

U.S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 87-07/87-08  
Docket No. 50-220/50-410  
License No. DPR-63/NPF-54 Category B  
Licensee: Niagara Mohawk Power Corporation  
301 Plainfield Road  
Syracuse, New York 13212  
Facility: Nine Mile Point, Units 1 and 2  
Location: Scriba, New York  
Dates: April 20, 1987 to June 7, 1987  
Inspectors: W.A. Cook, Senior Resident Inspector  
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Approved by:

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Projects Section 2C, DRP

*7-28-87*  
Date

INSPECTION SUMMARY

Areas Inspected: Routine inspection by resident and region based inspectors of station activities (including Unit 1 power operations and Unit 2 initial criticality and startup surveillance testing), licensee action on previously identified items, plant tours, maintenance, safety system walkdowns, LER review, TMI Action Plan item review, IE Bulletin review, allegation followup, and 10 CFR 21 reviews. This inspection involved 475 hours by the inspectors which included 151 hours of backshift and 25 hours of weekend inspection coverage. Backshift inspections were conducted on 4/20-25, 4/27-5/1, 5/4-4/8, 5/11, 5/12, 5/18-5/23, 5/26-5/29 and 6/1-6/5. Weekend inspections were conducted on 4/26, 5/19 and 5/23.

Results: The fourth Unit 1 scram isolation valve diaphragm failure since September 1986 is discussed in section 1.1. Unit 2 inspector followup item on spurious ESF actuations is discussed in section 1.2.a. Unit 2 initial criticality is discussed in section 1.2.h. A violation of Unit 2 operating procedures is discussed in section 6.2.



## DETAILS

### 1. Review of Plant Events

#### 1.1 Unit 1

- a. Unit 1 operated at or near full power throughout the period, with the exception of a reduction to approximately 60 percent power on June 9, 1987 when the intake tunnel was partially blocked with moss.
- b. A Hydrogen Water Chemistry Pre-Implementation Test was conducted throughout most of the reporting period. This test was performed to determine the appropriate hydrogen injection levels for optimum reduction of intergranular stress corrosion cracking (IGSCC). The Hydrogen Water Chemistry Pre-Implementation Test modification package was reviewed by the inspectors, as discussed in section 14.1.
- c. On June 5, 1987, control rod 14-27 would not single notch while conducting a rod swap and weekly control rod exercising. In addition, control rod 26-07 would not move within the control rod drive pressure limitations imposed by procedure. These events are discussed in detail in section 4.1.
- d. A fourth control rod scram valve diaphragm rupture occurred on June 15, 1987. (See combined Inspection Report 50-220/87-03 and 50-410/87-09). During weekly control rod exercising, an operator discovered that control rod 14-39, expected to be at position 48, was at position 06. The rod was driven in to position 00 and valved out of service. Operators had not identified the control rod drift because the control rod drift alarm was in continuously due to noise generated in the Rod Position Indication System (RPIS) by control rod 14-47, at position 48. Control rod 14-47 was subsequently moved to position 46 to eliminate the noise and allow drifting control rods to be identified.

Licensee investigation revealed that the diaphragm in the scram inlet valve had ruptured. The inlet valve opened, the outlet valve remained closed, and the control rod was inserted. Although the General Electric Company (GE) had previously indicated that a scram inlet valve diaphragm rupture would cause both valves to open, a draft copy of the engineering evaluation report was in agreement with the actual events in this instance. The licensee asked General Electric to include in the final report an estimate of rod insertion speed for this type of occurrence.



The draft GE report discusses the possibility of fuel damage resulting from an inlet valve diaphragm failure due to the local neutron flux peaks which occur when a rod is inserted adjacent to other partially inserted rods. The licensee and resident inspector have monitored plant chemistry, offgas and stack gas process radioactivity monitors and steam line radiation monitors. No significant changes which could indicate fuel damage have been observed. These parameters will continue to be periodically monitored. The final GE report on scram valve diaphragm failures will be reviewed in a future inspection report.

- e. During this reporting period, the licensee presented an interpretation of Technical Specification (TS) 3.6.8.b to the inspectors. The TS 3.6.8.6 states that with one or more of the required carbon dioxide fire suppression systems inoperable, within one hour establish a continuous fire watch with backup fire suppression equipment for those areas in which redundant systems or components could be damaged. Since powerboard 102 and 103 and diesel generators 102 and 103 are in different fire areas from each other, the licensee interprets the TS to imply that no action would be required unless the carbon dioxide system for both redundant components were to be inoperable. However, to be conservative and consistent with Unit 2 and Standard Technical Specifications, the licensee will establish an hourly fire watch patrol when one or more carbon dioxide fire suppression system becomes inoperable. The inspectors found this acceptable.

## 1.2 Unit 2

- a. On April 22, 1987, a reactor scram occurred, while returning a level detector to service. The detector being valved back in service has a common variable sensing leg with two channels of Reactor Protection System (RPS) reactor vessel water level transmitters. The apparent cause of the scram signal was a pressure perturbation in the common variable sensing leg resulting from valving the detector back in service. Both of the RPS reactor water level transmitters tripped and caused the scram.

On May 9, 1987, while isolating the reactor vessel high pressure detector, which supplies an automatic isolation signal to the Shutdown Cooling Mode of the Reactor Heat Removal (RHR) system, the RHR system isolated. The licensee suspects that a pressure spike caused by the detector being isolated resulted in the isolation signal.

These events are similar to other Engineered Safety Feature (ESF) actuations, related to detector sensitivity problems experienced on December 10 and 11, 1986 and February 2 and 7, 1987. The inspectors will continue to monitor licensee actions to address the detector sensitivity problems and resultant ESF



Actuations. Licensee corrective actions, as identified in their Licensee Event Reports, will be reviewed in a subsequent inspection report. INSPECTOR FOLLOWUP ITEM (50-410/87-08-01)

- b. On April 30, 1987, a Station Shift Supervisor noticed, during a system walkdown, that the spline gear on the operator for a service water system motor operated butterfly valve was backing off the valve stem. The licensee determined that if the spline could back off completely, the valve could not operate. The valve was manufactured by Clow, Inc. and had a Limitorque operator. The licensee inspected all other Clow valves of the same design and found one other valve where the spline gear had slipped down. The licensee has discussed this with the manufacturer and has incorporated an inspection step in the valve's periodic maintenance procedure to identify and correct future problems. Although the licensee made a preliminary verbal report of the problem via the ENS, the licensee later determined the problem was not reportable per 10 CFR 21 because the spline gear could not back off completely and disable the valve. The inspectors reviewed and concurred with the licensee's determination.
- c. During this inspection period, several events occurred dealing with the station DC emergency power supplies.
- On April 30, one of the two Division III battery chargers failed the surveillance for minimum voltage output.
  - On May 1, the Division II battery exhibited a high resistance at a cell interconnection, during a surveillance test.
  - On May 2, Division II DC power was momentarily lost when returning the battery to an equalizing lineup, after a surveillance test. This event was documented in LER 87-22.
  - On May 11, the Division III battery was thought to have failed the five year load test. When the procedure was reviewed by electrical engineering, it was found that the minimum voltage acceptance criteria was incorrect. The procedure was revised and the battery five year load test results were determined to be satisfactory.

