

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-397/88-32
Docket No. 50-397
License No. NPF-21
Licensee: Washington Public Power Supply System
P. O. Box 968
Richland, Washington 99352
Facility Name: Washington Nuclear Project No. 2 (WNP-2)
Inspection at: WNP-2 Site, Benton County, Washington
Inspection conducted: August 29 - September 2, 1988 and
September 19 - September 30, 1988

Inspectors: C. W. Caldwell 10/27/88
C. W. Caldwell, Project Inspector Date Signed
for P. H. Johnson 10/27/88
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P. H. Johnson, Chief, Date Signed
Reactor Projects Section 3

Inspection Summary:

Inspection on August 29 - September 2 and September 19 - September 30, 1988
(Report No. 50-397/88-32)

Areas Inspected: Routine project and engineering inspection in the areas of design changes and modifications; compliance with anticipated transient without scram (ATWS) rule; Multiplant Action Item C-02, "Inspection For Verification Of BWR Recirculation Pump Trip;" Generic Letter 85-03, "Clarification Of Equivalent Control Capacity For Standby Liquid Control System;" adequacy of audit responses; followup of inspector identified items; licensee action on items of noncompliance; Part 21 reports; on-site review of events; IE Bulletin 85-03; in-service testing of pumps and valves; and licensee event report followup. Inspection procedures 37700, 25020, 25595, 92703, 40702, 92701, 92702, 36100, 92700, 90712, 73756 and 30703 were covered.

Safety Issues Management System (SIMS) Items:

(Closed) Multiplant Action Item C-02, "Inspection For Verification Of BWR Recirculation Pump Trip" (See paragraph 2).



Results:

General Conclusion and Specific Findings:

The inspector considered that the licensee's actions to implement ATWS modifications were generally adequate. However, the inspector had several concerns regarding the ATWS modifications such as the licensee's plans to address a few outstanding commitments (e.g., inspection for cable separation of the modifications), operator knowledge that the ATWS alternate rod injection (ARI) must be manually reset, and operator knowledge of the administrative limits associated with the ARI reset (See Paragraph 2).

The inspector also had a concern with the licensee's handling of a Part 21 report dealing with hydraulic control units (HCUs) with loose or missing bolts and lockwashers. In particular, the inspector did not find that a nonconformance report had been prepared (two examples) when it was determined that the as-found condition of the HCUs did not meet design drawings. As a result, proper levels of management were not notified and the operability of the existing configuration was not sufficiently demonstrated (See Paragraph 7.h).

In addition, two discrepancies were identified regarding the performance of surveillances. The first discrepancy concerned the lack of formality in documenting comments and problems in test data packages (Paragraph 10). The second discrepancy concerned the lack of timeliness in completing the necessary actions to declare the diesel fuel oil tank level instruments operable (Paragraph 6.c). This lack of timely follow-through on completion of commitments/corrective actions has been an on-going NRC concern.

Violations and Deviations:

One violation concerning failure to prepare a nonconformance report was identified (Paragraph 7.h) and one deviation concerning the lack of timely calibration (and subsequent operability determination) of the diesel generator fuel oil tanks was identified (Paragraph 6.c).

Open Items Summary:

One followup item was identified (Paragraph 2) regarding operator knowledge of the ATWS alternate rod injection (ARI) manual reset capabilities, the ATWS recirculation pump trip (RPT) logic, and the discrepancies identified in the licensee's ATWS criteria implementation review. In addition, one unresolved item was identified concerning documentation of surveillance activities (Paragraph 10).

One unresolved item (Paragraph 5), three violations (Paragraph 6), six followup items (Paragraph 6) six Part 21 reports (Paragraph 7), and four licensee event reports (Paragraph 8) were closed during this inspection.



DETAILS

1. Persons Contacted

Licensee Personnel

- *G. D. Bouchey, Director, Licensing and Assurance
- C. M. Powers, Plant Manager
- L. J. Garvin, Manager QA Programs and Audits
- #*J. W. Baker, Assistant Plant Manager
- *R. L. Koenigs, Plant Technical Manager
- *D. R. Kobus, Acting Plant QA Manager
- #K. D. Cowan, Nuclear Safety Assurance Group Manager
- *A. G. Hosler, Licensing Manager
- *S. L. McKay, Operations Manager
- *C. R. Edwards, Plant QC Manager
- *M. R. Wuesterfeld, Assistant Plant Technical Manager
- *R. J. Barbee, Plant Technical I & C Supervisor
- #*S. L. Washington, Lead Compliance Engineer
- *S. W. Mulkey, Plant Technical Engineer
- *W. H. Sawyer, Control Room Supervisor/Operations Procedures
- #R. Rana, IST Program Leader

Other Personnel

- *W. Milbret Nuclear Engineer, BPA

* Denotes those attending the exit meeting on September 2, 1988.

Denotes those attending the exit meeting on September 23, 1988.

The inspectors also contacted licensee operators, engineers, technicians, and other personnel during the course of the inspection.

2. Design Changes And Modifications (37700)

(Closed) Inspection To Determine Compliance With ATWS Rule
10 CFR 50.62 (25020)

(Closed) Multiplant Action Item C-02, "Inspection For Verification
Of BWR Recirculation Pump Trip (25595)

The purpose of this inspection was to determine if the anticipated transient without scram (ATWS) mitigating systems (not safety related) comply with the requirements established in 10 CFR 50.62, that the effectiveness of the QA controls applied to major activities for the ATWS equipment complied with Generic Letter (GL) 85-06, "QA Guidance For ATWS Equipment That Is Not Safety Related," and to assess the operational readiness of the ATWS equipment. These mitigating systems consisted of an alternate rod injection (ARI) system, a recirculation pump trip (RPT) system (identified as Multiplant Action C-02), and the standby liquid control (SLC) system. The SLC system is discussed in Paragraph 3. The conditions indicative of an ATWS event for a boiling water reactor were a

low reactor vessel water level or a high reactor pressure vessel pressure. This inspection included a review of the design change packages associated with the ATWS modifications.

The inspector reviewed the implementation of the ARI and RPT modifications that constituted the ATWS additions. The scope of the recommended changes was identified by the BWR Owners' Group as documented in NEDE - 31906-P. These recommended changes were intended to meet the ATWS requirements as documented in 10 CFR 50.62.

The ATWS ARI performs a function redundant to the backup scram system to ensure that rods will insert into the core should the normal scram system and the backup scram system fail to bleed air from the scram valves, preventing rod insertion. The ATWS RPT performs the function of tripping the breakers that supply power to the recirculation pumps to add additional negative reactivity to shut down the reactor should ATWS conditions occur (high reactor vessel pressure or low-low reactor vessel level). The level setpoint was established at Level 2 (below the scram setpoint of Level 3). The high pressure setpoint was determined by a plant specific analysis that gave a range for the trip between 1089 and 1101 psig. The final setpoint that was established by the licensee was 1095 psig. The inspector noted that the RPT and the ARI setpoints were the same.

a. Recirculation Pump Trip (RPT)

During the 1988 refueling outage, the licensee replaced the existing RPT instruments with 4 new pressure and 4 new level instruments. The new components consisted of two-contact Static O-Ring pressure switches and two-contact Barton level instruments. The dual contact concept allowed these instruments to act as sensors for the ATWS ARI system and the ATWS RPT system. In addition, the pressure setpoint for these instruments was reduced from 1135 to 1076 psig as a result of a plant specific setpoint study that was performed by an independent contractor. During the outage, the licensee also upgraded the test switches and critical relays to qualified components and added Class 1E power supplies. The inspector noted that ATWS RPT level and pressure instruments did not use an analog signal to operate the trip coils of the recirculation pump supply breakers. Instead, the sensors operated contacts which energized relays to energize the pump trip coils. The relays operated the trip coils of the two 6900 VAC power supply breakers and the trip coil for the supply breaker of the recirculation pump low frequency motor-generator. The inspector noted that the logic used consisted of a 1 out of 2 logic for each pump. Therefore, for example, either channel A or channel C could energize to provide a trip of the "A" recirculation pump.

b. Alternate Rod Injection (ARI)

The ATWS ARI modification was installed during the 1988 refueling outage. The modification consisted of the installation of nine DC powered Valcor valves (with associated piping and logic) that energize to open, resulting in depressurization of the scram air



headers. The ARI used the same instruments as identified above. All components were qualified and powered from Class 1E power supplies. The inspector noted that the ATWS ARI level and pressure instruments did not use an analog signal to operate the Valcor valves. Instead, the sensors operate contacts which energize the valves.

