

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-219/88-13
Docket No. 50-219
License No. DPR-16 Priority -- Category C
Licensee: GPU Nuclear Corporation
1 Upper Pond Road
Parsippany, New Jersey 07054

Facility Name: Oyster Creek Nuclear Generating Station

Inspection Conducted: April 24 - May 21, 1988

Participating Inspectors: J. Wechselberger
E. Collins
W. Baunack
M. Markley

Approved By: W. Baunack
C. Cowgill, Chief, Reactor Projects Section 1A

6/14/88
Date

Inspection Summary: Inspection on April 24 - May 21, 1988 (Report No. 50-219/88-13)

Areas Inspected: Routine inspections were conducted by resident inspectors and a region-based inspector (237 hours) of activities in progress including plant operations, physical security, radiation control, housekeeping, fire protection and emergency preparedness, including participation in the annual emergency exercise (see 88-05). The inspectors also reviewed licensee actions on previous open items from 87-24, Integrated Performance Assessment Team Inspections, made routine tours of the facility, witnessed routine surveillance activities and followed breaker troubleshooting activities for "A" CRD and 1-2 service water pump breakers. The inspectors also discussed the cathodic protection work activities with radiological control personnel and conducted a walk down of the core spray system.

Results: One violation was identified in the radiological control area involving personnel violation of radiological work permit on the 119' elevation. The licensee determined that two pump motor breaker problems resulted from a recent overhaul of the breakers, and has initiated corrective action.

DETAILS

1.0 Radiation Protection (83724, 83726, 83727, 83728, 83729)

- 1.1 During entry to and exit from the RCA, the inspectors verified that proper warning signs were posted, personnel entering were wearing proper dosimetry, personnel and materials leaving were properly monitored for radioactive contamination, and monitoring instruments were functional and in calibration. Posted extended Radiation Work permits (RWPs) and survey status boards were reviewed to verify that they were current and accurate. The inspector observed activities in the RCA to verify that personnel complied with the requirements of applicable RWPs and that workers were aware of the radiological conditions in the area.

- 1.2 On May 4, 1988, the NRC inspector noted a Quality Control (QC) inspector performing fuel inspection inside a posted "Contaminated Area" on the 119 ft. reactor building elevation wearing an incomplete set of anti-contamination (anti-C) clothing. Specifically, it was noted that the only anti-Cs worn by the QC inspector were cotton glove liners and that other workers in the same area were wearing full anti-Cs. The QC inspector exited the area by stepping under the radrope posted barrier. The NRC inspector questioned the QC inspector regarding his lack of protective clothing and method of contaminated area access. The QC inspector stated that where he was standing was clear and that the radiation protection (RP) technician could explain - indicating some degree of acceptability to the practice. The NRC inspector stated that although he had not yet reviewed the appropriate Radiation Work Permit (RWP), it was unlikely that it afforded contaminated area access without additional protective clothing.

Discussion with the responsible RP technician indicated that he was unaware of the QC inspector's radiological practices. The RP technician stated that he had not authorized the QC inspector to enter the contaminated area without complying with the clothing requirements of the RWP. When the NRC inspector and RP technician returned to the work location, the QC inspector was again inside the posted contaminated area without the required clothing. The RP technician took some smears of the specific location where the QC inspector was standing. Results were less than minimum detectable activity (MDA). Review of radiological surveys indicated that the roped off areas within the posting were contaminated (4,000 dpw). The work activities had a significant potential for generating contamination due to the processing of handling tools in and out of the fuel storage pool. In addition to not meeting RWP dress requirements, the QC inspector's access technique represents a high potential for the spread of contamination since he did not properly enter and leave the area at the step-off-pad.

Subsequent inspector review indicated that the QC inspector had entered on RWP No. 880335, "Channel New Fuel/Rechannell Old Fuel". This RWP states that a surgeon's cap, cloth hood, one pair coveralls, cotton glove liners, multiple pair rubber gloves, and two pair cloth shoe covers are required for contaminated areas (i.e. full anti-Cs).

Later that day, the NRC notified licensee management and licensing personnel of the apparent violation. On May 5, 1988, the licensee requested a meeting to discuss details of the incident. The licensee attributed the problem to be a breakdown in communication and failure of the QC inspector to heed new radiological postirys installed when the fuel storage shield plugs were removed. During that meeting, the NRC also discussed concern about the number of licensee personnel associated with the fuel channeling evolution who observed the QC inspector's activities and failed to initiate corrective measures. The job supervisor, a Group Operating Supervisor (GOS), and several other operations personnel were present when the NRC inspector arrived at the work location. The responsible RP technician was on duty but failed to identify the QC inspector's RWP noncompliance and poor contamination control practices. The licensee acknowledged the inspectors concerns.

Technical Specification (TS) section 6.11, Radiation Protection program, requires, in part, that procedures involving personnel radiation exposure shall be approved, maintained, and adhered to. Procedure 9300-ADM-4110.04, Radiation Work Permit (RWP), states in section 7.4.1 and Attachment 10.3 that an individual's signature of the RWP signifies that the individual has read, understands, and will comply with the radiological requirements specified. Failure to dress in accordance with the minimum RWP clothing requirements constitutes an apparent violation of the RWP procedure and TS section 6.11 (50-219/88-13-01).

- 1.3 The inspector met with radiological control personnel to discuss the drywell cathodic protection modification radiological concerns. The licensee described the corrective actions they were taking in response to an apparent violation involving a failure to survey during cathodic protection work in the torus room (50-219/88-11-01). Considering the previous violations in this area, the inspector questioned the licensee if sufficient training was being conducted for contractor radiological control personnel to ensure they were aware of previous lessons learned regarding failures to adequately survey nonuniform radiation fields. The licensee stated that they would review this concern. The inspector also asked about the acceptability of proceeding with the cathodic protection modification during plant operation when the total man-rem dose for the job would be higher. The licensee stated that in order to meet their commitments certain work had to proceed now and that with proper surveys a similar event should not occur. The licensee also stated that original man-rem estimates will be exceeded for the cathodic protection modification. The inspector had no immediate concerns.