The inspectors reviewed the operational events discussed above and determined that they were properly resolved by the licensee.

- d. On May 1, an Intermediate Range Neutron Monitor (IRM) upscale trip occurred without a resulting half scram. The licensee determined that the reason for the half scram not occurring was that the IRM upscale trip signal was of very short duration and did not pick up the scram relays. General Electric considers this an expected response for short duration pulses. The reason



for the upscale trip was a loose connector at the IRM detector, causing a spike during detector withdrawal. The licensee repaired the IRM connector and performed functional testing of the reactor protection system to verify operability.

- e. On May 12 and 13, the licensee identified safety related conduit in areas without fire detection capabilities. The conduit was located in reactor building and control building stairwells. The required fire watches were established. The licensee will submit special reports on both these events. The inspectors will review these reports in a subsequent inspection period.

- f. Several Standby Gas Treatment (SBGT) System related events occurred this inspection period:

-- On May 17 and May 27, SBGT automatically started and the secondary containment isolated. These events occurred when a fan tripped during the switching of the normal reactor building ventilation fan lineups. The fan trip caused a low flow condition in the ventilation system which initiated the isolation and actuation of SBGT. These events are documented in LER 87-24 and 87-29, respectively.

-- On May 25, the licensee discovered that the SBGT system exhaust radiation monitor was not operating. Licensee investigation determined that the monitor needed system flow to remain operating. When flow was secured, the monitor would shutdown. A modification was made using a temporary power supply to input a simulated flow signal to the monitor when the SBGT system was not operating.

-- On May 28 and May 29, six automatic isolations of the containment vent and purge system were received. One of the signals that initiates these isolations is the SBGT exhaust radiation monitor. The licensee found that the modification, made earlier to keep the monitor energized, was causing instrument cards to overheat and resulting in false high radiation isolation signals.

The inspectors will review the licensee's corrective actions for these events and any associated Licensee Event Reports and document their review in a subsequent inspection report.

- g. On May 19, the service water inlet bay level instrument was discovered to be inoperable. This instrument functions to automatically open the inlet screen bypass valves on low bay level to prevent clogged screens from causing a loss of service water. Technical Specifications require that a continuous watch be established to monitor level and manually open the bypass valves from the control room if a low level develops. The licensee informed the inspectors that an inlet bay water level



computer point would be called up and displayed at the Chief Shift Operator (CSO) control console. The licensee stated that the computer point would be monitored as part of the CSOs normal parameter monitoring.

The inspectors disagreed with the licensee's proposal because it did not provide equivalent compensatory action. The licensee agreed to station a watch (to continuously monitor the computer point, and later a service water bay level meter on the control panel), whose sole responsibility was to open the valves, if necessary. The inspectors discussed the meaning of "continuously monitor" with a licensing representative and with station management at the exit meeting. The licensee agrees that "continuously monitor" means using a dedicated person to monitor an indicator/parameter.

- h. The reactor was taken critical for the first time on May 23, 1987. Twenty-four hour NRC inspector coverage was provided by resident and region based inspectors for several days prior to and after this event. A reactor shutdown was commenced on May 26 due to the questionable operability of the primary containment airlock door equalizing valves. The shutdown was terminated when the outer door equalizing valve was determined to be operable. The reactor was returned to criticality later on May 26. The reactor was shutdown on May 31 to modify several seismic restraints and to evaluate feedwater stratification deficiencies. The reactor was again taken critical on June 6, but was subsequently shutdown due to continued thermal stratification in feedwater piping. The inspectors attended several Site Operations Review Committee meetings held prior to the initial Unit 2 startup and held prior to subsequent restarts. No discrepancies were noted. A region-based Operational Readiness Assessment team was on site for two weeks beginning June 1. The team's inspection findings will be documented in Inspection Report 50-410/87-16.
- i. On May 25, the Reactor Water Cleanup system isolated due to a false high differential pressure indication. The false signal occurred while one detector was valved out of service and was being vented. The technician venting the detector did not realize that the operable detector received its pressure inputs from the same instrument piping as the detector being vented. Venting the inoperable detector caused a high flow signal to be generated by the operable detector. The inspectors will review the licensee's corrective actions and associated LER in a subsequent report.



## 2. Follow-up on Previous Identified Items

### 2.1 Unit 1

- a. (Closed) VIOLATION (50-220/82-01-06): Review of procedures for venting primary containment following a DBA LOCA. This violation identified improper procedural requirements to enter the reactor building in order to vent containment. Inspector review of N1-EOP-4, Primary Containment Control, Revision 0, N1-OP-9, Nitrogen Inerting System For Primary Containment and Pressure Suppression Pool, Revision 15, and controlled drawings revealed that several methods are available to operators to vent primary containment without entering the reactor building. No unacceptable practices were noted. This item is closed.
- b. (Closed) UNRESOLVED ITEM (50-220/86-17-03): Statement of position regarding redundancy of the HPCI system flow paths. Inspectors reviewed Niagara Mohawk to NRC letter dated May 28, 1987. This letter states that the two flow paths downstream from the common header in the high pressure portion of the feedwater system shall be considered redundant components for determination of HPCI operability per Technical Specification 3.1.8. The inspectors determined that this interpretation was acceptable. This item is closed.
- c. (Closed) UNRESOLVED ITEM (50-220/83-28-01): Review of fire barrier penetrations not properly sealed. Inspector review of Nuclear Compliance and Verification (NC&V) files 424/248 and 623/1337 and Specification NS-0018-85 indicate that the identified penetrations were appropriately sealed. This item is closed.
- d. (Closed) INSPECTOR FOLLOWUP ITEM (50-220/86-21-01): Potential for hand-carried items to be brought into the protected area without undergoing search. The potential for passing items around search equipment without security force detection has been eliminated with the installation of permanent plexiglass panels in the Unit 1 access control building. This item is closed.

### 2.2 Unit 2

- a. (Closed) CONSTRUCTION DEFICIENCY REPORT (50-410/86-00-22): This report was generated based on the improper operation of the primary containment hydrogen recombiners during preoperational testing. The reasons for system failure to meet preoperational test acceptance criteria was the apparent inability of the heater to come to operating temperature within the required time interval and indication of lower-than-designed flowrate through the system. The licensee documented that the major contributing factor to the testing failures was that the licensee had used



faulty data to calibrate the system flow detectors. This error led to erroneously low flow data being taken for the recombiner. The inspector reviewed the final preoperational test data for both recombiners, documented in preoperational test N2-POT-62. The inspector verified that all data taken correlated to acceptable flowrates and heater run times. The inspector also verified that the acceptance criterion used was in accordance with unit Technical Specifications. This item is closed.

- b. (Closed) UNRESOLVED ITEM (50-410/87-02-02): Resident inspectors to review Licensee Event Report (LER) 87-14 Supplement 1 for potential enforcement action. LER 87-14, dated February 27, 1987, identified that the limiting condition for operation (LCO) for the Main Stack Effluent and Radwaste/Reactor Building Vent Effluent flow monitors was not adhered to as required by Technical Specification (TS) 3.3.7.11. For the period of December 10, 1986 through January 29, 1987, both effluent flow monitors were inoperable and no four hour flow rate estimates were performed as required by TS. The unit was in cold shutdown and the initial fuel load had not yet been irradiated. At the time LER 87-14 was submitted, the licensee had not completed their investigation of the event and had not formulated their corrective actions. LER 87-14 Supplement 1, was submitted for NRC review on May 1, 1987.