The inspector reviewed design change package (DCP) 86-0229-0B and plant modification request (PMR) 02-86-0229-0 which were issued to install the ARI system. The inspector also reviewed field change requests (FCRs), unreviewed safety question determinations (USQDs), maintenance work requests (MWRs), QC inspection problem reports (IPRs), and QA surveillance reports that were associated with the ARI design changes.

In particular, the following MWRs and their associated QC IPRs were reviewed:

- AT 4523, used to install the reset pushbuttons (IPR 88-0574).
- AT 1662, used to fabricate a new panel insert to house control switches (87-1102).
- AU 9769, used to install new cable runs (87-0191).
- AT 2263, used to terminate the ATWS ARI power supply cables (IPR 87-1215).

The inspector noted that all associated documentation for the design changes and their implementation appeared adequate and that there was substantial QC and QA involvement in review of the work performed.

It should be noted that a number of deficiencies were identified with the original design package with regard to the reviews and approvals of the design change as issued to the plant for implementation in February 1988. In particular, inappropriate designs such as improper air header vent and purge valve operation, incorrect actuation signal reset logic, and improper separation of Division 1 and Division 2 electrical components were found. These discrepancies resulted in a violation as documented in inspection report 50-397/88-02. As a result of the deficiencies identified, the Supply System conducted an "ATWS Criteria Implementation Evaluation" to ensure that all regulatory requirements and self-imposed commitments associated with 10 CFR 50.62 requirements were implemented. The inspector reviewed the licensee's results as specified in this document. The inspector considered that the licensee's evaluation was adequate. However, it did identify a number of discrepancies as discussed later in this report.

The inspector verified that the ARI and RPT modifications included the following provisions:

c. Diversity

A system that was diverse from the existing trip system was required by 10 CFR 50.62. Diversity was achieved by the following means:

- The ARI used Valvor valves, the normal reactor trip system (RTS) used ASCO valves.
- Electrical wiring diagram 15E-058, 059 Revision 0, showed that a DC power supply that was independent from the reactor trip system was used.
- DC powered logic and valves were used instead of AC.
- Valves and trip coils were energized to operate instead of deenergized.
- Channel components excluding sensors were diverse from existing components (Barton level transmitters of a different model than those found in the RTS and Static O-Ring pressure switches of the same model as those found in the RTS used).
- Logic scheme was 2 out of 2 taken twice for ARI and 1 out of 2 taken once for each pump on RPT. The RTS used a 1 out of 2 taken twice logic scheme.

d. Redundancy

A system that was redundant from the existing trip system was required by 10 CFR 50.62. Redundancy was achieved by the following means:

- The ARI was redundant to the backup scram system.
- The RPT had redundant trip signals to each recirculation pump.
- The RPT used redundant trip coils for each pump motor.
- The ARI used redundant scram air exhaust valves.

e. Power Supplies, Qualification, and Electrical Independence

- Equipment was qualified as necessary.
- Electrical wiring diagram 15E-058, 059 Revision 0 showed that a DC power supply independent from the reactor trip system was used.
- Systems protected from a loss of offsite power by means of the DC vital busses through separate breakers and fusing in the panel.
- All equipment was installed to Quality Class 1.
- The System had a manual initiation capability.

f. Inadvertent Actuation

- The ARI system had protection from inadvertent operation by means of covers over the actuating switches on the control panel.
- Setpoint was established at Level 2 (RTS scram setpoint at Level 3).

g. Testability At Power

- The ARI can be tested at power from the sensor up to and including the solenoid valves.
- The RPT can be tested at power from the sensor up to but not including the trip coils.

h. Operator Training

- Post outage training was performed on the ATWS and SLC modifications.
- A plant modification request (PMR) was put in the system to update the simulator to reflect all changes to the plant. However, the inspector noted that the changes had not been incorporated into the simulator.
- Training received an instrument setpoint change request (ISCR)-745 for the ATWS RPT/ARI to specify the changes to the setpoint to be incorporated in the training program. This was performed in hot license training.
- Changes to procedures were incorporated into the training or were in the process of being incorporated.

The inspector considered that the ATWS ARI and RPT modifications were implemented as identified to the NRC. However, there were a few concerns which were identified during this review. The ATWS RPT logic scheme used was a 1 out of 2 taken once for each recirculation pump. This scheme was different than the Monticello or modified Hatch design that were found acceptable by the NRC. NRR was evaluating this difference as of this inspection. The results of their evaluation will be provided in a safety evaluation report (SER).

The inspector had several concerns with regard to operator training. The first concern related to the ARI reset. No automatic reset capability was installed for the ARI. However, a manual reset was provided on control panels located at the back of the control room. The inspector noted that a requirement to wait a minimum of 35 seconds after initiation of the ARI was necessary. Since the reset capability was manual, the Supply System elected to provide an administrative requirement to wait the minimum time. The licensee was in the process of revising the procedure to specify that the operators must wait a minimum of 35 seconds to reset after an initiating signal. The inspector questioned a number



of reactor operators (ROs) and senior reactor operators (SROs) about the modifications that were completed for the ARI and the RPT including the administrative requirements associated with the manual reset of the ARI. The inspector found that most operators were aware of the manual reset function and that this would be controlled administratively. However, some ROs and SROs were not aware of the manual reset or the minimum time to reset. The inspector identified this concern to responsible licensee personnel who indicated that they would ensure that all operators were sufficiently trained on the ARI reset.

The second concern was related to simulator upgrades for the ATWS modifications installed. The inspector noted that the ARI modifications had not been added to the simulator. The licensee indicated that there has been a backlog of changes to be made to the simulator due to inadequacies with the program for implementing simulator changes. However, the licensee also indicated that the program has been revised as of August 11, 1988 so that PMRs are evaluated for effects on the simulator before the modifications are implemented in the plant. In the past, training did not have a chance to screen PMRs until after installation in the plant. The licensee stated that under the new program, the training organization will be able to speed up the process for implementing simulator changes based on modifications installed in the plant.

The inspector noted that the ATWS Criteria Design Implementation Review document (Supply System document number SS2-PE-88-0424) identified that some of the commitments associated with ATWS were not complete. The document stated that most of these problems were minor in nature (predominately with documentation). However, the inspector noted that there were recommendations for such actions as physical inspections for separation of control wiring and inspections of cable routing. The inspector considered that additional review of the issues in the licensee's ATWS Implementation Review document and licensee's actions to correct the discrepancies was necessary. As a result, the inspector forwarded a copy of the licensee's document to NRR for review and considered that additional inspections should be conducted by Region V in this area.

The inspector considered that the Supply System had implemented the ATWS modifications in accordance with the BWR Owners Group proposal except where noted. The acceptability of the Owners Group ATWS modifications will be reviewed by NRR and the results will be documented in an SER. The concerns with operator knowledge of the ARI manual reset, the RPT logic (1 out of 2 once per pump), the discrepancies identified in the implementation review document, and items related to the SLC modifications (Paragraph 3) will be reviewed during a future inspection and are identified as followup item (50-397/88-32-01).