2.0 In-Office Review of Licensee Event Reports (LERs) (90712)

The following LERs were reviewed to determine whether the details were clearly reported, the causes properly identified and the corrective actions appropriate. The inspector also determined whether the assessment of potential safety consequences had been properly evaluated, whether generic implications were indicated, and whether the event warranted on site followup.

(Closed) 87-02; Main Steam Isolation Valve Closure Caused by Operator Error

During a plant startup a control room operator erroneously placed an IRM range switch in range 10 while reactor pressure was less than 825 psig. This initiated a main steam isolation valve closure as designed. Corrective action consisted of operator training on this event.

(Closed) 87-03; Standby Gas Treatment System Initiation Caused by Power Supply Perturbation

The standby gas treatment system initiation resulted from a radiation monitor power supply perturbation. The perturbation resulted from the power supply ribbon cable shorting. The shorting was attributed to equipment aging. Replacement ribbon cables have been ordered, also an improved design power supply will be installed for all radiation monitors.

(Closed) 87-04; Technical Specification Violation Caused by Improper Removal of Equipment from Service Due to Personnel Error

The root cause of this occurrence was personnel error in that operations management, the senior reactor operator, and the shift technical advisor on shift did not recognize the Technical Specification violation in the planned tag-out of equipment. Corrective action will consist of operator and shift technical advisor training.

(Closed) 87-05; High Flux Scram During Recirculation Pump Start Due to Discharge Valve Partially Open

The APRM high flux scram occurred due to increased recirculation flow as a result of starting a recirculation pump with a partially open discharge valve. The valve was partially open as a result of improperly closing the valve after experiencing torque switch problems. Additionally, mechanical regulator problems were experienced following the scram. All five recirculation pump discharge valve torque switches were adjusted and the limit switch for valve close indication was adjusted to indicate full valve closure. Also the procedure for calibration of the mechanical pressure regulator was revised.

(Closed) 87-06; Technical Specification Violation Caused By Improper Storage of Higher Enriched Fuel Due to Personnel Error

Reload fuel bundles exceeding the technical specification allowable (3.19 vs. 3.01 wt% U-235) were temporarily stored in the fuel pool. The cause of the event was personnel error in not performing a thorough safety analysis. Cor-

rective action will consist of revising the technical specifications to raise the enrichment limitations on stored fuel and reviewing the occurrence with engineering personnel.

(Closed) 87-07; Backup Sample Analysis Invalid Due to personnel Error

With the radwaste liquid radiation monitors inoperable a release sample was taken prior to the start of a release and one near the end of the release, as required. During the analysis of the second sample a chemistry technician inadvertently used the wrong computer program, and the sample was lost. The event was reviewed with the chemistry technician and the computer program changed to preclude inadvertent selection errors.

(Closed) 87-08; Limiting Safety System Setpoint For Total Recirculation Flow Exceeds Technical Specifications Due To Instrument Drift

During the performance of a weekly surveillance test a flow converted scram setpoint was found to be out of specification (118% vs. 117%). The setpoint was adjusted to within limits. The apparent cause of the condition was instrument drift.

(Closed) 87-09; Operation of the Plant with the Flow Biased Scram and Rod Block Setpoints Outside of the Analyzed Region Due to Recirculation Loop Flow Back-flow

This was a voluntary report submitted by the licensee and described a recirculation pump trip without alarm. Recirculation flow remained relatively constant due to increased flow of the four remaining recirculation pumps and the reverse flow through the loop with the tripped pump. This caused the flow biased average power range monitor setpoints for the scram and rod block setpoints to be less conservative than allowed. The root cause of this event was inadequate preventive maintenance and testing of equipment associated with the recirculation pumps. Subsequent transient analysis determined the increased setpoints did not cause the safety limits of the reactor to be violated for any postulated transients or accidents. The components that caused the loss of the generator field were replaced. The preventive maintenance program for equipment associated with reactor coolant pumps will be improved. The safety analysis performed for this event will be reviewed for inclusion in the next annual revision to the updated Final Safety Analysis Report.

(Closed) 87-11; High RPV level Trip/Scram Caused by Lost Feedwater Flow Signal Due to Procedural Inadequacy

A reactor scram occurred as a result of a high reactor water level turbine trip. The high reactor water level was caused when a technician moved a control room panel wire harness which inadvertently disconnected a feedwater flow signal wire. The feedwater level control system responded to the apparent loss of flow signal and increased feedwater flow until the turbine tripped on high reactor water level. The cause of the event was faulty wire terminations. Corrective actions consisted of revising the installation specifica-

tions for wire terminations and the Quality Assurance Procedure for inspection of wire terminations. Also, approximately 51,000 wire terminations were inspected and all deficiencies corrected.

Although no supplemental report was indicated on the original LER a revised LER was submitted which identified an automatic main steam isolation valve closure which occurred 12 days after the scram and was attributed to the same cause. The licensee's tendency to incorporate two reportable events into one report had been previously discussed with the licensee.

(Closed) 87-10; Electrical Transient Causes Containment Isolation and Standby Gas Treatment Initiation Due to Design Configuration

Heavy snowfall caused a transient on distribution lines outside the plant. The voltage transient caused vital power panels to transfer to their alternate power supply. The transfer caused reactor protection system relays to de-energize causing the containment isolation and standby gas treatment system initiation. Several modifications to correct this condition are being considered.

(Closed) 87-12; Inoperable Offgas Drain Line Isolation Valve Caused by Debris Accumulation Due to Inadequate Preventive Maintenance

The off gas system drain line isolation valve failed in the open direction due to debris buildup in the bonnet. The valve was removed and replaced. To prevent recurrence the valve has been placed on the plant's preventive maintenance program.

(Closed) 87-13; SGTS Initiation Caused by Improperly Installed Wire Connector Due to Personnel Error

A secondary containment isolation and standby gas treatment system initiation occurred when an electrical connector fell off a recently replaced instrument power supply to several area radiation monitors. The connector on the power supply was reattached securely, and the connectors on other power supplies also secured to prevent similar problems.