As stated in LER 87-14 Supplement 1, the cause for the event was primarily personnel error. Prior to declaring the flow monitors operable, the Operations staff did not carefully review all the open work documentation on the flow instruments. Secondly, the chemistry technicians responsible for the calibration of the flow monitors were not familiar with the calibration instruments and did not properly calibrate the flow monitors.

In accordance with the provisions of 10 CFR 2, Appendix C, a Notice of Violation was not issued for this event for the following reasons:

- The violation was identified by the licensee. The licensee conducted a thorough review and evaluation of the event, as documented in LER 87-14 Supplement 1.
- The severity level of this violation was low. At the time this violation occurred, the reactor was in cold shutdown and the fuel had not yet been irradiated. The potential for any release, precisely monitored or not, was negligible.
- Verbal notification of the violation was made to the NRC resident inspectors and to the headquarters Duty Officer via the ENS. Written notification was submitted within the specified time period and it was clear and accurate in its description of the event and licensee corrective actions.



- Corrective action to prevent recurrence was appropriate and taken in a timely manner. Instructions to Operations personnel for declaring systems operable have been clarified and formalized in a Standing Order. Calibration of flow rate meters has been turned over to the I&C Department and the calibration procedure clarified. All other Chemistry Department surveillance procedures have been reviewed for similar calibration related deficiencies. All Chemistry personnel have been instructed by supervision and have attended training on procedural control and calibration of measuring and test equipment.
- There have been no previous violations in this area. This event was caused by compounded errors made by two station organizations. The problem appears to have been an isolated one, as no other concerns have been identified regarding restoration of system operability.

This item is closed.

- c. (Open) INSPECTOR FOLLOWUP ITEM (50-410/87-09-01): On April 1, 1987, the Division I diesel generator did not attain rated voltage within the Technical Specification time limit. The machine was declared inoperable and taken out of service to allow troubleshooting. On April 29, the licensee submitted a Special Report on the diesel failure. This report was reviewed and determined to be satisfactory by the inspector. The licensee concluded that a sticky air operated control valve caused the fuel oil racks not to reposition properly in the required time period. This then caused the slow start of the diesel and the slow rise in voltage. The problem with the diesel starting times was experienced after the machine had been idle for one month. This item will remain open pending review of future monthly surveillance testing.
- d. (Closed) VIOLATION (50-410/86-56-01): Contrary to Technical Specification LCO 3.3.6.6 and Table 3.3.6-1, on November 4, 1986, four Source Range Neutron Monitor (SRM) downscale rod block channels were inoperable and none of the rod block channels were placed in the tripped condition. The SRM rod blocks were made inoperable during the performance of a surveillance test on the reactor mode switch. Due to operator lack of familiarity with the governing Technical Specifications, the channels were not placed in the tripped condition, as required. To address this violation, the licensee revised the surveillance procedure to clarify SRM operability requirements and application points to bypass individual SRM downscale rod blocks. In addition, the licensee has developed a Technical Specification (TS) cross reference index to assist operators in finding all applicable TS requirements on a given system or component. Operator training was conducted to review this event and the



lessons learned. The inspectors reviewed the licensee's corrective actions and found them adequate. This violation is closed.

- e. (Closed) VIOLATION (50-410/86-56-02): On November 5, 1986, an unplanned automatic Reactor Protections System actuation occurred and was not reported to the NRC in accordance with 10 CFR 50.72. The licensee subsequently reported the event, in writing, as documented in LER No. 86-01. To prevent recurrence, the licensee has conducted licensed operator retraining on the 10 CFR 50.72 reporting requirements and subsequently revised their administrative procedures for documenting and making proper notification of reportable events. The inspectors reviewed these corrective actions and found no discrepancies. The inspector will continue to monitor for licensee adherence to the reporting requirements during routine inspections. This violation is closed.
- f. (Closed) VIOLATION (50-410/86-56-03): Contrary to Technical Specification LCO 3.9.2, on November 7, 1986, nineteen new fuel bundles were loaded into the C quadrant while the reactor scram function of Source Range Monitor (SRM) Channel C was bypassed. By letter dated March 5, 1987, the licensee responded to this Technical Specification violation. As previously reviewed and documented in Inspection Report 50-410/86-56, immediate corrective action was to unbypass SRM Channel C. Subsequently, because the cause of the event was personnel error, the licensee revised the surveillance procedure for the SRM function checks to require an independent verification by a second licensed operator to ensure all SRMs are not bypassed prior to completing the procedure. Disciplinary action was taken against the operator involved and the entire shift was reprimanded. Lastly, all licensed operators were briefed on the details of this event and the corrective actions taken. The inspectors reviewed the licensee's corrective actions and determined that they were acceptable. This violation is closed.
- g. (Closed) VIOLATION (50-410/86-65-01): On December 15, 1986, a Unit 2 Scram Discharge Volume (SDV) high level trip occurred as a result of personnel error subsequent to resetting a scram signal. A similar event occurred on November 5, 1986, and it was apparent that licensee corrective action was not effective in preventing the December 15 trip. By letter dated March 26, 1987, the licensee responded to the Notice of Violation dated February 11, 1987. Licensee corrective and preventive actions included: a revision to the Scram Recovery Procedure to clarify operator actions; simulator training to review the event and to ensure all operators are familiar with the proper actions to take prior to resetting a scram signal; and incorporation of the applicable LERs into the Operation's "Lessons Learned" book for prompt operator review. The inspector reviewed the licensee's



corrective actions and discussed them with the operators to verify that the corrective actions were properly implemented and understood. The inspectors identified no deficiencies. This violation is closed.

- h. (Closed) INSPECTOR FOLLOWUP ITEM (50-410/85-20-09): Licensee to describe the Radwaste Operating Organization in appropriate administrative procedures. The Radwaste Organization and staffing is presented in station organization charts. The composition and responsibility of Radwaste organization personnel is described in procedure AP 1.2, Composition and Responsibility of Unit Organization. One weakness identified was a lack of minimum nuclear experience requirements obtained in job/position descriptions for Radwaste Operator. The licensee has established draft job/position descriptions for Radwaste Operator with minimum nuclear experience requirements specified. These position descriptions, however, have not yet been approved. Except for this weakness, the organization was considered adequately described. The operators were trained in accordance with the established training program. This item is closed.
- i. (Closed) INSPECTOR FOLLOWUP ITEM (40-410/85-32-02): This item tracked the status of licensee action on a number of NRC IE Bulletins and Circulars. One bulletin and two circulars were identified in Inspection Report 50-410/86-63 as requiring further action by the licensee. The bulletin and circulars identified and licensee actions are as follows:

#### Bulletins

- IE Bulletin 80-10, "Contamination of Nonradioactive System and Resulting Potential for Unmonitored, Uncontrolled Release of Radioactivity to the Environment". Procedures to implement the bulletin were in draft form.