No violations or deviations were identified.



3. (Closed) Followup On Generic Letter 85-03, "Clarification Of Equivalent Control Capacity For Standby Liquid Control System" (92703) (37700)

The inspector reviewed this item in reference to the Supply System's actions to comply with ATWS modifications to the standby liquid control (SLC) system. The inspector noted that the licensee implemented PMR 2-86-0336 Revision 0 during the R-2 outage to perform the necessary modifications.

The scope of the modifications was to change the injection point of the SLC system to the high pressure core spray inlet to the reactor and to establish a proper sodium pentaborate decahydrate concentration relative to the established flow. The change in injection point was to minimize the possibility of power oscillations (chugging) due to slugs of boric acid being introduced into the core at different times under the pre-existing configuration. In addition, a boric acid concentration between 13.6% and 15.0% (approximately 660 ppm) with two pumps in operation providing 86 gpm was required. To ensure that the sodium pentaborate would stay in solution, additional heat tracing was added to maintain temperature above the saturation temperature of 68 degrees for this boric acid concentration range. The inspector noted that the SLC system control was set between 75 and 80 degrees to ensure that the system would remain above the saturation temperature.

The inspector reviewed the design change package and the following maintenance work requests which implemented the modifications:

- AU 9276 which removed existing piping in containment as a result of a change to the injection point.
- AU 9277 which installed the additional heat trace as a result of the increase in boric acid concentration requirements.
- AU 9278 which was issued to replace the standby liquid control flow transmitters.
- AU 9279 which installed the new control switches.
- AU 0257 which routed the field cabling for the addition of new indicating lights.
- AU 9656 which was issued to install the new piping and add required pipe supports to change the injection point into the high pressure core spray discharge piping to the reactor.

The inspector found that all associated documentation appeared appropriate to adequately install the modification. The inspector also noted that the PMR for the SLC system was installed on the simulator on August 12, 1988 and that lesson plan 82-RSY-0903-L1 was issued to train the operators on the SLC system changes. The inspector considered that the licensee's actions were adequate to implement an equivalent boric acid flow concentration. However, the inspector noted that there were some outstanding issues with the SLC modification. In particular, the ATWS Criteria Implementation Evaluation specified that an out-of-service

time limit for heat trace on the SLC system be determined or that a technical justification be provided in a design basis calculation or document. The evaluation also specified that the temperature margin above the saturation temperature should be documented in the SLC setpoint calculation for heat trace. These concerns will be reviewed in association with the inspector followup item (50-397/88-32-01) identified in the previous paragraph.

No violations or deviations were identified.

4. Adequacy Of Audit Responses (40702)

The inspector reviewed the following QA audits:

- 87-406 Corrective Actions conducted June 15 to June 23, 1987.
- 88-380 Corrective Actions conducted October 27 through October 30, 1987.
- 88-426 Corrective Actions conducted January 25 through February 12, 1988.

The inspector considered that these audits were comprehensive and provided good insights into problems that the site was having with regard to corrective actions. The inspector noted that most of the responses from the responsible organizations (to QA identified deficiencies) were timely and detailed. When responses were inadequate, the QA organization aggressively pursued resolution. As a result of this review, the inspector considered that the licensee was making some progress in resolving problems with the adequacy of responses from organizations to QA audit deficiencies.

During this inspection, the inspector noted that the Quality finding report (QFR) Form (used by QA to identify deficiencies) Section 11 indicated that a review evaluation for reportability was required to be performed in accordance with Part 21 and 10 CFR 50.55(e). The inspector questioned whether QFRs were evaluated for reportability per 10 CFR 50.72 and 10 CFR 50.73. Licensee representatives indicated that this form had not been upgraded since the construction phase and that 50.72 and 50.73 reporting evaluations were performed in-house by plant personnel under the plant problem/NCR procedure. Problems with documenting nonconformances and reviews for reportability have been identified in the past (See Paragraph 5.a). The inspector considered that the licensee might evaluate the adequacy of the QFR form since the plant was no longer in the construction phase.

The inspector also noted during this inspection that a Nuclear Safety Assurance Group (NSAG) review of the operational experience review (OER) status report identified that there were a number of nonconformance reports (NCRs) with overdue action. However, the number of items had decreased since audit 87-406. The inspector found that the operating experience review (OER) open item list was getting longer. The inspector

discussed this with responsible licensee personnel who indicated that they would consider whether adequate resources were being allocated towards the OER program.

No violations or deviations were identified.

5. Licensee Actions On Previous NRC Inspection Findings (92701)

a. (Closed) Unresolved Item (50-397/88-14-03), "Plant Personnel Not Identifying Plant Problems"

This item identified a concern that plant personnel were not preparing NCRs for plant problems and as a result, plant problems were not being brought to the attention of the proper levels of plant management nor were they being evaluated for reportability. This was related to unresolved item 88-14-02, "Lack of Preparation of a Nonconformance on Safety-Related Equipment." As a followup to this item, a violation was issued (50-397/88-20-02) for failure to issue NCRs for a fuel bundle that was stepped on and for broken torque switch tabs on Limitorque motor operators. Therefore, this item is closed and the licensee's actions on this matter will be tracked by the violation.

b. (Closed) Followup Item (50-397/85-17-02), "IST-Licensee Review of Implementing Procedures Against ASME Section XI Requirements Required"

This item covered six discrepancies and weaknesses noted during the original inspection of the In-Service Test (IST) Program. Followup inspection report (50-397/87-17) identified that four of these items had been resolved.

Item three of the followup report identified that Procedure PPM 7.4.0.5.20, Revision 2, "Testing of Technical Specification Related Safety/Relief Valves," only required one lift test of a valve. However, conservative testing practice in the industry has required two consecutive acceptable lift tests prior to acceptance of a valve. During this inspection the inspector reviewed Revision 3 of PPM 7.4.0.5.20, and noted that paragraph 7.4.0.5.20.7.C. directed valve testing to be performed per PPM 10.2.8. A review of PPM 10.2.8, Revision 9, "Testing and Repair of Safety and Relief Valves" stated that it required two consecutive acceptable lift tests, but it only required recording of the final set pressure on the attachment 1 data sheet. The inspector questioned how the licensee documented that they had obtained two consecutive acceptable lift tests, if they did not record the lift/set point data for both tests. The licensee replied by stating that they would revise PPM 10.2-8 by January 1, 1989 to record data from both lift tests.

Item six of the followup inspection report identified that in May 1985, the IST valve program did not provide for evaluation and corrective action of valve stroke times based on comparison to previous valve test stroke times. As a result, a violation, (50-397/85-17-01), was issued in this area. Subsequent to the



initial inspection, on October 5, 1987 the licensee requested relief, Number RV-20, on this subject, in Revision 3b to their IST program. Region V transferred responsibility for evaluation of the licensee's request to NRR on September 9, 1985.

During this inspection, the licensee identified that they had completed a review of all the initial IST procedures, and revised the applicable procedures/data sheets to resolve the concerns identified during the initial inspection. The licensee indicated that the completion of the review will be documented in a letter which was scheduled to be issued by January 11, 1989. The inspector performed a sample review of IST procedures and found no problems.

Based on the above information, the licensee's commitment to review PPM 10.2.8, and the fact that NRR was evaluating this item under the request for relief, it appeared that the appropriate actions were completed or assigned by the licensee. Therefore, this item is closed.