(Closed) 87-15; Inoperable Intermediate Range Monitors Due to Broken Flexible Connection Caused by Improper Maintenance

Improper maintenance of detector drive mechanisms resulted in excessive vibration which resulted in flexible conductor failures. The controlling procedure did not provide proper guidance for maintenance of the detector drive mechanisms to minimize vibration. Seven IRMs and three SRMs were replaced and repairs and tests were performed on the drive mechanisms. Maintenance procedures will be revised and training will be given to technicians working on IRMs and SRMs. The preventive maintenance for drive mechanisms will be improved.

(Closed) 87-14, Rev. 1; Drywell Isolation Caused by Incorrectly Lifting a Lead Due to Using a Plant Drawing Which Had Not Been Updated

With an electrical lead termination repair in progress an electrician lifted a lead supplying power to the containment high range monitoring system. This caused a containment vent and purge valve isolation. The root cause of the event was a configuration control process deficiency caused by a backlog of documentation awaiting final closeout following system modification. A revision to the computerized configuration control system procedures has been implemented. Also, procedures will be revised to require a summary of all drawing changes resulting from a modification to be available at the time the modification is turned over to the plant division.

(Closed) 87-16; Setpoints for Three of Eight Isolation Condenser Pipe Break Sensors were Out of Specification Due to Instrument Drift

During routine surveillance testing three of eight isolation condenser pipe break sensors had drifted above the setpoint specified in the Technical Specifications. The cause of the failure is attributed to instrument drift. The sensors will be replaced as part of an integrated reactor system upgrade beginning during the next refueling outage. This upgrade is being tracked as part of the Integrated Living Schedule.

(Closed) 87-18; Reactor Building Ventilation Valve Inoperable for Maintenance and not Secured Closed Due to Personnel Error

While removing a reactor building ventilation system valve from service an operator closed the valve manually but failed to engage the linkage from the hand wheel. The condition was discovered when returning the valve to service. During the event a redundant isolation valve was operable. Corrective actions include operator training, providing procedural guidance for manual valve operation, required reading, and providing pins locally for manual valve operation.

(Closed) 87-19; Limiting Safety System Setpoint for Total Recirculation Flow Exceeds Technical Specifications Due to Personnel Error

The reactor recirculation flow scram setpoints were left above the technical specification limiting safety system setpoint due to improper performance of a surveillance procedure. The technician responsible for this event will have his qualification reviewed and his previous work will be checked. The surveillance procedure will be revised, instrument technicians will be required to read a critique of this event and this LER. Further, they will be required to read the revised procedure for the proper technique for setpoint verification and adjustment.

(Closed) 87-20; Technical Specification Required Surveillance Overdue Due to Inadequate Shift Turnover Caused by Personnel Error

The performance of the daily operability check of the main steam isolation valves was postponed due to evaluating an unusual noise in the vicinity of the high pressure turbine. The postponement was not logged nor passed on to the oncoming shift. The shift supervisor was counselled, the incident will be discussed with each shift during the weekly plant status update meeting, and discussion of the incident will be included in regular licensed operator training. In addition, required reading will be issued to operators to emphasize the need and requirements for documenting the postponement of surveillance tests.

(Closed) 87-21; Technical Specification Violation Caused by Blocking Open Containment Vacuum Breakers Due to Personnel Error

The review of this event is documented in NRC Region I Inspection Report 50-219/87-16.

(Closed) 87-22; Plant Shutdown Required by Inoperable Acoustic Monitor Due to Marginal Splice Design Resulting in Cable Damage During Installation

The acoustic monitor cable failure resulted from cable damage during installation due to a marginal splice design. The splice was repaired and all others tested. Spare acoustic monitors were installed which can be connected from outside the drywell. Long term corrective action has included the replacement of the splices using connectors qualified under DOR guidelines.

(Closed) 87-23; Partial Primary Containment Isolation During Testing Due to Procedural Inadequacy

A partial primary containment isolation occurred during surveillance testing because the surveillance test had not been revised to reflect two modifications to the plant. The affected procedures and both modifications will be reviewed to ensure both modifications are reflected where necessary. This report will be required reading for engineering and operations personnel. Guidance will be provided to improved engineering reviews of modifications.

(Closed) 87-24; Failure to Post a Fire Watch for a Non-Functional Fire Barrier Due to Personnel Error in Failing to Follow Procedure

Fire barrier material was removed by contractor personnel without notifying the control room. The contractor personnel were not adequately briefed or supervised nor provided with the job package work instructions for the fire barrier removal. Immediate corrective action was to ensure a fire watch was posted. Further corrective actions include job supervisor training, required reading, and improved instructions to contractors.

(Closed) 87-26; Temporary Variations Found Unacceptable Due to Inadequate Safety Reviews

The cause and corrective actions associated with this report are described in LER 87-21.

(Closed) 87-27; Electrical Storm Induced Containment Isolation and Standby Gas Treatment System Initiation Due to Automatic Bus Transfer Time Exceeding RPS Relay Dropout Time

An automatic bus transfer caused by a lightning strike caused several reactor protection system relays to deenergize, causing a containment isolation and standby gas treatment system initiation. To prevent recurrence, GPUN engineering has proposed that the power supply for the affected relays be changed to an existing rotary-inverter fed continuous power source. Pending corporate management approval, this will be accomplished during a future outage.

(Closed) 87-28; Main Steam Isolation Valve Closure Caused by Design Deficiency During Surveillance Test

The root cause of the event is that the circuit which was being tested is not configured to facilitate testing. Contributing causes were the jumpering technique of the technician and failure of the control room operators to fully investigate a suspected actuation. This report will be made required reading for instrument technicians, electricians, Plant Engineering Department engineers and operators. Also, modifications to facilitate testing are being evaluated.

(Closed) 87-29; High Reactor Pressure Scram Due to Air Leak from Dislodged Air Test Pilot Valve Caused by Incorrect Mounting Cap Screw Length

The cause of this event is the air test pilot valve mounting cap screws were 1/4 inch shorter than vendor specifications. The dislodged air test pilot valve and all other MSIV air pilot valves were reinstalled with proper length cap screws. The MSIV air pilot valve installation procedure will be revised to identify the proper length screws for future maintenance.

