaluation of TMI-1 and Oyster Creek for the period April 1 through September 30, 1989. The discussion is divided into topics that do not necessarily correspond to GPUN's organizational units. For the most part, the statements pertain to conditions existing at the time of the evaluation. Corrective actions of which the Committee is aware are also noted. All items have been discussed by the Committee and the Staff, and those of significance have been reported by the Committee to the GPUN Board of Directors and corporate management at regular monthly meetings.

The Committee has reviewed the GPUN response to its previous report. Where appropriate, these responses are addressed and commented on in this report.

2.1 MANAGEMENT/ATTITUDE TOWARD SAFETY

Activities during this period, with minor exceptions, reflect continued dedication to the goal of nuclear safety.

Oyster Creek exhibited such dedication frequently during this period. On several occasions plant shutdowns were promptly initiated when safety system deficiencies occurred. In addition, startup from the 12U-3 Outage was delayed for the cleaning of Containment Spray heat exchangers even though the differential pressure was below the action level. In August, rather than place the system in a Limiting Condition for Operation, operators ran an Emergency Service Water Pump continuously to maintain system operability until a defective check valve could be replaced. In April, Oyster Creek made a 10 CFR 21 notification regarding deficiencies in the factory setting of Core Spray relief valves to ensure that the industry would be aware of deficient performance by a supplier.

There were no Licensee Event Reports and only one Notice of Violation at TMI-1 during this period. However, at both sites there were events to which station management responded with Technical Specification interpretations which, although safe, were not in strict compliance with the current interpretations. For example, at TMI-1, technicians performing Power Operated Relief Valve (PORV) surveillance experienced difficulty in completing the testing within the 1-hour Technical Specification time limit for PORV inoperability. Following an inadvertent actuation in June, management re-defined PORV operability to exclude periods in which the valve is closed and deenergized, as well as periods of surveillance testing. This change eliminated concern over the 1-hour time limit. The Committee feels that

procedural guidance for implementing this interpretation could have been provided and that a Technical Specification Change Request to extend the time limit would be appropriate.

In previous reports, the Committee has also commented on interpretations of control rod inoperability at Oyster Creek. On one occasion during this period a control rod was tagged out for troubleshooting and maintenance but not declared inoperable, since it was in the fully inserted position. This was contrary to an interpretation provided to Operations by Licensing approximately 1 year earlier. After considerable discussion, a consensus was reached and the plant committed to submitting a Technical Specification Change Request to clarify the definition of rod operability. On another occasion, a power failure in the manual rod control circuit prevented the operator from moving all control rods for about 2 hours. Continuing "operability" was justified on a narrow interpretation of the Technical Specifications and the expectation that a manual scram could be initiated if necessary.

The Committee feels that the interpretation of Technical Specifications at both plants should be re-examined by management. Care must be exercised to ensure that in such interpretation neither expediency nor reliance upon regulatory approval takes the place of conservative engineering judgement. When ambiguities are encountered, action should be taken to change and clarify the Technical Specifications. Expedient, nonconservative, and inconsistent interpretations tend to foster a lack of respect for Technical Specifications among licensed operators.

The Committee has monitored implementation of the new procedure for Potential Safety Concerns (PSCs) referred to in the GPUN response to its previous report. The PSCs are receiving increased management attention.

In long-range planning, GPUN has effectively used the Safety Issues Assessment Program (SIAP) and activities of the Risk Management Group to ensure that safety issues are properly addressed.

2.2 OPERATIONS

TMI-1 operated at full power throughout the report period, achieving a company record for continuous operation. Operations management continued to emphasize alertness and to caution against complacency. Plant operators responded effectively to several transients, such as those initiated by failures of the Integrated Control System (ICS), Heater Drain Pump, and Circulating Water Pump motor.

At Oyster Creek, Operations management took action to improve the control of work, the awareness of plant and equipment status, and communications by revising the shift turnover procedures, and instituting shift turnover briefings and a process for formally addressing operator concerns. Subsequent to the 12R Outage, Oyster Creek operation was interrupted by several short outages. While many were initiated by equipment failures, two scrams were attributable, in part, to operator error - i.e., manual scram during a planned shutdown in April caused by loss of condenser vacuum when an Equipment Operator incorrectly lined up the mechanical vacuum pump, and an automatic scram in May when a Control Room Operator incorrectly responded to a spurious loss of voltage indication on the main generator. Operators effectively controlled the plant following scrams and during several other transients, including loss of circulating water and service water pumps due to grass buildup at the intake structure in July, loss of transformer cooling fans in August, and low reactor vessel level due to a feedwater transient in September. In these instances, the operators responded appropriately by reducing power or shutting the plant down.