The licensee established, approved and implemented the procedure. The procedures were considered adequate. Procedures established were: N2-CSP-22M, N1-RSP-9M and S-NVSP-15.

#### Circulars

- IE Circular 76-03, "Radiation Exposures in Reactor Cavities". Procedures were in place to control access to other transient and unusually high radiation areas. When dose rates are in excess of 25000 mrem/hour, entry into such areas is to be made only with Radiation Protection Supervision approval. Supervisory review of personnel entries into transient areas with dose rates less than 2500 mrem/hr, but which have the potential to be much higher, was not adequately described.



The licensee revised procedure S-RP-1 and S-RP-2 to provide specific questions for each entry into such areas.

- IE Circular 81-07, "Control of Radioactively Contaminated Material". Guidance for determination of fixed alpha contamination was not contained in applicable procedures.

The licensee revised procedures S-RP-3 to address this deficiency. The procedure revision was considered adequate.

Based on the above reviews, this item is closed.

- j. (Closed) INSPECTOR FOLLOW-UP ITEM (50-410/85-47-03): Licensee to fully establish the Radiological Control Program. The inspector reviewed the following items needing licensee action, as previously identified:

- Establish the Radiological Surveillance Program.

The licensee has established a Radiological Surveillance Program that is commensurate with the current radiological condition at the facility. The licensee is reviewing plant operation and power ascension radiological surveys to identify additional surveillances which may be required as a result of changing radiological conditions. The program was consistent with procedures S-RP-1 and S-RP-3.

- Establish airborne radioactivity sampling and analysis program procedures.

The licensee reviewed and approved the Unit 1 procedures for use at Unit 2. In addition, several procedures for airborne alpha radioactivity sampling were established and implemented. Appropriate personnel were trained in the procedures. The program is contained in procedures S-CRP-1, S-RP-3, S-RP-5, S-RTP-11, S-RTP-75 and S-CRP-1.

- Complete the training and qualification of Radiological Controls personnel.

Prior to fuel load, the licensee initiated action to ensure appropriate personnel were adequately trained and qualified commensurate with their assigned responsibilities. Contractor support was obtained to assist in the training and qualification of personnel. Training and qualification status of personnel was tracked by computer. Appropriate personnel were trained and qualified to support fuel load and power operation.

- Establish and implement the high radiation area access control program (including key control).



The licensee reviewed and approved Unit 1 high radiation area control procedures for use at Unit 2. In addition, procedure OI-12, "Key/Lock Control Instruction", was established to provide detailed guidance for control of high radiation area access keys. The inspector noted the following:

- No high radiation areas currently exist at Unit 2.
- Keys to High Radiation Areas greater than 10R/hr are controlled by the Station Shift Supervisor (SSS). However, one SSS and one assistant SSS interviewed by the inspector were not aware of procedure OI-12.
- One non-controlled information copy of procedure OI-12 was filed at the radiation protection office. Some radiation protection technicians were unaware of the procedure existence.

Because of the apparent lack of familiarity with OI-12, the licensee issued it to the Operations and Radiation Protection crews as required reading.

Based on review of the licensee's actions stated above, this item is closed.

- k. (Closed) INSPECTOR FOLLOW-UP ITEM (50-410/85-32-08): Licensee to install and calibrate the Main Steam Line Monitors. The licensee has installed the monitors, performed preoperational testing of them, and performed applicable Technical Specification surveillances of the monitors in accordance with approved procedures. This item is closed.
- l. (Closed) INSPECTOR FOLLOW-UP ITEM (50-410/85-32-06): Licensee to complete preoperational testing of the Digital Radiation Monitoring System (DRMS). The licensee completed the preoperational testing of the DRMS. With the exception of the Drywell High Range Containment Monitor Channels' Card 10, all monitors have been calibrated and tested in accordance with approved surveillance procedures. The licensee is awaiting cable replacement for Channel C and D of the Drywell High Range Monitors. Licensee action on these matters will be examined during a special post-accident team inspection. This item is closed.

### 2.3 Unit 1 and 2

- a. (Open) INSPECTOR FOLLOWUP ITEM (50-220/86-16-01)/(50-410/86-46-01): Licensee to upgrade radiation protection personnel retraining and requalification program. The following matters were previously identified:



- Establish administrative controls for the training/qualification of "temporary Radiation Protection workers." Current procedures do not address "temporary licensee radiation protection personnel" (Note: these individuals are licensee employees and not contractors).
- Upgrade retraining/requalification program for Radiation Protection personnel and associated procedures as described in the recently developed retraining/requalification action plan.

The inspector found that the licensee established and implemented administrative controls for training and qualification of temporary radiation protection personnel. Regarding implementation of the upgrade Action Plan, the licensee established a procedure which defines and administratively controls the retraining and requalification of radiation protection personnel. The licensee has implemented the continuing training aspects of the action plan.

The following matter remains open:

- Licensee to describe the minimum training to be provided to personnel on a biannual (every two years) basis.

This item remains open.

### 3. Plant Inspection Tours

During this reporting period, the inspectors made tours of the Unit 1 and 2 control rooms and accessible plant areas to monitor station activities and to make an independent assessment of equipment status, radiological conditions, safety and adherence to regulatory requirements. The following were observed:

#### 3.1 Unit 1

Control room atmosphere and shift turnover continues to be quiet and efficient. Backshift crews were observed to be awake and alert. Plant cleanliness is considered to be adequate overall, with variations from fair to excellent cleanliness observed. Inspectors noted that an effort to repaint the floor on elevation 289 in the reactor building was underway.

#### 3.2 Unit 2

- a. Throughout this period, the inspectors continued to observe the conduct of operations in the control room. During the final stages of the Main Steam Isolation Valve replacement the number of people and the amount of background noise in the control room



was higher than normal. When the MSIV preoperational testing was completed, the number of people and noise level dropped significantly.

As initial criticality approached, the licensed operators were seen taking a more aggressive role in limiting the amount of distractions they would allow in the control room. Just prior to criticality, the licensee implemented the "at the controls" area as specified in the Final Safety Analysis Report, Figure 13.5.1. The licensee also limited access of non-operations personnel to one door directly adjacent to the Station Shift Supervisor's (SSS) office. The problem of too many people in the control room still existed at turnover time when all the operations personnel conducted their turnover in the control room. At one point, thirty-two people were counted in the control room at turnover time. During day shift, long lines of station personnel wanting to have work permits processed would develop outside the Station Shift Supervisor's office, again leading to congestion and noise. These concerns were discussed with the Station Superintendent, Unit 2, who stated that the concerns would be addressed as part of the continuing management review of the control room environment.

- b. The inspectors took frequent tours of the plant prior to and after initial criticality. Housekeeping and non-secured equipment were closely monitored. After each tour, the inspector brought any problems to the attention of the SSS or station management. Several items that had been previously discussed with the licensee did not get resolved until addressed by the Operational Readiness Assessment Team.

The inspectors toured the drywell several times prior to initial criticality and identified numerous housekeeping deficiencies to station management, including: debris in box girders, temporary electrical cords, welding equipment, pieces of scrap metal, temporary air and water hoses, construction tags hanging on equipment and a leak from a main steam safety/relief valve air operating line. Station Management took prompt action to correct these deficiencies when identified.