(Closed) 87-30; Lightning Arrestor Insulator Failure Induced Voltage Transient Caused Containment Isolation and SBGTS Initiation Due to Automatic Bus Transfer Time Exceeding RPS Relay Dropout Time

This event is similar to that described in LER 87-27. The corrective action is described in that report.

(Closed) 87-31; Violation of High Radiation Area Technical Specifications Caused by Personnel Error During Response to Fire Alarm

During the response to an automatic fire alarm a high radiation area was entered without following proper access procedures. Corrective actions include operator training, provision of monitoring equipment to operations personnel for emergency use, and review of this event with all operators and their supervisors.

(Closed) 87-32; AOG H2 Analyzer Not Calibrated in Accordance with Tech Spec Requirements Due to Inadequate Review of Rets Amendment

The Augmented Offgas System H2 analyzer had been calibrated using a standard gas sample of a known volume of H2 in air rather than in N2 as required Technical Specifications. The Technical Specification had been recently issued. Previously the calibration had been performed using a standard sample in air. For corrective action this LER will be required reading for all involved departments to stress the importance of a thorough review of plant procedures and practices for compliance with Technical Specification changes. Also, Oyster Creek licensing management has altered its policy and is issuing licensing action items for tracking requisite procedure changes resulting from Technical Specification changes.

3.0 On-Site Review of an LER (92700)

The following LER was reviewed to determine whether corrective actions described in the report were addressed and whether these actions were appropriate to correct the cause of the event. Also, the LER was examined to verify if reporting requirements were met, if licensee review and evaluation were complete and accurate, and if generic implications existed.

(Closed) 87-01; Absence of Neutron Flux Control Rod Block Clamping Circuit Due to Inconsistency Between Technical Specifications and Plant Hardware

Technical Specifications (TS) change No. 111 required a limit to the neutron flux control rod block setpoint at 108% of rated neutron flux for reactor recirculation flows of 100% or greater. When procedure changes accommodating the new TS change were being reviewed it was discovered, by the licensee, the average power range monitor unit hardware did not have the capability to meet the new setpoints. Specifically no clamping circuit existed to limit the rod block setpoint at 108% power at 100% or greater recirculation flows.

On site documentation shows close communication relative to this matter was maintained with NRR. The licensee's corrective action consisted of administratively requiring operators to manually insert a rod block at 100% recirculation flow. Inspectors verified the power operation procedure had been changed to include this requirement. Also, a tag has been placed on the console reminding operators of the administrative requirement. Residents routinely monitor the rod block insertions when required. No deficiencies have been noted.

Licensee records also show a review of all surveillance tests against technical specification requirements was conducted by the Plant Analysis Section. Several deficiencies were noted and corrective action was taken.

The overall evaluation of the LERs discussed in the above paragraphs has been documented in the last SALP Report No. 50-219/86-99.

4.0 Followup to a Previous Inspection (92701)

During the period August 10, 1987, to August 21, 1987, an Integrated Performance Assessment Team inspection (Inspection Report No. 50-219/87-24) was conducted at the Oyster Creek Station. This team inspection identified a number of areas needing management attention. Several of these areas were responded to by the licensee in a letter dated January 15, 1988, P. B. Fiedler, GPUN, to W. F. Kane, NRC. Other items the team considered significant enough for NRC followup are identified in the report as either weaknesses or observations. This followup is tracked as open item 50-219/87-24-01.

During this inspection the licensee's action to address certain of the inspection teams findings were reviewed. Licensee actions relating to radiological controls have been reviewed in NRC Inspection Report No. 50-219/88-11.

The specific items for which a followup was conducted are identified by the item description and the page on which they appear in Inspection Report No. 50-219/87-24.

(Closed) Observation - Page 4; Overtime authorized by the Operations Manager instead of the Director of Operations or higher as required by procedure 106.

A memo (2100-87-2047W/34) was issued from the Plant Operations Director to operations managers which re-emphasized that all overtime in excess of Procedure 106 requirements must be approved by the Plant Operation Director or by a higher level of management.

(Closed) Observation - Page 5; The team found that the supervisor of the STA's does not regularly visit the control room, nor does he review STA logs.

Discussions with personnel indicate the supervisor of the STA's now visits the control room daily. A review of the STA Log Book shows the supervisor of the STA's now initials the log following his review. A memo written in response to a Licensing Action Item also specifies occasional visits to the control room by the Manager, Plant Analysis and Human Engineering, and the Director System Engineering.

(Open) Observation - Page 6; Management attention in educating the non-licensed worker level understanding of risk importance, and in establishing operations as a lead proponent of that philosophy is needed.

The licensee responded to this item in writing. The Licensing Action Item associated with this finding is due to be completed August 30, 1988.

(Closed) Observation - Page 7; Operations management to evaluate the practice of operations using an attachment from a controlled control room copy of a surveillance test procedure.

Discussions with operators show that planned surveillance test procedures are sent to the control room complete with all required forms. Forms from controlled procedures are only used when tests are performed for an unexpected reason; then they are promptly replaced. The inspector observed that an adequate supply of various forms are neatly stored in newly installed bins in the control room. Forms for frequently performed surveillance tests were also observed to be filed in the control room.

Operators have been instructed to use forms from controlled procedures only when more forms cannot be obtained on short notice.

(Closed) Observation - Page 7; A formalization of the control of operator aids (information posted in-plant to assist the operators) is needed.

Steps were taken to remove all non-controlled operator aids by February 29, 1988. Also, Procedure 106 has been revised to specify the control of operator aids. The procedure change was noted to provide clear detailed instructions for the control of these aids. These controls are applicable to all departments.

(Closed) Observation - Page 8; Management needs to instill more a more questioning attitude concerning non-routine plant conditions.

