U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report Nos. 50-528/84-42, 50-529/84-29 and 50-530/84-20

Docket Nos. 50-528, 50-529 and 50-530

License Nos. CPPR-141, 142 and 143

Licensee: Arizona Public Service Company
P. O. Box 21666
Phoenix, Arizona 85036

Facility Name: Palo Verde Nuclear Generating Station - Units 1, 2 and 3

Inspection at: Palo Verde Construction Site, Wintersburg, Arizona

Inspection conducted: September 10-14, 1984

Inspectors: R C Sorensen 9/22/84
R. C. Sorensen, Reactor Inspector Date Signed

R C Sorensen 9/22/84
for D. Hollenbach, Reactor Specialist Date Signed

Approved by: L Miller 10/1/84
L. Miller Jr., Chief Date Signed
Reactor Projects Section 2

Summary:

Inspection on September 10-14, 1984 (Report Nos. 50-528/84-42, 50-529/84-29 and 50-530/84-20

Areas Inspected: Routine unannounced inspection by regional based inspectors of licensee followup of construction open items and open 50.50(e) items in Units 1, 2 and 3. In addition, operations activities and procedures involving Unit 1 were examined. The examined activities involved implementation of Three Mile Island Lessons Learned actions. The inspection involved 74 inspector-hours onsite by two NRC inspectors.

Results: Of the areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

a. Arizona Public Service Company (APS)

*D. Karner, Vice-President Nuclear Production
*L. Souza, Assistant Manager, Corporate QA/QC
*J. Allen, Operations Manager
*I. Zeringue, Technical Support Manager
*C. Russo, Quality Audits and Monitoring Manager
*D. Fasnacht, Nuclear Construction Manager
D. Hoppes, Reactor Engineering Supervisor
T. Bradish, Quality Systems Engineer
J. Matteson, QA/QC
W. Montefour, QA/QC
G. Perkins, Radiation Protection Supervisor

b. Bechtel Power Corporation (Bechtel)

*D. Hawkinson, Project QA Manager
*P. Huber, Project QA Coordinator
*A. Foster, QC
M. Peters, Resident Engineer
J. Sears, Lead Pipe Support Engineer
H. McGuire, QA

*Denotes those attending exit meeting, September 14, 1984.

The inspectors also talked with other licensee and contractor personnel during the course of the inspection.

2. Review of 50.55(e) Items

The following potential 50.55(e) items were reviewed by the inspector for reportability and to determine the thoroughness of the licensee's corrective action. The items marked with an asterisk (*) were judged by the licensee to be reportable under the 50.55(e) criteria; the others were considered not reportable.

(Closed) DER No. 84-22*, Unit 1 CEA Shroud Support Was Found Contaminated With Oil

The final report submitted by the licensee identified leaks from the scissors jack as the cause of the contaminating hydraulic fluid on the CEA shroud support plate. The scissors jack is a standard industrial component used only during maintenance. It is stored outside of containment when not in use.

The corrective action taken by the licensee was to thoroughly clean the contaminated areas of the shroud, submit Design Change Packages (DCPS 1SM, 2SM, 3CM-ZC-161) to install an oil retention bar in the polar crane

bridge drive gear case, and issue a work order (WO #45175) to install a drip pan under the scissors jack. The inspector examined the DCPs and the Work Order. The drip pan has been installed and the work order signed off. The DCPs have been issued but the work has not yet started. This item is considered closed based on the pending corrective action.

(Closed) DER No. 82-50*, Flexible Conduit Couplings Between the Auxiliary and Control Building May Be Damaged If Seismic Events Exceed 3/4 Inch Movement

Revision 1 of the final report submitted by the licensee stated the flexible DX fittings used between the Auxiliary and Control Buildings will not withstand all postulated relative motion between these two buildings. The DX fitting allows up to a 3/4-inch offset whereas the seismic analysis predicts offsets up to 1¼-inches at the upper levels. An Engineering Analysis (No. 13-ES-400) was done to determine the extent of the problem in Unit 1. Fifteen cases were identified where the cables in the fitting could sustain significant damage. Design Change Package, DCP 1SE-ZA-109 was issued to correct the identified deficiencies. The work has been done and the DCP signed-off and verified. An analysis of Unit 2 was done and DCP 2SE-ZA-111 issued to correct the identified deficiencies. Unit 3 was not affected since no DX fittings were installed yet. Finally, Note 4 on Bechtel Drawings 13-E-ZJC-052, 13-E-ZJC-053, and Drawing 13-E-ZAC-050 has been revised to use a flexible conduit capable of accommodating the maximum offset during a seismic event.