During one tour, approximately one week prior to startup, the inspector noticed a snubber support missing from the B recirculation pump motor. The licensee initially thought that this snubber was not required, but later determined that it should be installed. This snubber became one of the last items to be corrected prior to the unit startup. The inspector determined that this restraint was removed during MSIV replacement and was not tracked for reinstallation. A licensee review determined that this was an isolated case.



The inspector conducted a closeout inspection of the drywell just prior to licensee management's final tour. At the time of the inspector's tour, general cleaning was in progress. Upon exiting the drywell, the inspector brought to the attention of SSS, packing leakage from valves in the A recirculation loop flow control valve hydraulic system. An operator was sent to adjust the packing on the leaking valves. Weeks later, during a subsequent drywell tour after initial startup, the inspector again observed packing leakage from the same hydraulic valves and informed the SSS, who stated that the packings would be adjusted again.

#### 4. Surveillance Review

The inspectors observed portions of the surveillance test procedures listed below to verify that the test instrumentation was properly calibrated, approved procedures were used, the work was performed by qualified personnel, limiting conditions for operations were met, and the system was correctly restored following the testing.

During this inspection period, the following surveillance activities were observed:

##### 4.1 Unit 1

- a. N1-ST-W6, APRM Rod Block and Scram Instrument Channel Test, Revision 7, effective April 1987. This procedure was conducted as a post maintenance test after neutron monitoring system corrective maintenance (see section 5.1).
- b. N1-IMP-32.1, Reactor Recirc MG Mechanical Scoop Tube Adjustment, Revision 2, effective March 1987. This test was conducted when recirc pump no. 13 tripped during a power reduction on June 9. Recirc pump no. 13 had previously been placed in manual and its scoop tube locked due to tachometer failure and loss of feed-back signal to the controller. During the transient, the pump tripped while operators were attempting to reduce speed by manual control of the scoop tube positioner. The pump could not be restarted, necessitating mechanical and electrical speed stop adjustment for the four operating recirc motor-generator sets. I&C technicians and the inspector found several problems with the procedure. The procedure was being used for the first time since the March 1987 revision. Work was stopped, the procedure was revised by I&C supervision in concert with technicians, and the surveillance was subsequently completed satisfactorily.
- c. N1-ST-W1, Control Rod Exercising, Revision 7, effective October, 1986. This test was conducted when control rod 26-07 failed to



move under normal drive pressure during a rod pattern sequence exchange, and control rod 14-27 would not withdraw under single notch control. While the inspector observed, control rod 26-07 was moved successfully with normal drive pressure. The licensee explained that when the directional controls valves were slow to respond to a withdraw signal, the notch out control must be held for a moment longer than normal to obtain a satisfactory withdrawal. The licensee also pointed out that N1-ST-W1 provides for use of the notch out override control when single notch does not withdraw a control rod successfully, as in the case of control rod 14-27. The failure of the rod to single notch was documented in the procedure to ensure appropriate corrective action during the subsequent refueling outage.

#### 4.2 Unit 2

- a. N2-OSP-GTS-M001 Standby Gas Treatment (SBGT) Monthly Functional Test. During the test, several system alarms were observed on the SBGT control panel. Acknowledgement of these alarms by the operators conducting the test, and evaluation of their effects on system operation, were not documented in the remarks section of the surveillance procedure. This was brought to the attention of an Assistant Operations Superintendent and a Night Order was written to Operations personnel to ensure that all abnormal alarms are logged and the reason for the alarms documented with the test procedure.
- b. N2-ISP-MSS-R001, Main Steam Isolation Valve (MSIV) Leak Rate Test, Revision 0, April 1987, performed on May 2, 3 and 4, 1987.

The inspector reviewed the adequacy of the test procedure and the test results. No discrepancies were identified. The surveillance procedure was performed to demonstrate that the newly installed MSIVs satisfied Technical Specification Type C leak rate criterion. The maximum allowable leak rate is six standard cubic foot per hour (SCFH). The MSIV Type C leak rate results were as follows:

MSS-AOV7A	-	5.289 SCFH
MSS-AOV7B	-	3.089 SCFH
MSS-AOV7C	-	3.535 SCFH
MSS-AOV7D	-	4.128 SCFH
MSS-AOV6A	-	0.044 SCFH
MSS-AOV6B	-	4.490 SCFH
MSS-AOV6C	-	4.137 SCFH
MSS-AOV6D	-	1.858 SCFH

(Note: leak rate values include instrument error).

No violations were identified.



## 5. Maintenance Review

The inspectors observed portions of safety-related maintenance activities to determine that redundant components were operable, that these activities did not violate the limiting conditions for operation, that required administrative approvals and tagouts were obtained prior to initiating the work, that approved procedures were used or the activity was within the "skills of the trade", that appropriate radiological controls were implemented, that ignition/fire prevention controls were properly implemented, and that equipment was properly tested prior to returning it to service.

### 5.1 Unit 1

- a. WR 112459, Corrective Maintenance on No. 14 Average Power Range Monitor (APRM). The inspector observed N1-ISP-Q-NEU-3.1, APRM Instrumentation Channel Calibration, Revision 2, effective April 1987, performed to adjust the scram trip setpoint found out of tolerance during a weekly surveillance.

No unacceptable practices were noted.

### 5.2 Unit 2

- a. As documented in Amendment No. 2 to Unit 2 Operating Licensee No. NPF-54, the licensee committed, by letter dated April 7, 1987 to implement, prior to criticality, proper maintenance practices and potential operator actions/emergency procedures to limit MSIV radioactivity releases. The inspectors reviewed the following April 7, 1987 licensee commitments:

- Vendor recommended maintenance boring, grinding, and lapping tools will be available for MSIV refurbishment.

The inspector verified the specified MSIV maintenance equipment was ordered for the licensee per General Electric (GE) Purchase Order No. 205-87C190, dated March 16, 1987.

- Maintenance procedures are based on MSIV instruction manuals, vendor and GE recommendations to include careful maintenance, supervision and inspections to indicate incipient failures.

The inspector reviewed the applicable electrical and mechanical maintenance procedures and verified that the latest revisions incorporate vendor manual preventive and corrective maintenance guidance. The inspectors also reviewed licensee documentation supporting GE endorsement of the latest revisions of the Rockwell International (valve manufacturer) and R.A. Hiller Company (actuator manufacturer) vendor manuals, which incorporate GE maintenance recommendations.



- Training programs will be developed and presented to all MSIV maintenance personnel.

The inspectors reviewed the licensee training department MSIV lesson plans and lecture attendance records for both electrical and mechanical maintenance personnel. In addition, the inspectors reviewed an April 20, 1987, memorandum providing clarification and guidance for identifying MSIV incipient malfunctions.

- Operating procedures and emergency operating procedures to control post-accident MSIV leakage and to limit radioactivity releases shall be developed as recommended by the BWROG in NEDO-30324.

The inspector reviewed the latest revision of N2-OP-1, Main Steam System, and N2-EOP-MSL, MSIV Leakage Control, and discussed their development and basis with the licensee and determined that the BWROG, NEDO-30324 recommendations were incorporated.