The Committee continues to observe the shortage of licensed personnel at Oyster Creek and the resultant periodic need for significant overtime.

2.3 MAINTENANCE/MATERIEL CONDITION

The extended period of continuous operation at TMI-1 is indicative of well-maintained and reliable equipment. Plant Materiel resources have been effectively focused on resolving recurring equipment problems such as ICS failures and SASS actuations. Plant Engineering has been very successful in providing temporary modifications to maintain pressurizer heater capacity following equipment failures. During this period, only one significant event occurred as a result of a maintenance error -- an inadvertent cycling of the pressurizer PORV during surveillance testing. The extended operating period has precluded repair of secondary steam leaks in containment. This situation is being carefully monitored to avoid deleterious long-term effects. TMI-1 continued to operate throughout the period with a failed feedwater heater relief valve gagged shut.

At Oyster Creek, materiel condition and quality of maintenance are still of concern. Although the Committee acknowledges management's efforts to improve the quality of work and plant materiel condition, and recognizes that improvements have been made, evidence of sufficient improvement, as reflected in reliable plant performance, is still lacking. As an example, the liquid radwaste system continues to have one evaporator inoperative and the second evaporator's operation is unreliable

due to level indication difficulties. Failure to correct these deficiencies results in the operators proceeding with limited knowledge of the system's status. For a brief period a crew of maintenance personnel was dedicated to this system, but they have been diverted to other unrelated maintenance activities. This reduced attention seriously impacts the operation of the system. Further, operator morale and attention to detail tend to deteriorate in this climate. Failures of transformers and associated equipment resulted in two scrams and two plant shutdowns. Equipment failure, poor design, and improper maintenance resulted in yet another plant shutdown and three reactor shutdowns. In addition, Technical Specification Limiting Conditions for Operation were in effect on more than half of the operating period days, and several NJPDES violations occurred. Poor communication and work practices contributed directly to the overexcitation scram in May, and failure to properly perform a surveillance caused a scram in September. Common factors in many maintenance deficiencies were ineffective supervision, lack of training, poor communication, and inadequate procedures or job orders.

2.4 TRAINING

The Training Departments at both sites provided effective support throughout the period of this report.

A self-evaluation in preparation for renewal by the Institute of Nuclear Power Operations (INPO) of the accreditation of training at Oyster Creek exposed some deficiencies in the implementation of the Training System Development (TSD) process. Actions to correct all of these deficiencies have been included in the Oyster Creek "Plan For Excellence." There is sufficient time to implement these needed changes before the 1990 reaccreditation.

Another self-evaluation addressed a generic INPO concern regarding maintenance training programs throughout the nuclear industry. This resulted in some changes to the MCF Division Training Procedure and the need to address a lack of understanding of the overall training process by the Maintenance line managers. In general, it was found that Oyster Creek has been conducting good Maintenance Training for plant personnel since the INPO accreditations went into effect. In view of the many maintenance errors during 12R, the Committee recommends that GPUN also evaluate the need to provide or verify the training and qualification of contractor personnel assigned to critical equipment.

All Oyster Creek license candidates passed the generic reactor theory examination given by the NRC.

Oyster Creek licensed operators did very well in their biennial, performance-based written and simulator requalification examinations. Only one Reactor Operator failed, and that individual passed the retake examination.

At TMI-1 five of twelve Reactor Operator license candidates failed their NRC examination. Three of the candidates failed the written examination and two failed the simulator portion of the examination. Steps being taken to improve the process of evaluating the trainees include providing more quizzes and comprehensive examinations and evaluating the program criteria. The Committee concurs with these proposed improvements.

Some improvements have been made in General Employee Training for radiation workers at Oyster Creek. Additional upgrading may be necessary to support the effort to reduce radiological exposure.

Efforts to upgrade the TMI-1 replica simulator with modifications continue to make progress, and indications are that these efforts can be completed in time for NRC certification in 1991. Interface and communications between the various groups responsible for the process appear to have improved within the report period. The Oyster Creek replica simulator is reported by the manufacturer to be 3 to 4 months behind schedule approximately half way through its 32-month procurement schedule.