Management has taken a number of initiatives to increase personnel attention to non-routine plant conditions. These include changes to the tour sheet, emphasizing these aspects in nightly instructions to personnel, added management tours, improved equipment operator (EO's) training to stress their accountabilities especially related to tours. Shift supervisors have toured the plant with EOs to help identify typical problems and daily interaction between operations management and the shifts. Based on discussions with the Plant Operations Director, management will continue to strive for improvement in this area.

(Closed) Observation - Page 9; Although the procedure directs the GSS to conduct critiques of operational events, the operations staff typically prepares the critique report.

The licensee believes the critique process to be sound. Procedure 106 directs the GSS to conduct a critique to gather pertinent information. This information is reviewed by the GSS with operation staff and personnel involved in the incident. A designated operations staff member then prepares a report. This method is believed to produce adequate review and documentation of an event and is not in conflict with any procedure. A recent revision to Procedure 106 (revision 46) includes a requirement to prepare reports within ten days of the event and a requirement to track progress on recommendation.

(Open) Observation - Page 10; The team found that the Plant Review Group is apparently under utilized by virtue of the fact that the group essentially meets only to review LERs and very few other events.

This item was not reviewed during this inspection.

(Open) Weakness - Page 11; The team noted larger plant equipment was not properly labeled.

The licensee is actively working on the labelling of plant equipment. A standard for labelling is being prepared which will provide guidelines for upgrading labels and for providing new labels. This item will be closed when the labelling standard is issued.

(Closed) Observation - Page 11; The licensee to address the unique difficulty in verifying the proper position of throttled valves and valves in contaminated areas.

The licensee has revised Procedure 108, Equipment Control, to provide specific instructions for verifying that valves in inaccessible areas and throttled valves are properly positioned.

(Closed) Weakness - Page 12; The control of gas bottles, equipment on rollers, temporarily stored equipment, and ladders was noted by the team as requiring attention.

The licensee has issued Procedure 119.5, Loose Equipment Storage, which provides instruction for the storage of loose equipment.

(Closed) Observation - Page 12; The team noted uncontrolled signs and information in the plant which they felt may lead to personnel errors and indicate a degree of informality in conducting operations.

The licensee has removed all uncontrolled material from the plant. A revision to Procedure 106, Conduct of Operations, provides instructions for the control of operator aids. Also, Procedure 108, Equipment Control, specifies in detail the required use of tags. In addition, the standard for labelling when it is issued should completely resolve the issue.

(Closed) Observation - Page 13; The team noted that the reactor building inner equipment airlock door was being kept open when the airlock was not in use.

Routine resident inspections have verified the inner airlock door is now being maintained closed. Routine licensee tours verify the door is being maintained closed and a sign is currently being made up which requires that the door be kept closed when not in use.

(Open) Weakness - page 15; Housekeeping in the more inaccessible areas of the plant and inattention to detail in housekeeping of accessible plant area requires an increased concerted management effort and is currently a weakness.

In reviewing this item the inspector looked at Station Procedure 119, Housekeeping, and determined that presently a Maintenance Construction and Facilities housekeeping procedure is being developed and that the current station housekeeping procedure is being cancelled. The inspector discussed this with senior licensee management who was unaware of housekeeping procedure changes and felt that the station had certain housekeeping responsibilities. This item will be reviewed after the housekeeping procedure changes are complete.

(Closed) Observation - Page 26; Licensee to formalize the specific lifted lead identification in the TSSIIL program.

The licensee for each TSSIIL Calibration which requires leads to be lifted has developed a Supplemental Data Sheet which identifies the leads to be lifted and provides for the verification of the lifting and the reinstallation of these leads. Supplemental Data Sheets have not yet been prepared for all calibrations. However, until the program is complete when a calibration comes due which requires a lifted lead prior to performing the calibration a Supplemental Data Sheet will be prepared.

(Closed) Weakness - Page 26; Instruments in the new radwaste building were not yet incorporated into the preventive maintenance program.

Plant Materiel has developed 66 PMs which incorporate 368 instruments. Approximately 20 additional PMs remain to be completed. The expected completion date for all PMs is September 1, 1988.

(Closed) Observation - Page 27; The team felt the changeover of the instrument calibration laboratory from two experienced contractor personnel and one licensee person to all GPUN personnel may degrade the laboratory's capability.

In bringing about this change GPUN retained the lead contractor, trained two GPUN I&C technicians in metrology, added one calibration supervisor from TMI and retained one contractor during the transition. The licensee indicated the changeover went well.

(Open) Weakness - Page 29; The team noted that with the licensee's matrix type organization and complexity of the MCF work planning procedures an extraordinary paperwork burden is placed on personnel performing work. The individual job foreman becomes heavily involved in administrative duties which detract from time spent actually supervising work activities.

In response to this item MCF has formed a "Work Simplification Committee". The charter of this committee is to reduce the paperwork burden on job supervisors and planners. The inspector reviewed a memorandum which described the results of a meeting of the work simplification committee. This memorandum described procedure changes and other actions which are being undertaken in order to reduce the paperwork burden. This item will be further reviewed when more of the committee's actions become finalized.

(Closed) Observation - Page 34; The team was concerned about the work ethic in the workshop. Apparently, workers are discouraged from returning to the workshop, even if a job has been completed, until the end of the work day. The team was concerned that this could adversely impact on the ALARA program.

The licensee has taken a number of actions in response to this item. A two day Radiological Awareness Training was initiated for all MCF personnel. Ten of these training sessions have been completed. Among the training objectives are individual action to reduce exposure, minimize peer exposure, improve the work environment, and promote team work with Rad Con.

Increased management tours and increased involvement and support by a re-organization of MCF to better support the field work through fewer levels of management, and an organization that will better identify the crafts direct supervisor for guidance and direction has also been implemented to bring about improvement in this area.

(Closed) Weakness - Page 36; Based on findings relative to procedures for mini-mods and engineering calculations the team concluded there is a lack of appreciation of the need for clear and effective administrative controls for Plant Engineering activities.

A Plant Engineering Procedure No. 124.2, Control of Plant Engineering Directed Replacements and Modifications, has been issued which implements the requirements which had previously been established by the Technical Functions Division relative to the modification control process. Also, plant engineering procedures have been revised to require the use of EP-006, Calculations, and EP-009, Design Verification.