- b. The inspector observed maintenance on the Division II diesel generator during the 18 month maintenance outage. The work was well supervised and QC control was evident.

The inspectors identified no discrepancies.

## 6. Safety System Operability Verification

On a sample basis, the inspectors directly examined safety system trains to verify that the systems were properly aligned in the standby mode. The following systems were examined:

### 6.1 Unit 1

- 102 Emergency Diesel Generator
- 103 Emergency Diesel Generator
- Service Water System
- Emergency Service Water System
- Reactor Building Closed Loop Cooling

### 6.2 Unit 2

- a. -- Emergency Diesel Generators
- Service Water
- Residual Heat Removal
- Standby Gas Treatment



b. During control room tours, the inspector identified the following examples where procedures for operating safety related systems were not being followed:

-- On May 8, 1987, in preparation for the Reactor Pressure Vessel (RPV) hydrostatic test following MSIV replacement, the inspector observed that the Residual Heat Removal (RHR) system was not properly aligned as specified in Operating Procedure N2-OP-31. Specifically, the RHR heat exchanger was not in the required configuration. The outlet valve on the RHR side and the inlet valve on the service water side were both shut. The service water outlet valve was also shut, as allowed by the procedure. The inspectors questioned operators about this lineup. The inspector determined that, due to the lack of decay heat, the RHR system would cool the plant down unless service water and RHR flow was isolated to the heat exchanger. The operators were also asked if any procedural change was required in order for the RHR system to be in this line up. The inspector was told that the system lineup was per operator discretion. The inspector also determined that the complete isolation of the service water side of the heat exchanger could possibly cause damage to the heat exchanger. Due to thermal contraction of the water, as it cools a partial vacuum could potentially be drawn in the heat exchanger, a condition which it was not designed to withstand.

These concerns of procedural adherence and of possibly drawing a vacuum on the heat exchanger were discussed with the Operations Department management. The next morning, May 9, the service water inlet valve was open, but the RHR outlet valve was still shut and no procedure change had been written. The RHR system was not observed in the Shutdown Cooling mode of operation again until June 1 just prior to criticality. On this day, the inspector noted that no procedure change had been written to allow the RHR outlet valve to be shut. This again was brought to the attention of the Operations management. The inspector was told, later that day that the existing lineup was as per the procedure. The inspector then walked an Assistant Station Shift Supervisor (ASSS) through the procedure for operating the RHR system. The ASSS recognized the need for a procedure change to allow the RHR heat exchanger outlet valve to be shut, and the procedure change was implemented that night.

-- On May 29, June 1 and June 5, the inspector observed that while either train of the Standby Gas Treatment (SBGT) System was in operation there were several locked-in annunciators at the control panel. The operators were



asked about the reasons for these alarms, but they had little knowledge of the cause. The inspector reviewed the SBTG Operating Procedure, N2-OP-61B, and determined that the alarm response actions specified in the operating procedure were not followed. Specifically, the procedure required that the train be secured if the heater differential temperature was low and that the cause be corrected. This had not been done. These problems were discussed with an Assistant Operations Superintendent on June 5, and a procedure change was written to allow continued operations with the existing condition. Based on the inspector's review, this action was acceptable.

Technical Specification 6.8 requires that the licensee use procedures for operating and responding to annunciator alarm conditions on safety related systems. Contrary to the operating procedures, operators failed to maintain the RHR system in the prescribed valve lineup and failed to properly respond to SBTG system annunciator alarms. This is a violation. VIOLATION (50-410/87-08-02).

#### 7. Physical Security Review

The inspectors verified that selected aspects of the station physical security program were in accordance with regulatory requirements, physical security plan and approved procedures.

- a. During this period the inspector reviewed the following:
  - The protected area fences were walked down. There were no obstructions which could interfere with detection/assessment systems. All fence fabric was well maintained and no objects were in positions that would allow scaling of the fences.
  - The inspector observed normal security patrols of the protected area fences as required by the security plan. Maintenance on detection systems was also observed. The inspectors verified that proper compensatory actions were taken when the system was deenergized.
  - When granting escorted and unescorted access, proper badging procedures were followed.
  - The inspector verified that when a vital area breach occurred on May 21, 1987, proper compensatory action was taken, as documented in Licensee Security Occurrence Report 87-02.

No violations were observed.



## 8. Radiological Protection Review

The inspector reviewed selected aspects of the licensee's radiological protection program to verify that the licensee was complying with station policies and procedures and regulatory requirements.

### 8.1 Unit 1

- a. During this inspection period, compliance with radiation protection procedures was observed to be generally acceptable. However, on May 16, 1987, the licensee was notified that a receipt inspection of a shipment from Nine Mile Point Unit 1 to Brunswick Steam Station revealed external radiation levels in excess of five times 10CFR71 limits. This event was reviewed in detail in Inspection Report 50-220/87-08.
- b. On one occasion, an inspector observed a security guard perform an unacceptable frisk while exiting a radiologically controlled area. The incident appeared to have been isolated and was referred to the licensee for corrective action.

### 8.2 Unit 2

- a. The licensee implemented the Unit 2 Radiological Protection Program approximately one week prior to initial criticality. The inspector reviewed/observed the following:
  - Several radiation work permits for drywell entry.
  - The frisking techniques of personnel leaving the radiologically controlled area.
  - The frisking of objects, by radiation technicians, prior to free releasing them from the radiologically controlled area.

The inspector identified no unsatisfactory practices.

## 9. Review of Licensee Event Reports (LERs)

The LERs submitted to the NRC were reviewed to determine whether the details were clearly reported, the cause(s) properly identified and the corrective actions appropriate. The inspectors also determined whether the assessment of potential safety consequences had been properly evaluated, whether generic implications were indicated, whether the event warranted on site follow-up, whether the reporting requirements of 10 CFR 50.72 were applicable, and whether the requirements of 10 CFR 50.73 had been properly met. (Note: the dates indicated are the event dates)



9.1 Unit 1

a. The following LER was reviewed and found to be satisfactory:

- 87-02, 1/26/87, Agastat GP Series relay seating deficiency and potential failure.

9.2 Unit 2

a. The following LERs were reviewed and found to be satisfactory:

- 86-02, Rev 1, 11/4/86, Technical Specification violation. All SRM downscale rod blocks inoperable during fuel load.
- 86-03, Rev 1, 11/8/86, Above refuel floor radiation monitor inoperable.
- 86-04, Rev 1, 11/9/86, Two reactor scrams due to upscale APRM trips.
- 86-07, Rev 1, 11/20/86, Engineered Safety Feature actuation due to loss of RPS power supply.
- 86-09, 11/24/86, Standby Gas Treatment (SBGT) system automatic start due to grounding of temporary jumpers.
- 86-11, Rev 1, 11/27/86 and 12/8/86, SBGT automatic start due to spiking of radiation monitors.
- 87-14 and 87-14 Supplement 1, 2/29/87, Main Stack and Radwaste/Reactor building effluent radiation monitors improperly calibrated.
- 87-16, 2/26/87, Inoperable fire wall due to improperly sealed penetration.
- 87-17, 2/24/87, SBGT automatic start due to operation of a wrong breaker.
- 87-18, 3/16/87, Inoperable fire rated floor due to a breached penetration.
- 87-19, 4/18/87, Loss of emergency DC bus due to error when returning a battery charger to service.

b. The following LERs were reviewed and found to be satisfactory, however, the identified corrective actions will be monitored and reviewed in a subsequent report:

- 86-22, 12/22/86, All emergency diesel generators inoperable due to draining of fuel oil day tanks.