2.5 TECHNICAL SUPPORT

The technical support at TMI-1 was very good, judging from the previously noted response to ICS failures, SASS actuations, and pressurizer heater failures. At Oyster Creek, troubleshooting efforts on Emergency Diesel No. 1 in September were commendable. However, in many instances the response to plant needs was not as effective. In May, an engineering recommendation not to gag reactor safety valves during the Reactor Coolant System hydrostatic test resulted in valve leakage and schedule delay. In June, the failure of a 4160V relay resulted in the initiation of a plant shutdown, which could have been avoided if lessons learned from a similar event the previous year had been incorporated into procedures. On two occasions the evaluation of potential physical damage to valves from Limitorque failures was overlooked.

The previous NSCC report was critical of Oyster Creek Engineering efforts to correct unterminated wire deficiencies. The GPUN response identified work that was completed during the 12R Outage, plans for additional inspections, and procedural guidance to be issued in August. The procedure has not been issued. Also, wiring deficiencies discovered in June have not yet been corrected because of their low priority.

The Committee reviewed corporate efforts to improve configuration management and drawing clarity and found them to be commendable.

Renewal of the GPUN "NR" and "R" stamps is acknowledged.

2.6 RADIOLOGICAL CONTROLS

The TMI-1 Radiological Controls program continued to be effective in maintaining very low cumulative exposure. One deficiency noted during this period was with Radiological Engineering. NRC Confirmatory Measurements indicated that the analysis of the Iodine contribution to condenser off-gas releases was in error. The NRC also noted this in an inspection in 1986, but no action was taken. GPUN determined this was due to inadequate design and improper sample flow rates in the sample collection cartridges. Effluent data reports for 1987 and 1988 were corrected and resubmitted.

Oyster Creek's high cumulative person-rem has resulted in increased management attention during this report period. There were initiatives toward improving job planning, supervision, and radiological work practices, as indicated in the GPUN response to the previous report. The Radiological Controls Division was more aggressive in monitoring work and correcting deficiencies. A Radiological Controls Work Performance Task Force made several recommendations and its chairman was temporarily reassigned from his normal plant duties to help implement them, and to report on his progress to the Station Director. The Committee has discussed this problem extensively with the Board of Directors, GPUN management, and the Task Force Chairman, and it will be monitoring implementation of the action plan. One current adverse indicator is the continuing problem of unlocked High Radiation Area doors, which resulted in an NRC violation and necessitated a change in procedure regarding the issuance of keys; now only Radiation Technicians or specially trained individuals who will control door opening and closure are to receive keys.

2.7 EVENT INVESTIGATION

Issuance of the revised corporate procedure for event investigation, emphasis by the Office of the President, and assistance by the Nuclear Safety Assurance Department resulted in an improvement in event critiques during the report period. The MCF critique of the overexcitation scram at Oyster Creek, a good example of event evaluation involving more than one department, was a significant improvement over previous MCF critiques. MCF rework analyses, which are frequently used in lieu of critiques, are more narrowly focused and lack thorough cause analysis and

corrective action definition. There are also examples of activities that appear to qualify for rework analysis but have not been included in the program. Human Performance Evaluation System reports continue to provide thorough analyses of events involving human performance deficiencies, but their many recommendations for corrective action must be reduced to a workable set of priorities. Plant Analysis produced excellent Transient Assessment Reports following the Oyster Creek scrams. Oyster Creek also used other review methods, such as convening a Post Transient Review Group following a feedwater transient and an Independent Review Group when a 125V DC power supply was found to be misaligned. TMI-1 continues to make limited use of critiques. There were no Plant Incident Reports during this period, and only two Level 2 Reviews were issued. As the investigation and evaluation of events improves, more emphasis will need to be placed on ensuring corrective actions are completed. The NRC issued three violations to Oyster Creek for ineffective incident investigation and corrective actions, citing incidents involving pinned hangers, testing of containment isolation valves, high intake canal temperatures, and unlocked "High Radiation Area" doors. Other sections of this report cite additional examples of poor follow-up to deficiencies-e.g., unterminated wires, 4160V relay failure, the overstressing of Limitorque valves, and failure to issue procedure changes. MCF rework analyses are not included in a formal tracking system.