(Closed) Observation - Page 34; The team found that mechanical workers did not appear to have the confidence of plant management and the licensed operators.

This item was discussed with both Operations and MCF management personnel. The observation was felt by the licensee to have some merit, and ongoing steps are being taken in an attempt to improve the confidence level between management, operations, and the mechanical workers. The training identified in a previous item stressed making management more available to the mechanical workers. Improved communications have been established through the daily 2:30 p.m. meeting involving operations and MCF. Improved training for mechanical maintenance personnel is being implemented by taking an existing building and converting it to a mechanical maintenance training center. One of the benefits of the improved training should be improved mutual confidence among the various groups. Also, additional personnel Mechanical Maintenance Technicians are presently being recruited to improve the technical competence of the maintenance workers. Management's awareness of this condition, the steps taken to date and those being planned are considered to be the justification for closing this item.

(Closed) Observation - Page 37; The team believed that tighter control over temporary variations is needed and understood that a major revision to the equipment control procedure will be implemented shortly. The major revision to Procedure 108, Equipment Control, was implemented on February 28, 1988.

(Closed) Observation - Page 37; Some Plant Engineering personnel seemed to be bogged down with routine maintenance of plant procedures.

To reduce the amount of time spent by Plant Engineering personnel maintaining procedures all General Plant Operating Procedures (75 procedures) and all Plant Systems Procedures (139 procedures) have been transferred to Operations.

(Closed) Weakness - Page 37; Safety-related instrument setpoint calculations are not addressed by either Technical Functions or Plant Engineering Procedures.

On December 28, 1987, Technical Functions issued Procedure ES-002, Instrument Error Calculation and Setpoint Determination. This procedure describes a uniform method for establishing setpoints for instrumentation channels.

(Open) Observation - Page 38; Licensee to clarify FSAR with regard to commitments to Regulatory Guides.

Licensee Action Item 87215.12 was issued to the licensing group to respond to this item. The completion due date for this item had been February 8, 1988, but was extended to May 30, 1988.

(Closed) Weakness - Page 38; The QA group is not intimately involved in the day-to-day activities conducted by Plant Engineering.

QA Engineering in conjunction with Operations QA has instituted an engineering monitoring program. A review of a QA Task Status Log shows that monitoring in the following areas has been conducted or is scheduled to be conducted by June 30, 1988: Mini-Mods, GPUN Drawings, Design Verification, Modifications and System Design Descriptions, Calculations, Inservice Test Program Administration, and Installation Specifications.

(Closed) Observation - Page 39; The team believes a formal commitment to the system engineers program needs to be made.

A formal program description has been developed for the system engineers which establishes responsibilities, training requirements, interdepartmental interfaces, formal system engineer certification process, and schedule for implementation.

(Open) Observation - Page 40; This item deals with training provided to Responsible Technical Reviewers, Independent Safety Reviewers, and personnel who prepare safety evaluations.

The review of this item was not completed during this inspection.

(Open) Observation - Page 40; The Plant Review Group is infrequently used during the review of complex safety issues.

This item was not reviewed during this inspection.

(Open) Observation - Page 41: The team noted that the disposition of certain hydraulic control unit (HCU) bolting discrepancies were not well documented and that better documentation and traceability of the disposition of various evaluations as they are performed would lead to more efficient resolutions of questions in the future.

The licensee's initial evaluation of this item confined itself to only the HCU issue and did not address the broader issue noted in this observation. The licensee indicated a new Licensing Action Item would be issued to fully address this item. The licensee's complete resolution of this item will be reviewed during a future inspection.

(Closed) Observation - Page 42; In evaluating observations relative to interfaces the team identified the following:

- a. The Technical Functions-Rad Con interface needs improvement of the ALARA estimates for long-term job planning and more timely provision of outage job information from Tech Functions for on-site Radiological Engineering review. Initiatives to improve the Technical Functions-Rad Con interfaces include:
 - (1) Formal reviews of preliminary and final engineering packages with Rad Con and other interfacing disciplines via the PEDR and EMCR meetings.
 - (2) Releasing engineering packages for construction at least six months prior to outage start. Achieving this goal should provide MCF and Rad Con required lead time to properly plan the work.
 - (3) Assigning an experienced individual to Technical Functions to provide direct input on ALARA matters and to facilitate the interface with Rad Con personnel.
- b. Plant Engineering should be consulted earlier in the review of plant problems. Also, system engineers should be more involved in surveillance test results review and in the performance of major tests.

Plant Engineering attends the "Plan of the Day" meeting; each maintenance or construction project is reviewed. If problems are identified, they are brought to the attention of Plant Engineering at that time. In addition, Plant Operations chairs a 2:30 p.m. meeting daily which preplans all MCF work; potential problems are forwarded to Plant Engineering during the meeting. Also the System Engineering Program Description describes the system engineers' involvement in surveillances.

- c. Health Physics technician work hours do not conform to those of other site workers, creating problems in continuity of work and HR coverage.

Rad Con, Operations, and MCF shift rotation schedules have been synchronized.

(Open) Observation - Page 43; The team believes that if management insists on a more universal understanding of their philosophy certain problems can be eliminated.

The licensee's completion of this item had been extended several times. The current completion date is May 15, 1988.

(Open) Observation - Page 43; Management goals not as well understood at lower levels than at higher levels of management.

The licensee's completion of this item has been extended. The current completion date is May 30, 1988.

(Open) Observation - Page 43; Improvement is needed in the areas of risk perspective and understanding the design basis of the plant.

This item was not reviewed during this inspection.

(Open) Observation - Page 44; The team felt it would be prudent to have continuing feedback from reviews of the long-term programs to determine what additional real time improvements need to be applied until each program is fully and successfully implemented.

This item was not reviewed during this inspection.

The above review closes open item 50-219/87-24-01. The remaining open items identified above will be tracked as open item 50-219/88-13-02.