- 87-03, 1/16/87, SBTG automatic start due to grounding of a jumper during a surveillance test.
  - 87-09, 1/26/87, MSIV closure during surveillance testing.
- c. The following LERs were reviewed and the inspectors discussed specific aspects of the reports with the licensee. As a result of these discussions, the inspector had no further questions and closed the following LERs:
- 86-15, 12/3/86, Reactor scram due to cross-connecting RPS power supplies.
  - 86-16, 12/7/86 and 12/8/86, Design deficiency in SBTG heater control.
  - 86-18, 12/16/87, ESF actuation due to cross-connecting 120 VDC to 120 VAC during testing.
  - 86-21, 12/10/86 and 12/11/86, HPCS automatic start due to bumping of reactor vessel level transmitter piping.
- d. The following LERs were reviewed and found to be satisfactory, (both events involve Technical Specification violations):
- 87-08, 1/27/87, Division I emergency switchgear room carbon dioxide system inoperable without a fire watch.
  - 87-15, 2/22/87, Missed fire watch.

Both events were promptly reported to the NRC. Timely and proper corrective action have been taken by the licensee. There have been no previous events of the same nature at Unit 2. The safety significance was minor in both instances. In accordance with the enforcement criteria of 10 CFR 2, Appendix C, Section V, a Notice of Violation was not issued for either of these licensee identified Technical Specification violations.

#### 10. Three Mile Island Action Plan Items

As a result of the Three Mile Island (TMI) plant accident, generic reactor enhancements were specified by the NRC. NUREG-0737 documents the specific action requirements. The following TMI issues were reviewed during this inspection period:

##### 10.1 Unit 1

No TMI items were reviewed for Unit 1.



## 10.2 Unit 2

- a. (CLOSED) II.K.3.28, Qualification of ADS Accumulators, (50-410/86-09-31). NUREG 0737 required that the licensee ensure that the Automatic Depressurization System (ADS) accumulators provide the needed capacity. The accumulators must have sufficient capacity to operate the ADS relief valves for 100 days, in a hostile environment, following an accident. The licensee's actions were previously reviewed and documented in Inspection Report 50-410/86-39, section 10.d, and were found to be consistent with NUREG 0737, the FSAR and the Safety Evaluation Report. At the conclusion of the 50-410/86-39 inspection, the one item remaining open for review was the leak rate testing on the ADS. This testing was aborted numerous times due to the accumulator relief valves leaking during the leak rate test. This problem was solved by installing rupture discs in series with the relief valves. The inspector reviewed the leak test procedure, N2-ISP-ADS-R106, and the test results to ensure that they complied with Technical Specifications. The Technical Specification surveillance requirements were reviewed and found to be acceptable with respect to the FSAR commitments. This item is closed.

## 11. Allegation Follow-up

During the inspection period, the inspectors conducted interviews and inspections in response to an allegation presented to the NRC. The inspector and licensee actions resulting from this allegations are noted below:

### 11.1 Unit 1

Allegation RI-87-A-0038: On April 9, 1987, the resident inspectors received an allegation that a Unit 1 operator had been found sleeping on watch in July or August of 1985, and that licensee management had been informed and dealt with the event appropriately. At the direction of the Region 1 Allegation Panel, licensee management was informed of the allegation. The licensee interviewed all Station Shift Supervisors (SSS) and could not substantiate the allegation. As requested by the Allegation Panel, the resident inspectors conducted an independent verification of the licensee's investigation, interviewing the operations superintendent, Stations Shift Supervisors, Assistant Station Shift Supervisors, and various Unit 1 Supervisors. No Unit 1 personnel could recall an incident involving an operator sleeping on watch. The inspectors presented the results of the licensee's investigation and their review to the allexer, who expressed satisfaction with the results. The allexer saw no reason for further action. This allegation is closed.



### 11.2 Unit 2

No Unit 2 allegations were reviewed.

## 12. Licensee Action on IE Bulletins, Circulars and Information Notices

The inspector reviewed licensee records relating to the IE Bulletins, Circulars and Notices identified below to verify that: the IE Bulletins, Circulars and Notices were received and reviewed for applicability; written responses were provided, if required; and the corrective action taken was adequate.

### 12.1 Unit 1

- a. Circular No. 79-21: Prevention of Unplanned Releases of Radioactivity. This Circular pertained to prevention of leaks, overflows and spills resulting in contamination of areas outside of plant buildings. The procedure suggested a number of measures to minimize the occurrence of such events. Inspector review of the licensee's response revealed the following inadequacies:

- Paragraph 3. of the Circular recommends periodic functional tests and inspections to verify integrity of systems that could cause an inadvertent release. It further suggests that underground piping should be periodically hydrostatically tested and preventive maintenance programs should be implemented to identify problems, such as leaking equipment and plugged floor drains, for prompt repair.

Although the licensee response identifies four radwaste disposal lines in System 45, (which run underground for approximately two feet between the Radwaste Solidification/Storage Building and the Waste Disposal Building Extension), the response does not address periodic hydrostatic testing of these lines. The inspector found no indication that any program for the periodic verification of the integrity of these lines existed.

- In addition, the licensee's response to the above item states that "preventive maintenance programs are in effect at the Nine Mile Point Unit I facility". While the inspector found that it is plant policy to promptly repair leaks and unplug drains when identified, there does not exist any specific preventive maintenance program to identify and repair leaks and plugged drains.

Circular 79-21 will remain open pending inspector review of an adequate response to these items in a future inspection period.



b. Bulletin 84-03: Refueling Cavity Water Seal. The inspector reviewed the licensee's responses to Bulletin 84-03 and Generic Letter 87-05. The inspector also reviewed Niagara Mohawk drawing C-18410-C for Nine Mile Point Unit 1 and determined that the licensee has a cavity seal with steel boundaries which are either welded or bolted in place. Gross failure would require a structural failure of a welded connection. In addition, if leakage past the seal were to occur, it would be collected in the reactor head cavity seal leakage drain system. This system incorporates a flow switch in the drain line to detect leakage. Openings in the reactor head cavity seal, provided for ventilation during power operation, are sealed with gasketed metal covers which are bolted in place during refueling operations. Leakage past these covers would be detected by decreasing reactor level and the Drywell Floor Drain leakage detection system. This bulletin is closed.

c. Bulletin 86-01: Minimum flow logic problems that could disable RHR pumps. This bulletin requested the licensee to determine whether a single failure of a RHR/ECCS minimum flow recirculation valve could prevent proper ECCS response. The licensee responded to this bulletin by letter dated June 6, 1986. The licensee determined that the Unit 1 ECCS and shutdown cooling systems are not susceptible to a single failure of one system's minimum flow recirculation valve. The two core spray loops have independent minimum flow valves, therefore, the failure of one minimum flow valve does not impact the operability of the redundant loop. In addition, the minimum flow valves are spring actuated relief valves and not susceptible to the failures discussed in Bulletin 86-01. The redundant containment spray systems of Unit 1 do not have minimum flow valves and function independent of the core spray system. The shutdown cooling system at Unit 1 is not a safety-related system.