- c. (Closed) Followup Item (50-397/85-17-04), "IST-Hy Stroke Times Not Recorded In All Cases, Only That They Are Less Than 15 Seconds (ASME XI)"

The initial inspection identified that actual stroke times for each hydraulic (HY) valve were not recorded. Instead, only an indication that stroke times were less than 15 seconds was recorded. This item was identified in violation (50-397/85-17-01). Subsequent to the initial inspection, in June 1985 the licensee requested relief, Number RV-19, on this subject in Revision 3 to their IST program. This request was transferred to NRR on September 9, 1985 for evaluation.

Based on the above information and the fact NRR was evaluating this item, it appeared that appropriate actions were taken by the licensee. Therefore, this item is closed.

- d. (Closed) Followup Item (50-397/85-17-05), "IST-ASME XI, IWP-6210, 6250 and IWV-6210 Summary Listing Not Available"

At the time of the initial inspection, the licensee could not provide a summary listing of pumps and valves to document the status of testing. In addition, their records did not include a summary of corrective action taken with regard to pumps. This was due to the fact that the licensee's records were located in several places and had not all been entered into the plant's computer data base.

Subsequent to the initial inspection, the licensee stated that they had updated their computer data base and considered that all the required summary listing data were available to licensee personnel in the equipment history file, plant files, and the computer data base.

Based on the above, the inspector considered that the licensee's actions were appropriate and that this item is closed.

e. (Closed) Followup Item (50-397/87-09-05) "Lack of Procedure for Biannual Procedure Review"

This item identified that the Nuclear Safety Assurance Group (NSAG) was concerned that the biannual review of licensee procedures was being performed without benefit of defined formal review criteria.

During this inspection, the licensee identified that Procedure PPM 1.2.6, Revision 4, "Biennial Review of Plant Procedures" was issued on August 30, 1988 to provide a reviewer's guide for performance of the biannual review of plant procedures. This document appeared to address the initial concern. This item is closed.

f. (Closed) Followup Item (50-397/87-19-32) "Review Need for Compensatory Measures for INOP Annunciators"

The initial inspection item identified that there was no system in place to provide compensatory actions for an inoperable annunciator or alarm function.

During this inspection, the licensee stated that a procedure deviation (Document control number 88-299) to procedure no. 1.3.8, Revision 10, "Equipment Clearance and Tagging," was implemented on April 25, 1988 to provide explicit direction in the handling of an annunciator taken out of service. This deviation added a new paragraph, 1.3.8.3.B.7, which stated: "The "caution" tag should be used to flag any annunciator in the control room that is taken out of service. The "caution" tag should identify any alternate alarm system that exists and/or state precautions that can be taken to ensure reasonable monitoring of the equipment." In addition, this deviation was reviewed with Operations personnel to ensure they were knowledgeable on how fill out a "caution" tag if this condition should arise.

Based on the above information, it appeared that this concern was adequately addressed by the licensee. Therefore, this item is closed.

g. (Closed) Followup Item (50-397/87-30-01), "Provide Clearer Definition of Equipment Inop/Return To Service Times Following Surveillance"

This item identified that there was a difference in opinion among the licensee's staff regarding the time when the applicable Technical Specification (TS) action statement should be entered following an unsatisfactory surveillance test.

During this inspection, the licensee identified to the inspector that they had taken the following actions:

- This item was closed in the Plant Tracking Log (PTL) based on the corrective action reply in Licensee Event Report (LER) 87-031-01. This LER stated: "The Technical Specification Surveillance Testing Program will be modified to identify the Shift Manager's test completion signature as the final review for equipment operability and to specify that any applicable Technical Specification LCO time requirement start at that point."
- Revision 14 to Administrative Procedure PPM 1.5.1, Technical Specification Surveillance Testing Program", was being prepared that would reference LER 87-031-01 and include the clarification information identified in the LER. The inspector reviewed the draft revision and found that it appeared adequate to address this item. The inspector noted that this revision was scheduled to be issued in the next couple of months.
- The licensee provided this clarification information to personnel through shift briefings.

Based on the above, it appeared that the licensee has taken and scheduled appropriate actions to resolve this item. Therefore, this item is closed.

h. Other Followup Items

The following open items were not ready to be closed by the licensee. When available, the licensee provided additional information/unofficial estimates of when the items may be ready for closure review.

Unresolved Items

- 87-19-08 Fire threat to shutdown divisions and oil transfer pump rooms.
- 87-19-14 Evaluation of combined effects of normal operations and environmental/seismic set point methodology.
- 87-19-16 Constraint requirements on use of Automatic Depressurization System inhibit switch.
- 87-19-18 Annunciator response for low pressure alarm.
- 87-19-20 Battery test deficiencies.
- 87-19-34 Safety Parameter Display System inconsistent with commitments.

Inspector Followup Items

- 87-02-01 Failure to install qualified fire barriers to protect safe shutdown trains.



- 87-19-10 Procedure safeguards lacking in maintenance program (scheduled to complete January 1, 1989).
- 87-19-11 Liquid Nitrogen tank potential threat to DG's (delayed, may be ready in early part of 1989).
- 87-19-13 Ineffective fuel oil connections.
- 87-19-23 Evaluate need for increased functional testing of transformer TR-B (identified as ready for closure, but closure documentation not available for review).
- 87-19-25 No procedure for seismic control of lifting equipment.
- 87-19-27 Basis for notes on installation for temperature element support (responsibility for action reassigned, not ready).
- 87-19-33 Handwritten notes on control panels (scheduled for completion June 6, 1989).
- 87-28-01 Refresher training for journeymen technicians.
- 87-30-02 Licensee actions to provide better staff attention to performance of surveillance activities.
- 87-30-03 Assess acceptability of licensee material management system.
- 88-02-02 Licensee to provide more guidance on proper accomplishment of independent verification (may be ready for review by November 1988).
- 88-09-01 Followup on licensee actions to ensure EQ requirements met when performing surveillances (scheduled for completion December 1, 1988).
- 88-16-01 High-low pressure interface.
- 88-16-02 High impedance fault analysis.
- 88-16-04 Fire protection features for safe shutdown systems.
- 88-19-01 Labeling of status of standby power indicators.
- 88-20-01 Review of licensee's evaluation of need for additional training for QA inspectors (scheduled to complete April 1, 1989).

No violations or deviations were identified.

6. Licensee Action On Items Of Noncompliance (92702)a. (Closed) Violation (50-397/86-05-01), "Safe Shutdown Method Different From License Condition"

This item identified that the licensee's list of safe shutdown equipment needed in the event of a fire in the control room did not include the Division 1 equipment, cables, and components required in addition to the Division 2 items. This concern was also identified to the licensee as question number 13 in the Safety Evaluation Report that accompanied Amendment 37 to the FSAR, dated November 11, 1987.

The licensee responded to this issue in a letter to the NRC dated January 11, 1988. The licensee stated in their response that the Division 1 equipment, cables, and components required in addition to those for Division 2 for the control room fire were listed for "remote shutdown" in Amendment 37 tables.

The inspector discussed the licensee's response with NRR personnel who stated that the licensee's response on this matter was acceptable. In addition, the licensee's corrective actions were reviewed and found acceptable as documented in inspection report 50-397/88-16. Therefore, this item is closed.

b. (Closed) Violation (50-397/86-05-02), "Failure To Meet Appendix R Criteria"

This item concerned the number of automatic depressurization system (ADS) valves available to assure safe plant shutdown from a fire. This concern was also identified to the licensee as question number 10 in the Safety Evaluation Report that accompanied Amendment 37 to the FSAR, dated November 11, 1987. In particular, since there are only seven ADS valves it would seem that a fire in selected fire areas would potentially reduce the number of ADS valves available in the control room to less than seven and thereby invalidate the information provided in the FSAR.