2.8 PROCEDURES

Noncompliance with a surveillance procedure caused a scram at Oyster Creek in September. Other events of lesser consequence can also be attributed to procedural noncompliance. The Committee supports management perseverance in efforts to change worker attitudes regarding compliance. For example, subsequent to the scram in April, management at Oyster Creek clarified the policy on when Equipment Operators must have procedures "in hand" and it improved access to such procedures by placing controlled copies in appropriate plant locations. The major challenge now is to improve procedure adequacy. One current initiative, the creation of a procedure writer's guide, is a major step in the development of procedures that are clear and "user friendly." Concurrent improvements in technical content, however, are also necessary. For many events the lack of adequate procedures is a cause or contributing factor. Many maintenance procedures contain insufficient or inaccurate vendor information or fail to incorporate engineering recommendations and lessons learned from previous jobs. Operating and surveillance procedures sometimes fail to reflect plant modifications and Technical Specification requirements.

Biennial reviews have not always been effective; many inadequate procedures have been through one or more review cycles. In at least one instance, a procedure with known deficiencies was signed off for biennial review to prevent it from being withdrawn from distribution. The CPUN response to the previous report states that any overdue biennial reviews are unacceptable. TMI-1 had no overdue reviews during this report period, but Oyster Creek recently had approximately 100 procedures overdue at one time.

Efforts should be directed at expediting the procedure changes. The time required to process a change sometimes leads to circumvention of the process. At Oyster Creek, MCF employs job orders for procedural guidance, and the equivalent review and approval required of these documents is frequently overlooked. MCF deferred the processing of many procedure changes during the 12R Outage because of the resultant need to revise affected job orders. Although substantive technical changes were not supposed to be delayed, this did occur. At both sites, Operations sometimes uses memos or night order entries to provide instructions that could be considered procedures.

3.0 ACTIVITIES OF COMMITTEE AND STAFF

3.1 GENERAL

The NSCC guides the NSCC Staff's investigations and approves its schedules and expenditures. Staff activities involve both routine monitoring and special reviews. Routine monitoring covers all functional areas at each site and at corporate headquarters. A long-range schedule of monitoring activities is developed every 6 months, and activities are added at the request of the Committee or whenever plant events or industry occurrences dictate. The Committee reviews various corporate reports such as those listed in Exhibit 1. On occasion these reviews result in special tasks for the Staff.

3.2 COMMITTEE ACTIVITIES

In addition to the activities described above, the Committee meets monthly with the GPUN Board of Directors and reports on any items of significance with respect to safety or compliance. Questions or concerns that may arise between board meetings may be directed to the Chairman of the Board or the President of GPUN. Periodic meetings are held with GPUN executives in which the NSCC Staff presents overall observations of plant activities, that is, observations not limited to safety and compliance issues. During this period, Observations Meetings were held at TMI-1 in April and at Oyster Creek in July. The Committee meets with members of the Staff prior to the monthly meetings of the Board of Directors. These meetings frequently include presentations by, and discussions with, selected GPUN personnel on subjects of interest to the Committee. During this report period, discussions were held with the Vice-President/Director, Oyster Creek; the Vice-President/Director, TMI-1; the Director, Radiological and Environmental Controls; the Oyster Creek Radiological Controls Director; the TMI-1 Manager, QA Mod/Ops; the Oyster Creek Manager, QA Mod/Ops; the TMI-1 Manager of Plant Training; the Chairman of the Oyster Creek Radiological Exposure Reduction Task Force; and the Configuration Management Project Manager.

Committee members made tours of both sites in conjunction with the meetings of the Board of Directors. In addition, Dr. Witzig made an unannounced tour of both sites. Mr. Laney attended GORB meetings at both sites, and Dr. Witzig attended one TMI-1 GORB Meeting.

3.3 STAFF ACTIVITIES

The Staff, which is permanently stationed at the plants, gathers information on plant activities in many ways: plant tours; the

monitoring of activities; attendance at meetings; interviews with GPUN personnel; and reviews of reports, correspondence, and other documents. Plant operations and maintenance activities receive primary attention, but support functions are also evaluated. The NSCC Staff has management, operations, maintenance, and training expertise.

Evaluations during this report period concentrated on the areas and activities described in Section 2.0. A list of activities and information sources used in the Staff evaluations is presented as Exhibit 2. The types and number of GPUN personnel contacted during this period are indicated in Exhibit 3.