The inspector reviewed the licensee's response and independently verified the ECCS configurations and operation. No discrepancies were noted. This bulletin is closed.

d. Bulletin 86-03: Potential failure of multiple ECCS pumps due to single failure of air-operated valve in minimum flow recirculation line. This bulletin addresses the same concern raised by Bulletin 86-01, however, it broadens the scope of the single minimum recirculation flow valve failure to both PWR and BWR commercial nuclear facilities. The licensee responded to Bulletin 86-03 by letter dated November 13, 1986. The licensee's response was the same as the Bulletin 86-01 response, by letter dated June 6, 1986. The inspector reviewed the November 13, 1986 response and determined it to be satisfactory. This bulletin is closed.



- e. Information Notice 86-106: Feedwater Line Break. This notice alerted all licensee's of a potential generic problem with feedwater pipe thinning. On December 9, 1987, an 18-inch feedwater suction line to the A main feedwater pump at Surry Power Station, Unit 2, catastrophically failed. This high temperature feedwater line break resulted in the death of several workers replacing thermal insulation on a nearby line.

The feedwater pipe material was A-106B carbon steel and A-234 grade WPB carbon steel. Nominal wall thickness was 0.500 inch, however, fragments of the ruptured pipe demonstrated that the pipe wall had been generally eroded to about 0.25 inch, and in localized areas as thin as 1/16 inch. Corrosion pitting was also present. The catastrophic failure was initiated by the closing of the "C" steam generator main steam isolation valve. This resulted in a system pressure spike as the steam voids collapsed in the generator.

The inspector discussed this IE Notice with licensee representatives to determine if the licensee had a program for periodic inspections of condensate and feedwater piping at NMP Unit 1. The licensee stated that an informal program conducted by the Unit 1 Inservice Inspection organization does periodically examine secondary piping for signs of wear and erosion. The licensee stated that the program typically examines a portion of the condensate and feedwater system on a rotating basis. However, the program is not a fully funded examination program and the inspections are conducted only when manpower and funding is available.

## 12.2 Unit 2

- a. Bulletin 86-01: This bulletin was previously reviewed and closed in Inspection Report 50-410/86-39, Section 8.1.
- b. Bulletin 86-03: Potential failure of multiple ECCS pumps due to single failure of air-operated valve in minimum flow recirculation line. As noted above, IE Bulletins 86-01 and 86-03 address the same concern. The licensee responded to IE Bulletin 86-03 by letter dated April 16, 1987. No changes were made to their June 9, 1986 response to IE Bulletin 86-01. This bulletin is closed.

No violations were identified.



### 13. Part 21 Report Review

During this inspection report period, the following 10 CFR 21 reports were initiated by the licensee:

#### 13.1 Unit 1

- a. On May 15, the licensee reported a defect in all three Reactor Building Closed Loop Cooling (RBCLC) system heat exchangers. The defect was leakage at the tubesheet to shell welds. This leakage had been seen on one heat exchanger previously and was found on the others on May 4. The leakage was from throughwall cracks at the welded area between the dissimilar silicon bronze tube sheet and the carbon steel shell. The licensee determined that this cracking could lead to the catastrophic failure of a heat exchanger and the loss of RBCLC flow to equipment required for the safe shutdown of the plant. The licensee has installed straps to prevent this catastrophic failure on all the welds. The licensee plans to replace the three heat exchangers prior to the end of the 1988 refueling outage.

#### 13.2 Unit 2

- a. On May 15, the licensee reported a defect concerning Control Building doors that could not withstand tornado loads. Specifically, two doors were identified which could not withstand the three psig differential pressure design criteria applied during a tornado event. Those doors protect safety related equipment in the Control Building. Loss of a door during a tornado could effect the ability to achieve and maintain a cold shutdown condition. All doors required to withstand the tornado loading have been inspected by the licensee and the two known deficiencies were corrected prior to initial criticality.
- b. On June 1, the licensee notified the NRC of incorrect certification of spare electrical components supplied by, Brown Boveri, Inc. The vendor had initially certified those components for use in safety related Class 1E applications. The vendor later informed the licensee that the initial certification was in error, meaning that the components were not for Class 1E use. The licensee is evaluating the extent of the use of the identified components. The inspector will review the licensee's corrective action in a subsequent report. INSPECTOR FOLLOW-UP ITEM (50-410/87-08-03).



#### 14. Modification Review

The following modification was reviewed to ascertain that design changes and modifications determined by the licensee do not require prior NRC approval were in conformance with the requirements of Technical Specifications and 10 CFR 50.59.

##### 14.1 Unit 1

Modification 84-38: Hydrogen Water Chemistry Pre-Implementation Test. The inspector reviewed the modification to determine that compensatory measures taken, with respect to fire protection, were adequate for the increased risk due to the presence of the temporary hydrogen piping system. No unacceptable conditions were noted.

##### 14.2 Unit 2

No modifications were reviewed for Unit 2.

#### 15. Inspector Visit to Licensee Corporate Office

The inspectors visited the corporate office of the licensee's nuclear division during this inspection period. The purpose of the visit was to familiarize the inspectors with the licensee's corporate staff, to discuss the licensee's commitment tracking system and, using several examples, to determine how the corporate staff interfaces with the site staff.

The inspectors had several discussions with the licensing and engineering staff managers. In all instances, the inspectors and licensee personnel stressed the need for improved communications. When asked about communications between the site and the corporate office, most people felt that previous difficulties had been worked out. The inspectors observed that corporate managers had a good overall knowledge of the current site activities, but in some cases lacked indepth knowledge of specific issues.

The inspectors determined that the licensee plans to implement a new commitment/response tracking system. It is designed to track the licensee's commitments/responses to Federal, State and industry agencies. At present, nearly all departments within the corporate engineering division have their own unique tracking system. The new system will rely on two people, one person at the corporate office and the other on site, to input items and coordinate the needed action.

All personnel interviewed were aware of the licensee's new procedure for bringing problems to management attention. It appears that all appropriate corporate staff received training on how to fill out Problem Report sheets and to notify the Station Shift Supervision so that he may make the initial judgement on reportability of the event.



Future visits will be planned to maintain good communications with the corporate office and to further investigate ongoing engineering evaluations, when appropriate.

No violations were identified.

16. Regional Administrator Visit

On May 13 and 14, 1987, the Regional Administrator and additional Region I staff visited Nine Mile Point Units 1 and 2. The visit consisted of tours of both units and discussions with senior licensee management and station staff. At the conclusion of this visit, the licensee committed to perform a self assessment of their performance during power ascension testing, and submit a report of the results to the NRC. The Region I staff plans to perform a parallel assessment and meet with the licensee to discuss these activities prior to further testing after Test Condition Two.

17. Exit Meetings

At periodic intervals and at the conclusion of the inspection, meetings were held with senior station management to discuss the scope and findings of this inspection. Based on the NRC Region I review of this report and discussions held with licensee representatives, it was determined that this report does not contain Safeguards or 10 CFR 2.790 information.