The licensee responded to this issue in a letter to the NRC dated January 11, 1988. The licensee stated in their response that the WNP-2 methodology required that sufficient equipment (generally at least one Division) be available to assure safe plant shutdown from a fire. The ADS valves and associated controls, being part of the safe shutdown equipment, were analyzed such that at least one Division was always available (seven valves for other than the control room fire and six valves for that fire) under all fire conditions. Each valve was provided with two solenoids, one for each division. Thus, with the methodology used, one of the two solenoids was shown to be available (or protected/relocated) for each fire event.

The inspector discussed the licensee's response with NRR personnel who stated that the licensee's response on this matter was acceptable. In addition, the licensee's corrective actions were reviewed and found acceptable as documented in inspection report 50-397/88-16. Therefore, this item is closed.

c. (Closed) Notice of Violation (50-397/87-19-12), "Diesel Generator Fuel Supply Limits Not Per Tech Specs"

Plant Technical Specifications 3.8.1.1 and 3.8.1.2, "AC sources - operating and shutdown" required a minimum fuel oil supply of 53,000 gallons for division 1 and 2 diesel generators. This item identified that a misinterpretation of tank measurement parameters had resulted in errors in the licensee's procedures for determining diesel generator tank fuel oil capacities. As a result, the required minimum fuel oil limits specified in plant Technical Specifications had not been maintained in several instances.

In the licensee's response to the violation, WPPSS Letter G02-88-025, dated January 29, 1988, the licensee stated that the following actions had been performed:

- The tables used to verify fuel quantity were revised based on a new calculation of tank capacity versus oil level data.
- The tank capacities were required to be verified daily per dipstick readings and new data sheets.
- The master data sheet calibration span for each fuel oil storage tank level instrument was revised to obtain the necessary capacity measurement accuracy. New low-level alarm setpoints were also calculated and will be set per the revised master data sheets. In addition, the new span criteria required calibration data to be collected for each tank. The licensee's January 29, 1988 letter stated that calibration of the tank level instrumentation would be accomplished by July 20, 1988.
- All diesel generator test procedures required verification of fuel oil inventory prior to and following diesel generator operation.

During this inspection, the inspector determined that maintenance work requests (MWRs) AT 2146 (Division A Tank DO-TK-1A), AT 2147 (Division B, Tank DO-TK-1B), and AT 2148 (Tank DO-TK-2) were issued to perform calibrations of the respective tank level instrumentation. However, as of September 21, 1988, the licensee indicated that the calibration of tanks DO-TK-1A, DO-TK-1B and DO-TK-2 had not been accomplished nor had the applicable MWRs been signed off to identify the equipment operability date.

The failure to complete the calibration of tanks DO-TK-1A, DO-TK-1B, and DO-TK-2 level instrumentation by July 20, 1988, in accordance with document G02-88-025 is considered a deviation from the commitment made in the licensee's January 29, 1988 letter (50-397/88-32-02).

Subsequent to this inspection period, the inspector discussed the status of the tank calibrations with the licensee. On October 4, 1988 the licensee indicated to the inspector that they had completed MWRs AT 2146 (tank DO-TK-1A) and AT 2147 (tank DO-TK-1B), and that these tanks were declared operable on October 3, 1988. The licensee also indicated that they were still working on tank DO-TK-2.



d. Other Enforcement Followup Items

The following open items were not ready to be closed by the licensee. When available, the licensee provided unofficial estimates of when the items below might be ready for closure review.

Enforcement Item

87-19-29 Failure to comply with procedures for installation of electrical terminals.

88-02-01 Incomplete corrective action on Enforcement Item 87-19-31.

88-20-02 Two examples of failure to prepare a nonconformance report.

One deviation was identified.

7. Licensee's Program For Handling 10 CFR Part 21 Reports (36100)

The inspector reviewed the licensee's actions on several 10 CFR Part 21 reports to determine if an adequate evaluation and resolution was made for the items identified. In this manner, the licensee's "Operating Experience Review" (OER) program for evaluating and resolving industry identified items could also be evaluated.

The inspector reviewed the licensee's actions on the following Part 21 items:

a. (Closed) Part 21 (50-397/86-15-P), "Valve Operator Motor Lead Insulation, Deviation in Quality in Replacement Motor Actuators"

This Part 21 identified that Limitorque nuclear grade DC motors manufactured by Peerless-Winsmith from December 1984 through December 1985, may experience field failures in the lead wire insulation system. In particular, a 1984 lead wire insulation system was physically somewhat stiff and may have been damaged during field installation and set-up. To ensure that maintenance related activities did not result in a similar event, Limitorque stated that they would develop a "sleeving system" to be applied over the existing lead wire. In addition, the NRC issued IE Information Notice No. 87-08 on this subject on February 4, 1987.

During a review, the licensee noted that they had six of the DC motors on-site; five were spares in the warehouse and one was installed in the reactor core isolation cooling (RCIC) system.

As a result, the licensee issued NCR's 287-023 for the five DC motors in the warehouse and NCR 287-024 for the DC motor installed in the RCIC system.

During this inspection, the licensee indicated that Limitorque had recommended installing heat shrinkable sleeving over the existing motor lead insulation for protection. However, the applicable motor lead was braided wire and rubber for which Raychem did not recommend using shrinking Raychem sleeving. As a result, Raychem sleeving was placed over the lead wires (without the application of heat to shrink it) for protection and the assembly was taped. The Supply System subsequently inspected the applicable wires and found them acceptable. The inspector noted that the licensee's Scheduled Maintenance System (SMS) required tape removal and reinspection of lead wires every five years or at the time that any other maintenance work is performed on the applicable motor leads.

Based on the above information, it appeared that appropriate actions had been taken and scheduled to address this Part 21 Report. This item is closed.

b. (Closed) Part 21 (87-08-P), "General Electric HFA Relay Armature Binding"

This Part 21 report identified problems with HFA relay binding. In the cases identified, the relays which had operated continuously (i.e., normally energized) failed to provide contact closure when deenergized.

The inspector found that WNP-2 has not experienced problems with binding as identified in the Part 21 Report. In addition, the licensee stated that all relays in the scram system were replaced prior to initial startup although balance of plant relays were not. However, the licensee issued procedure PPM 10.25.86, "HFA Relays," which provided for periodic checks and pre-installation inspections of HFA relays. In addition, the licensee was considering: (1) implementation of a preventive maintenance program that would be performed on a percentage of the relays on some established frequency, (2) shake testing all rebuilt relays, and (3) rebuilding four relays for use in comparison of their operation to those received. The licensee was considering allocation of resources for this additional testing and inspection. This item is closed, but is subject to additional evaluation by the ongoing inspection program.

c. (Closed) Part 21 (88-03-P), "Defects In Scram Solenoid Valve Rebuild Kits"

This item identified a potential problem with kits used to refurbish the scram solenoid pilot valves that were supplied by General Electric Company. This concern was also the subject of IE Information Notice 86-78, "Scram Solenoid Pilot Valve Rebuild Kit Problems."



The licensee reviewed this item in 1986 and determined that during the 1986 refueling outage 38 of the solenoid valves were rebuilt with replacement kits No. 204-139 that were identified as having the potential problems. The licensee did not disassemble the 38 solenoid valves and inspect the internals, but instead reviewed the scram test results and found that none of the scram times for the rebuilt valves were abnormal or above Technical Specification limits. In addition, as of that review, the licensee noted that two reactor scrams had occurred without any control rod movement anomalies. The licensee also checked the supply warehouse and found that no other rebuild kits of concern were in stock.