EXHIBIT 1

NSCC DOCUMENT/INFORMATION SOURCES

GPUN SOURCES (both sites unless otherwise noted)

Plant Incident Reports (TMI-1)
Deviation Reports (OC)
Licensee Event Reports
Licensing Correspondence
Significant Events Reports
Off-Shift Tour Reports
Post-Trip Review Group Reports
Transient Assessments Reports
IOSRG Evaluation Reports
GORB Meeting Reports
QA Monthly Assessment Reports
QA Quarterly Trend Reports
Attendance at GORB Meetings
Plant Tours
Meetings with GPUN Management
Incident Critiques
HPES Critiques

OTHER SOURCES

NRC Notices
NRC Generic Letters
NRC Regulatory Guides and NUREGs
NRC SALP Reports
Industry Periodicals (e.g., Inside NRC, Nucleonics Week)
NRC Inspection Reports
INPO Evaluation Reports
INPO Nuclear Power Plant Operational Data Report
NRC Performance Appraisal Team Reports

EXHIBIT 2

NSCC STAFF ACTIVITIES/INFORMATION SOURCES (both sites unless otherwise noted)

PLANT TOURS

General Walkthroughs/Housekeeping Observations
Off-Shift Tours
Control Room Observations
Maintenance Observations
Surveillance Test Observations
Radwaste Handling Observations
Emergency Drill Observations

MEETINGS

Daily Plant Status Meetings
Outage Planning Meetings
NRC Entrance/Exit Meetings
INPO Training Evaluations
GORB Meetings
Post-Trip Review Group Meetings
Maintenance Critiques (OC)

DOCUMENT REVIEW

GPUW Sources

Plant Incident Reports (TMI-1)
Plant Review Group Meeting Minutes
Deviation Reports (OC)
Licensee Event Reports
Incident Critiques
Licensing Correspondence
Significant Events Reports
Off-Shift Tour Reports
QA Audit Reports
QA Monthly Assessment Reports
QA Quarterly Trend Reports
Operations QA Monitoring Reports
STA Daily Reports
Operations Night Order Book
Log Books (Operations, STA, Chemistry, Maintenance, Radwaste)
Shift Turnover Forms
MNCRs, QDRs
Radiation Awareness Reports

EXHIBIT 2
(Continued)

Post-Trip Review Group Reports
Transient Assessment Reports
Maintenance Work Order Packages
GPUN Administrative Policies and Procedures
Station Procedures (e.g., Admin., Operations, Maintenance)
Operations QA Plan
Technical Specifications
Training System Descriptions
Training Lesson Plans
Plant Drawings
IOSRC Evaluation Reports
GORB Meeting Reports
Preliminary Safety Concerns
Licensing Action Items Status Report
HPES Reports

Other Sources

NRC Notices
NRC Generic Letters
NRC Regulatory Guides and NUREGs
NRC SALP Reports
NRC Inspection Reports
NRC Performance Appraisal Team Reports
INPO Evaluation Reports
INPO Guides
ANSI Standards
ASME Codes
Code of Federal Regulations (10 CFR)
Industry Periodicals (e.g., Inside NRC, Nucleonics Week)

EXHIBIT 3

PERSONS INTERVIEWED/CONTACTED BY
NSCC STAFF DURING REPORT PERIOD

SITE PERSONNEL (both sites unless otherwise noted)

Vice President/Director (TMI-1)
Vice President/Director (OC)
Deputy Director (OC)
Operations and Maintenance Director (TMI-1)
Plant Operations Director
MCF Director
Department Managers, Supervisors, and Personnel
 Plant Operations
 Plant Materiel
 Maintenance, Construction, and Facilities
 Plant Engineering
 Plant Chemistry
 Special Projects (OC)
 Plans and Programs
 Safety Review Group (OC)
 Plant Review Group (TMI-1)
 IOSRG
 Technical Functions
 Licensing
 Plant Analysis and STA
 Startup and Test
 Training and Education
 Radiological Controls
 Quality Assurance/Quality Control
 Emergency Planning

CORPORATE PERSONNEL

Vice President, Planning and Nuclear Safety
Vice President, Quality and Training
Director, Radiological and Environmental Controls
Chairman, General Office Review Board
Managers and Other Personnel
 Licensing
 Training and Education
 Safety Analysis and Plant Control
 Quality Assurance
 Technical Functions
 Maintenance, Construction, and Facilities