5.0 Engineered Safeguard Feature System Walkdown (71710)

On May 16 and 17, 1988, inspectors performed a walkdown of the accessible portions of Core Spray System I. During this walkdown the inspectors verified that the system valve lineup was in agreement with the Process and Instrumentation Diagram (P&ID), the P&ID was in agreement with as-built conditions in the field, and the lineup of the system was in accordance with the current system operating procedure. During these verifications the inspectors identified that one electrical breaker identified in the system electrical lineup was labeled in the plant a "spare" and was in the "off" position.

This breaker provided electrical power to system instrumentation. As a result of this the inspectors verified through observation that the instrumentation was energized and presented this concern to operations management. It was determined that this breaker supplied multiple plant systems and that this power supply had been moved to another instrument panel during Appendix R

modifications. As a result of this modification, plant operating procedures had been updated to reflect the current plant configuration, but Station Procedure 308, Emergency Core Cooling System, had not been updated. The inspectors verified that another system electrical lineup incorporated this breaker, and the inspectors verified that the breakers was correctly "checked and verified" to be in the proper position. The licensee subsequently reported that a procedure change had been submitted to Station Procedure 308 in order to specify the correct electrical lineup.

The inspectors identified other minor discrepancies to the licensee that were not of a safety concern. In addition, the inspectors determined that house-keeping in the vicinity of Core Spray I was satisfactory.

6.0 Monthly Surveillance Observations (61726)

- 6.1. On May 21, 1988, the inspector observed the complete performance of Surveillance 602.4.002, Main Steam Isolation Valve (MSIV) Closure and In-Service Test (IST) by Plant Operations department. This surveillance required completely closing each MSIV, one at a time, and timing the valve stroke time in the open and close direction. In addition, the correct response of the Reactor Protective system (RPS) was verified. The inspector verified the surveillance procedure was properly approved, the current revision was used, prerequisites were met, the procedure met technical specification requirements, and that test results met technical specification requirements. No safety concerns were identified.
- 6.2 On May 18, 1988, the inspectors observed partial performance of Surveillance 607.3.002, Containment Spray Automatic Actuation Test. One inspector observed performance from the control room and the other observed performance from locations in the plant. The inspector verified that the procedure was correctly approved, the current revision was used, and that the performers were qualified. No safety concerns were identified.
- 6.3 On May 4, 1988, the inspector observed the surveillance specified by Procedure 604.3.020, "Drywell H2O2 Analyzer Surveillance performed by the I&C department, licensee personnel initiated the surveillance at approximately 10:00 a.m. after securing the necessary authorizations. Some "As found" hydrogen indications were outside the specified acceptance criteria for the "A" channel. Appropriate adjustments were made on the analyzer panel located on the 75 ft. reactor building elevation. The inspector observed "As Left" indications to meet procedure acceptance criteria. No anomalies were identified on the "B" channel. Inspector evaluation of documentation submitted for supervisory review indicated that "As Found" deviations were appropriately documented in the surveillance procedure and in a deviation report. The inspector had no further questions.

7.0 Plant Operational Review (71701, 62702)

7.1 Routine tours of the control room were conducted by the inspectors during which time the following documents were reviewed:

- Control Room and Group Shift Supervisor's Logs;
- Technical Specification Log;
- Control Room and Shift Supervisor's Turnover Check Lists;
- Reactor Building and Turbine Building Tour Sheets;
- Equipment Control Logs;
- Standing Orders; and,
- Operational Memos and Directives.

7.2 Routine tours of the facility were conducted by the inspectors to make an assessment of the equipment conditions, safety, and adherence to operating procedures and regulatory requirements. The following areas are among those inspected:

- Turbine Building
- Vital Switchgear Rooms
- Cable Spreading Room
- Diesel Generator Building
- Reactor Building

The following additional items were observed or verified:

a. Fire Protection:

- Randomly selected fire extinguishers were accessible and inspected on schedule.
- Fire doors were unobstructed and in their proper position.
- Ignition sources and combustible materials were controlled in accordance with the licensee's approved procedures.
- Appropriate fire watches or fire patrols were stationed when equipment was out of service.

b. Equipment Control:

- Jumper and equipment mark-ups did not conflict with Technical Specification requirements.
- Conditions requiring the use of jumpers received prompt licensee attention.
- Administrative controls for the use of jumpers and equipment mark-ups were properly implemented.

c. Vital Instrumentation:

- Selected instruments appeared functional and demonstrated parameters within Technical Specification Limiting Conditions for Operation.

d. Housekeeping:

- Plant housekeeping and cleanliness were in accordance with approved licensee programs.
- The inspector observed that a small amount of lubricating oil was leaking from a Control Rod Hydraulic (CRD) pump and was dripping onto Core Spray pump 'A' motor and associated piping. This condition was identified to the licensee who took corrective action to clean the area and also to initiate the work request to correct the CRD oil leak. The inspector concluded there were no immediate safety concerns or fire hazards associated with the oil leak.

No inspector concerns were identified.

- 7.3 The inspectors reviewed the licensee's efforts to troubleshoot the 1-2 service water pump breaker after the pump initially failed to start on May 17, 1988. The operators were successful in starting the pump on a subsequent attempt, but after discussions with Plant Engineering chose to declare the pump inoperable. Starting the pump after an unsuccessful attempt may give operators the confidence that the pump is available but could hinder further investigation efforts in determining the root cause. Operators may be concerned regarding the availability of a particular piece of equipment, but this should be weighed against consideration for future troubleshooting of the equipment.

The inspectors' review of the licensee effort to investigate the problem indicated that the licensee was conducting a thorough evaluation of 1-2 service water pump breaker failure. This effort included the removal of the installed breaker for examination by the vendor and the installation of a spare breaker which had been previously upgraded by the vendor. The breaker originally installed had been overhauled by the licensee

under the vendor's supervision. The licensee determined that this was the first AKA-25 breaker maintained under a 5 year overhaul program and that the trip shaft was not installed correctly.

At the conclusion of the report period the licensee was examining the three other AKA-25 breakers that had recently been overhauled and had declared the 1-2 service water pump operable. The inspector had no further concerns.