The Supply System's evaluation concluded that there were no problems with the kits received and that continued operation with the rebuilt solenoid valves was acceptable. The inspector noted that the licensee had all scram solenoid valves on a program of periodic maintenance. Under this program, the 38 valves that were rebuilt in 1986 will be rebuilt again in 1992. The inspector noted that since 1986, there have been a number of scrams and scram tests with no delayed rod insertions or failures to scram for the components installed. Therefore, the inspector considered that the licensee's evaluation was adequate and that this item is closed.

d. (Closed) Part 21 (88-04-P), "Manufacturing Defect On Undervoltage Devices"

This item identified potential problems resulting from the failure of the undervoltage trip attachments of General Electric (GE) reactor trip breakers. In particular, a manufacturing defect was identified with the armature button which was improperly mounted on the undervoltage device armature of the AK-2-15 and AK-2-25 reactor trip breakers. This concern was also the subject of NRC Information Notice 88-38, "Failure Of Undervoltage Trip Attachment On General Electric Circuit Breakers" and various other OER correspondences.

The licensee reviewed this item and determined that there were no GE AK type breakers used at WNP-2. Therefore, this item is closed.

e. (Closed) Part 21 (88-06-P), "Defective Cleavite Connecting Rod Bearings"

This Part 21 report identified a defect in Cleavite upper connecting rod bearings used in the emergency diesel generators manufactured by General Motors Electro Motive Division. The bearings in question were manufactured in January and February 1988.

The licensee reviewed the maintenance history and checked the supply stores and found that none of these bearings were installed in the emergency diesel generators nor were any in stock. In addition, the subject bearings were put on the Restricted Use Equipment List to prevent procurement of the questionable bearings in the future. This item is closed.



- f. (Open) Part 21 (88-08-P), "Struthers-Dunn Relays Manufactured With Commercial Grade Bearing Pad"

This Part 21 Report noted that relays may have been manufactured with a commercial grade bearing pad with material that may not have been previously qualified.

The inspector discussed the status of this Part 21 report and found that the licensee was aware of the problems identified and was evaluating them for applicability to WNP-2.

- g. (Closed) Part 21 (88-09-P), "Bad Solder Connections On Flux Monitoring Systems"

This item identified the potential for solder connection leaks which could allow moisture intrusion into Gamma Metrics neutron flux monitors, resulting in an impaired or degraded signal.

For short-term corrective action, the Supply System received Amendment 60 to License Condition 2.C.16 which deferred the requirement for an operational system until the end of the fourth refueling outage. For long term corrective action, the licensee was in the process of performing EQ testing of a modified assembly to replace the existing configuration. If the modified assembly tests are satisfactory, the licensee will perform modifications in the drywell to match the tested and approved assembly and will install these during the next refueling outage. Based on the licensee's proposals, this item is closed.

- h. (Closed) Part 21 (87-18-P), "Loose And Missing Bolts In Hydraulic Control Units"

This Part 21 concerned the improper installation of hydraulic control units (HCUs) at BWRs. It was also the subject of NRC Information Notice 87-56, "Improper Hydraulic Control Unit Installation At BWR Plants." Specifically, the problem dealt with the ability of the HCUs to withstand a seismic event due to missing or improperly torqued mounting bolts, missing lock washers, etc.

The inspector noted that the licensee performed a 100% walkdown of the HCUs against the Notice and the vendor manual on January 6, 1988. The results of the inspection were that flat washers were not installed with any of the HCU base bolts as specified in the vendor manual, six base bolts did not have lock washers as specified in the manual, seven bolts appeared to not be fully seated (four of which had almost a 1/8 inch air gap), and the branch junction modules (BJM) upper support brackets were attached to the HCU frames. The inspector reviewed procedure PPM 10.5.2, "HCU Overhaul," Section B and found that it stated briefly: "Bolt frame to floor brackets." No torque values, requirements for recording torquing, or mention of other HCU seismic bolting requirements were noted. The licensee also identified in the OER response that this section of the PPM would not ensure that the seismic qualification of the HCU modules would be maintained.

The inspector questioned the licensee as to whether an evaluation of the seismic qualification was performed of the as-found condition of the HCUs. The inspector also questioned the qualification of the existing configuration since it appeared that the lock washers had not been installed since the licensee's January 1988 inspection. In addition, the inspector questioned whether an NCR had been prepared when it was determined that the HCUs were not configured to the design drawings. These concerns were originally identified to the licensee during the September 2, 1988 exit meeting and it was determined that additional inspection of the licensee's actions on this Part 21 report was necessary. As a result, the inspection period was extended and the second inspector continued a review of the concerns so that the question of the operability of the HCUs could be resolved in a timely manner.

The results of the continued inspection effort were as follows:

- October 24, 1986 - General Electric (GE) letter G-KK-6-198, dated October 20, 1986, was received at WNP-2. This letter noted that at another BWR plant, an inspection had found that the holddown bolts for many HCU frames were either missing or did not appear to be tightened sufficiently, and that the upper support for some Branch Junction Modules (BJMs) were erroneously attached to a HCU frame. The above reported HCU/BJM configuration was not the same configuration used during seismic testing and qualification of the applicable HCU/BJM units. As a result, the GE letter recommended that all plants perform the following actions:
 - (1) Verify that the HCU installation was consistent with the original seismic qualification test configuration. This letter also stated: "The utility may wish to use the actual HCU seismic qualification torque value to assure adequate tightness."
 - (2) Ensure that branch junction modules, where incorporated, were not attached directly to the HCU frame above the floor except in cases where the BJM has been considered in the equipment qualification results.

However, the inspector found that the licensee appeared to have concentrated their efforts on addressing the acceptance of the existing BJM installations and did not address the concern about loose and missing holddown bolts.

- November 4, 1987 - IE Information Notice 87-56 was issued to alert addresses to potential problems that could affect the ability of the HCUs to control the positioning of the control rods in the event of an earthquake.

This Notice also stated: "If a sufficiently large number of HCU frame bolts are missing or loose, a Safe Shutdown Earthquake (SSE) could result in damage affecting the ability of the CRD system to control the positioning of the control



rods. In addition, damage to a CRD withdraw line could result in a small-break loss-of-coolant accident in the area of the HCUs."

- December 22, 1987 - In response to IE Notice 87-56 and in accordance with administrative procedure 1.10.4, Revision 4, "External Operation Experience Review", the Nuclear Safety Assurance Group (NSAG) initiated an OER summary form with an action tracking number, OER 79007N.
- January 6, 1988 - An NSAG Lead Reviewer performed a 100% visual inspection of HCU's and identified five HCUs with missing lockwashers on six bolts and five HCUs with seven loose bolts.

The inspector noted that Administrative Procedure 1.3.12, Revision 10 and 11, "Plant Problems", paragraph 1.3.12.5.A.1, required that any Supply System employee who observed a plant problem should immediately notify his/her supervisor and initiate a problem deficiency report (PDR)/nonconformance report (NCR). However, no PDR/NCR was issued on this plant problem with safety-related equipment. This is an apparent violation, as discussed below.

- January 14, 1988 - An Operating Experience Work Group (OEWG) meeting was held to review the January 6, 1988 inspection results (OEWG is a forum of representatives of various WNP-2 departments and support organizations who meet for the purpose of facilitating timely inter-disciplinary responses to source documents describing multiple issues and/or affecting more than one plant department or support origination).
- January 15, 1988 - The minutes of the January 14, 1988 OEWG were issued and identified that responses were developed for all issues related to OER 79007N (IE87056). These minutes also stated that the following actions would be taken:
 - (1) Issue an MWR to install missing lockwashers, tighten loose bolts, and check the torque on a sample of support bolts for the HCUs.
 - (2) Revise PPM 10.5.2 to include torque values for support anchor bolts.
 - (3) Revise drawings to specify that the application of flat washers was optional.

Again, it appeared that the OEWG did not identify that a plant problem existed and no PDR/NCR was issued to identify this item to licensee management.

- January 27, 1988 - The NSAG manager issued memoranda assigning responsibility for corrective actions required to address the identified HCU discrepancies. The OER issue form for issue number 2 stated in part: "The missing lockwashers do not

affect seismic integrity, but should be installed to prevent loosening of bolts. Loose bolts require retorquing, but do not present an integrity problem due to the small number and location. However, a random sample should be performed on bolt torquing to verify all bolts meet torque requirements...."

During this inspection period, the inspector did not find any documentation, detailed calculations, or evidence that an engineering/design review of the seismic integrity of the as-found installation of the HCUs had been performed. The OER issue form was the only document that showed that the licensee had evaluated the acceptability of the as-found configuration. The inspector discussed this matter with Supply System representatives. In response, the licensee representatives stated that they could not provide any documented evidence that an engineered as-found design review of the missing lockwashers/loose bolts had been performed and documented to support their conclusions.

The inspector also noted that the OER issue form identified that an MWR was to be issued to install the missing lockwashers, tighten the identified loose bolts, and perform a random sampling of the remaining floor support bolts. The inspector found that an MWR was prepared approximately six weeks later.

- March 7, 1988 - MWR AT 3846 was prepared and subsequently issued on March 11, 1988 to install the missing lockwashers and torque the loose bolts. However, it did not address the performance of a random sample of existing bolt torque. The inspector noted that this MWR was identified as safety related, but assigned a priority 3.
- September 2, 1988 - An NRC inspector raised the following questions at an exit meeting:
 - (1) Had the licensee performed an as-found configuration seismic qualification evaluation?
 - (2) Was an NCR prepared to specify that some of the existing HCU configurations (missing lockwashers/loose bolts) did not meeting design drawings?
- September 21, 1988 - The second inspector discussed this item with the licensee and learned the following:
 - (1) NSAG closed out issue number 1 (verify HCU seismic test configuration) of OER Action number 7900 7N based on an equipment qualification evaluation of the actual WNP-2 HCU installation with all lockwashers installed and all bolts torqued properly. However, the inspector noted that the licensee still had not performed a documented seismic analysis of the actual existing configuration (missing lockwashers and loose bolts) in the operating plant.



- (2) Licensee management had not reviewed the identified plant problem (existing HCU installation not per design configuration) to verify that the HCUs were operable.
- (3) Work associated with MWR AT 3846 had not been performed. The configuration was still the same as that found on January 6, 1988. The licensee stated that the missing lockwashers had not been installed since they were waiting for the GE site representative to supply the part number for the lockwashers (for ordering purposes). The seven loose bolts on five other HCUs had not been torqued since mechanical maintenance was waiting for the replacement lockwashers. There were no instructions out to mechanical maintenance to perform a random sample of existing bolt torque. As a result, no torque checks were performed.

At the exit on September 23, 1988, the inspector related the preliminary inspection results and concerns to licensee management. The lack of implementation of identified corrective actions for the HCUs and the failure to perform an evaluation for the operability of the HCUs were identified as concerns, and the failure to prepare a PDR/NCR when the problems were identified in January 1988 was identified as an apparent violation (50-397/88-32-03). The inspector stated that licensee management should consider taking immediate actions to:

- (1) Determine whether the HCUs were operable with the identified deficiencies and provide justification for continued operation of the plant with the existing configuration.
- (2) Identify approved substitute lockwashers and perform the work specified on MWR AT 3846.
- (3) Issue work instructions to perform the random sample of existing HCU holddown bolt torque values to help evaluate the existing HCU installation against the design configuration requirement.

Licensee management representatives stated that they would take action to resolve the items identified in the September 23 exit meeting.

As followup to the September 23 exit, the following licensee actions were performed on the dates indicated:

- September 23, 1988 - The licensee performed the following actions:
 - (1) A material verification and substitution analysis was performed to identify replacement holddown bolt lockwashers.
 - (2) Additional work instructions were added to MWR AT 3846 to perform a 25% random torque verification on all HCU mounting bolts.



(3) NCR 288-429 was written to document the loose bolts and missing lock washers, and to raise the concern of HCU seismic qualification based upon these deficiencies.

- Equipment qualification engineering (EQE) was notified of the need to perform a seismic qualification analysis for the HCUs, based upon the missing lockwashers and loose bolts, for the time period between initial installation by GE, through September 23, 1988.

- September 23-26, 1988 - Mechanical maintenance torqued the loose bolts, replaced the missing lockwashers, and performed a random torque sample per MWR AT 3846 instructions. During the performance of this work, it was noted that HCU 26-11 was misaligned. Because of the misalignment, the left front bolt could not be installed and torqued and the left rear bolt would not seat properly. The inspector noted that per procedure PPM 1.3.12, a PDR/NCR should have been prepared immediately for this new plant problem. However, none was prepared until September 29, 1988. This is an additional example of apparent violation (50-397/88-32-03).
- September 26, 1988 - MWR AT 3846 work instructions were modified to ream existing holes, not to exceed 1/16 inch, in an attempt to obtain alignment of the HCU. The maintenance department performed this work, but was unable to achieve alignment. As a result, this left only two of four bolts installed.
- September 27, 1988 - MWR AT 3846 instructions were modified to perform additional work on HCU 26-11. In particular, it stated to: "loosen the left rear, the right rear, and the right front bolts, and with an alignment tool, attempt to align bolts holes." Prior to the performance of this work, the Shift Manager was notified. However, based upon the rod position (fully withdrawn) and the concern that excessive HCU movement could possibly cause a loss of air to the scram valves, causing a subsequent rod insertion, it was decided that the work should not be performed until the rod could be inserted.
- September 28, 1988 - EQE was requested to perform an additional analysis for continued operation of HCU 26-11 based upon the current configuration. (Note: This was for interim use until the misalignment problem could be corrected. This was expected to be performed during the next sequence exchange.)
- September 29, 1988 - NCR-288-435 was written to document the existing configuration of HCU 26-11. Based upon the data collected during the 25 percent torque check, MWR AT 3846 was modified to perform a 100 percent torque check of all HCU mounting bolts and to identify that the misalignment of HCU 26-11 would be covered by a new MWR, AT 7098, and NCR 288-435. MWR AT 7098 was written to properly align HCU 26-11, and torque the holddown bolts. This work was scheduled to be performed when the rod can be fully inserted.

- September 29, 1988 - 100 percent torque verification started on swingshift and was completed early on September 30, 1988. In no case were more than two bolts on any HCU found that moved during the torque verification. For the bolts that moved, rotation was in all cases less than one complete turn. This met the minimum requirements used in establishing the justification for continued operation.
- September 30, 1988 - The Plant Operating Committee approved a "use as is" disposition for NCR 288-435 for HCU 26-11. This disposition was based on engineering calculations which verified that the existing condition met seismic requirements. This HCU will be realigned when plant conditions allow control rod 26-11 to be fully inserted. It is expected that this will occur during the next sequence exchange in approximately three weeks.

Based on the above, this Part 21 will be closed and licensee actions followed per the apparent violation identified. This item is closed.

On September 30, 1988, a telephone conference was held between Region V and Supply System representatives to determine the licensee's actions to resolve the operability concerns with the HCUs. In addition, the NRC related the following additional concerns:

- (1) The original installation and quality inspections of the HCUs were performed by General Electric personnel. It appeared that the Supply System did not take any responsibility for performing their own quality inspections to ensure that the HCUs were installed properly.
- (2) More than nine months had elapsed since original issue of the MWR to perform corrective actions on the HCUs.
- (3) The OER item remained open, but the program did not appear to closely follow this item through to timely resolution.
- (4) Due to the fact that no PDR/NCR was prepared when the problems were found and that Operations and responsible licensee management personnel were not notified of the problems with the HCUs, their operability was never questioned by the licensee.