- 7.4 The inspectors reviewed maintenance activities on the "B" recombiner in the Augmented Offgas (AOG) building during the report period. The "B" recombiner had experienced vibration problems and the licensee was in the process of conducting post maintenance testing (PMT) when three mechanics were contaminated. The workers were contaminated as a result of noble gases and daughter products released from the "B" recombiner during PMT. Skin contaminations resulted from short lived particulate; the highest reading measured was 7000 counts on one individual's head. The individuals were showered and released after a short time. The licensee stopped work on the job until the maintenance activity could be properly evaluated. The licensee rewrote the PMT procedure to preclude a dead leg pipe from emitting noble gases after a system air purge was conducted. This dead leg section of pipe released the noble gases during the previous PMT activity that contaminated the workers. Further PMT was conducted using the revised procedure without a similar occurrence. The inspectors concluded that the original PMT procedure was not adequate to prevent the worker contamination from the dead leg section of piping and that supervision needed to be more closely involved to ensure that the PMT procedure could be implemented without problems. When supervision became involved an adequate PMT procedure was developed and the PMT of the "B" recombiner was effectively conducted.
- 7.5 The inspectors reviewed Station Procedures 328.1, Battery Room "C" HVAC, and 340.3, 125 Volt DC Distribution System "C". Station Procedure 328.1 indicates that "C" Battery Room temperatures should be maintained at approximately 60 degrees F or greater during all modes of operation while Station Procedure 340.3 requires "normal battery room ambient temperature should be maintained at approximately 77 degrees F. Minimum and maximum temperatures are 50 degrees F and 104 degrees F respectively." The inspectors reviewed these procedures with the licensee, who stated that they would review the procedures for accuracy. The inspector was concerned that two different procedures specified different requirements for the same parameter. Inspection report 88-04 discusses a similar situation with differential pressure opening requirements for the MSIV's. The inspector did not consider this as significant since a minimum temperature of 50 degrees F ambient temperature is adequate to maintain battery operability.
- 7.6 The inspector reviewed the increase in drywell equipment drain tank pump (DWEDT) run times and followed the licensee's action to electrically backseat the "A", "B" and "D" recirculation pump discharge valves. The

"E" recirculation pump discharge valve had already been backseated while the "C" valve remained unbackseated. The backseating was effective in decreasing the DWEDT pump run times which is an indication of identified leakage trends. The inspector had no concerns.

- 7.7 On May 21, 1988, the licensee reduced load to less than 40% to conduct an MSIV full closure surveillance and other maintenance activities. The inspector witnessed portions of these activities. In addition to MSIV surveillance, the licensee conducted maintenance on the "E" recirculation pump motor generator set, replaced the accumulator on control rod hydraulic control unit 10-15, replaced V-III valve on HCU 06-43, timed control rod drive mechanisms, performed balancing of the "B" recombiner on augmented offgas system and inspected the trunnion room fan belts.

8.0 Control Rod Drive Hydraulic Pump Trip (71707, 62705)

On April 30, 1988, the "A" Control Rod Drive (CRD) hydraulic pump motor breaker tripped during an attempt to start and the pump was declared inoperable. Plant Engineering investigated the trip and, finding no damage to the motor, concluded that the electrical current surge upon starting a cold motor actuated the instantaneous overload trip. The instantaneous overload trip setpoint was increased and subsequent attempts to operate the pump were successful. The pump was declared operable; however, Plant Engineering felt that it was necessary to demonstrate starting capability with the motor at ambient temperature. This was performed on May 5, 1988, and the pump was successfully started.

During this test, the licensee further inspected the breaker with the vendor, and it was discovered that the clearance between the overcurrent trip paddle and the overcurrent trip solenoid plunger was not correct. The specified clearance is 0.1 inches and the actual clearance was zero. Based upon this, the licensee has concluded the probable cause of the initial breaker trip to be mechanical shock combined with no clearance between the overcurrent trip solenoid plunger and the overcurrent trip paddle, resulting in actuation of the breaker trip bar. The licensee adjusted this clearance to the specified value and satisfactorily tested the breaker.

The licensee further concluded that this misadjustment occurred during recent performance of the breaker five year overhaul and breaker modification to install a solid state trip system. Since this breaker was the first breaker overhauled during the effort to overhaul the breakers of this type, the licensee elected to reinspect seven other "priority" breakers in order to determine if this condition exists on them as well. These breakers are CRD B, four containment spray pumps, the mechanical vacuum pump, and the turbine auxiliary oil pump. At the end of the inspection period, two containment spray pumps and the CRD B pump had been satisfactorily inspected. The inspector will review the results of the remaining inspections.

9.0 Electromagnetic Relief Valve Setpoint Change (71707)

On May 9, 1988, the licensee adjusted the alarm setpoint of the acoustic monitors for the electromagnetic relief valves (EMRV) from 30% of full scale to 40%. The inspector reviewed this change with Plant Engineering and reviewed the safety evaluation associated with the setpoint change. The inspector concluded that the setpoint change was properly executed and that station procedures were correctly revised to reflect the change. The inspector had no other questions in this area.

10.0 Review of Periodic and Special Reports (90713)

Upon receipt, periodic and special reports submitted by the licensee pursuant to Technical Specification requirements were examined by the inspectors. This review included the following considerations: the report includes the information required to be reported to the NRC; planned corrective actions are adequate for resolution of identified problems; and the reported information is valid. During this inspection period, a review was conducted of April Operating Report.

11.0 Observation of Physical Security (71881)

During daily tours, the inspectors verified that access controls were in accordance with the Security Plan, security posts were properly manned, protected area gates were locked or guarded and that isolation zones were free of obstructions. The inspectors examined vital area access points to verify that they were properly locked or guarded and that access control was in accordance with the security plan.

12.0 Backshift Inspection (71707)

NRC inspections of licensee activities on backshifts were conducted on the following days:

-- May 11, 1988

-- May 21, 1988

13.0 Exit Interview (30703)

A summary of the results of the inspection activities performed during this report period were made at meetings with senior licensee management at the end of this inspection. The licensee stated that, of the subjects discussed at the exit interview, no proprietary information was included.