The inspector considered that the licensee's program for handling industry events was generally adequate. However, the NRC was concerned that the problem with the HCUs was not closely followed by the OER program to ensure timely and satisfactory resolution of a problem with safety-related equipment.

One violation was identified.

8. Licensee Event Report (LER) Followup (92700) (90712)a. (Closed) LER 88-11, "RPS Low Level Actuation During Shutdown Cooling Lineup"

This item identified a problem in that a reactor operator inadvertently drained approximately 56 inches of water from the reactor vessel to the suppression pool while changing the residual heat removal system lineup from shutdown cooling to suppression pool cooling.

As a result of this problem, a human performance evaluation was performed which determined that valve interlocks should be installed, that the seal-in feature should be removed from both valves, and that the power supply for the suppression pool suction valve should be deenergized and caution tagged when in the shutdown cooling mode as an interim measure until the previous two actions can be completed. Procedure 2.4.9 and 2.4.10 were revised to have independent verification of valve position and energization for remote shutdown panel testing. Plant modification request (PMR) 88-151 was issued to install the interlocks and remove the seal-in feature. Based on the licensee's evaluation, this item is closed.

b. (Closed) LER 88-17, "Limitorque Motor Operator Safety Hazards Caused By Torque Switch Failures"

This event report identified a number of discrepancies that were associated with torque switches used on model SMB-000 motor operators. In particular, the torque switches exhibited problems with broken stop tabs and binding.

As a result, the licensee replaced all melamine torque switches on the SMB-000 operators in containment, the steam tunnel, and safety related systems prior to startup from the spring 1988 refueling outage. This item is closed.

c. (Closed) LER 88-19, Revision 0 and Revision 1, "Control Room Emergency Filtration System Actuation During Testing"

This item concerned an inadvertent control room emergency filtration system actuation during performance of surveillance testing. The cause of the actuation was failure to incorporate a temporary procedure change into a permanent revision.

As a result of this discrepancy, plant procedure PPM 1.2.4 Revision 9, "Plant Procedure Control," was revised to specifically identify whether temporary changes were incorporated into the procedure. This will be performed through a modification to the periodic procedure form which had a specific requirement to ensure that all temporary changes were evaluated and included in the procedure prior to revision and issue. This item is closed.



d. The following LER was closed based on in-office review.

- (Closed) LER 88-20 "Surveillance For Reactor Pressure Level Switch Performed Late"

No violations or deviations was identified.

9. Licensee Action On IE Bulletin 85-03, Item e.

As requested by action item e. of Bulletin 85-03, "Motor Operated Valve Common Mode Failures During Plant Transients Due To Improper Switch Settings," the licensee identified the selected safety-related valves, the valves' maximum differential pressures and the licensee's program to assure valve operability in their letters dated May 28 and October 29, 1986, and December 18, 1987. Review of these responses indicated a need for additional information, which was requested by a Region V letter dated March 29, 1988.

Review of the licensee's April 28, 1988 response to this request for additional information indicated that the licensee's selection of the applicable safety-related valves to be addressed and the valves' maximum differential pressures met the requirements of the Bulletin and that the program to assure valve operability requested by action item e. of the Bulletin was acceptable.

The results of the inspections to verify proper implementation of this program and the review of the final response required by action item f. of the Bulletin will be addressed in the future.

No violations or deviations were identified.

10. Inservice Testing of Pumps and Valves (73756)

During a review of completed surveillance procedures, the inspector identified a questionable test data entry. The completed surveillance procedure for the July 23, 1987 performance of procedure PPM 7.4.0.5.2, contained the following discrepancies.

- The original data entry on page 7.4.0.5.2-9 for bearing C(+2), east-west pickup position measured value, had been lined out in such a manner that it could not be determined what had been entered. A new measured value of .034 in/sec was entered above the original data. The measured values were compared to reference values of 0.35 for full flow and .034 for no flow. The inspector noted that there appeared to be no indication of who changed this data or when the data was changed.
- The "test completed, reviewed and accepted for completeness/accuracy" section on page 7.4.0.5.2-1 contained a note that stated: "Bob, look at Vib Vel for bearing "c". Looks like it is in the alert range." This note was not entered in the provided second comments section on the sheet, for the applicable assigned reviewer.

- There were no other entries in this surveillance procedure to document what had occurred (e.g., whether the licensee had performed a retest and if so, when).

The inspector reviewed administrative procedure 1.5.1, Revision 13, "Technical Specification Surveillance Testing Program". This procedure provides instructions on how to complete a surveillance procedure. The following procedure requirements were identified.

- Paragraph 1.5.1.4.A states in part "The first comments section will be completed...to record significant observations...and any anomalies which were observed. ...the second comments section is reserved for the assigned reviewer...this section will describe...any followup or corrective action...."
- Paragraph 1.5.1.5 states in part "any test results found to be outside those designated in the procedure...shall be denoted in the "comments" section of the cover sheet."

The inspector considered that the licensee had instituted a program to incorporate comments in the data packages. However, due to the deficiencies discussed above, the inspector considered that licensee personnel were documenting comments in a less than formal manner. Documenting comments in a non-formal manner could result in these comments being useless should they need to be reviewed in the future.

After a followup investigation of what had happened, the licensee provided the following information:

- It appeared that the first vibration velocity measured data value was unacceptable. An in-process data validation by retesting was performed in accordance with paragraph 1.5.1.4.G of procedure PPM 1.5.1. The second test value of .034 was obtained, and entered in the procedure.
- The licensee stated that, while they have trained all surveillance personnel on the content of procedure PPM 1.5-1, this procedure did not identify how to change initial test data, or what significant observations or anomalies were. Also, there were no other licensee procedures that identified this information for use during the performance of surveillance testing.
- The licensee stated that it was the present policy that all significant observations, anomalies, or actions occurring during the performance of surveillance testing should be officially documented.

After discussions on what should be included in proper data packages for surveillance activities and how data changes should allow identification of the original data entry (e.g., who made the change and why), the licensee stated they would perform the following actions:

- Review surveillance procedures by October 30, 1988.

- Based on the review of surveillance procedures, either revise applicable procedures to include the applicable information, reinstruct surveillance personnel by a letter, and/or provide training activities on the applicable information.

Since surveillance testing is an activity affecting quality, the licensee's actions to ensure that all questionable surveillance activities are documented will be followed as an unresolved item (50-397/88-32-04).

No violations or deviations were identified.

12. Exit Meeting (30703)

On September 2, 1988, an exit meeting was held with the licensee representatives identified in paragraph 1. The inspector summarized the inspection scope and findings as described in this report. However, as a result of the concerns raised with the HCUs (Paragraph 7.h), the inspection period was extended and a second inspector continued the inspection effort to ensure that the question of the operability of the HCUs was resolved in a timely manner.

On September 23, 1988, the second inspector held an exit meeting with the licensee representatives also denoted in paragraph 1. The scope of the inspection and the inspector's findings up to the time of the meeting were discussed. The inspector identified that additional licensee documents and information would be reviewed in the Regional office and the results of that review would be included in this report. Additional documents and information on the HCUs (discussed in Paragraph 7.h) were requested and were supplied to the Region during the period of September 25-30, 1988. This information was reviewed and discussed in this report.

In addition, a telephone conference was held on September 30, 1988 between Region V and members of the Supply System staff to resolve the issue of the operability of the HCUs.

The licensee did not identify as proprietary any of the information reviewed by or discussed with the inspector during the inspection.