The inspector examined the DCPs, and the drawings for technical adequacy. A random sample of the modified couplings was also examined. Since the work in Unit 1 is complete and the work in Unit 2 is in progress this item is closed.

(Open) DER No. 83-83*, Incorrect Sway Struts Supporting Class QlA Piping

The final report submitted by the licensee identified a problem associated with the interchange of pipe support components supplied by ITT Grinnell and Corner & Lada (C&L). During a field engineering inspection of Unit 2, a C&L sway strut size no. 7 was found substituted for an ITT Grinnell size no. 7 sway strut. The problem is an ITT Grinnell strut no. 7 has a maximum loading of 85,895 lbs. whereas the C&L strut has a maximum loading of 39,480 lbs.

The licensee initiated a reinspection of all C&L sway struts in Unit 2. Only one undersize strut, which had a design load in excess of its capacity, was identified. NCR PC-7460 was dispositioned to replace the strut. Six other undersized struts were identified and NCRs were written requiring these struts to be replaced with a sway strut sized per latest design drawings. Unit 1 has initiated a reinspection under WPP/QCI 564.0 of all installed C&L struts. Plans are in progress to initiate a similar reinspection of Unit 3. Also, Specification 13-PM-204, allowing the interchange of pipe support components supplied by ITT Grinnell and C&L provided they have the same design load capacities, has been revised to include load capacity tables of the different sway struts.

The inspector examined the applicable NCRs, WPP/QCI 564.0, and Specification 13-PM-204 for completeness and to insure all changes were incorporated. No problems were identified. However, while replacing one of the undersize struts it was discovered that C&L struts were used with ITT Grinnell pipe clamps. The Bechtel Unit 1 Lead Pipe Support Engineer indicated this was an unacceptable combination. A hold tag was written pending further analysis.

This item remains open pending further review of the Unit 1 and 2 reinspection and the pipe clamp/strut mismatch.

(Open) DER No. 82-76*, Target Rock Valves Do Not Meet Specification/Test Requirements

The final report submitted by the licensee identifies 30 deficient Target Rock Solenoid Valves, 24 one inch valves (model #77L-001) and 6 two inch valves (model #77L-003). Design Change Packages, DCP 1SM, 2SM, and 3CM-SI-301 provide the corrective action for the existing solenoid operators for model no. 77L-001 T/R valves. These valves are also presently undergoing requalification testing in accordance with NUREG-0588. The model 77L-003 T/R valves are being replaced in Units 2 and 3 with Valcor Model V526-563-9 two-inch solenoid valves. In Unit 1, these valves will be replaced with refurbished T/R model 77L-003 valves from Unit 2 until the 1st refueling outage. Then they will be replaced with Valcor valves.

Twelve additional Target Rock Solenoid Valves (model 77L-002 and 77L-004) have been identified by the vendor. These valves do not require equipment qualification, however, they are being inspected for missing parts in Investigation Report, IR No. 18.

The inspector examined the Design Change Packages, DCP No. 1SM-CH-307, 2SM-CH-307, and 2SM-CJ-307, which implement the required valve modifications and valve change-outs. The DCPs adequately document the proposed changes.

The inspector stated the following concerns: IR No. 18 was not available for review and the T/R Model No. 77L-001 valves have not yet passed their requalification tests. This item remains open pending review.

(Closed) DER No. 84-16*, ESFAS Relay Cabinets Baseplates Did Not Meet Seismic Criteria

The final report submitted by the licensee stated the 1/4-inch thick mounting plates on the back side of the cabinets would exceed their allowable stress limit during a seismic event. The corrective action taken by the licensee, as recorded on DCPS 1SC, 2SC, 3CC-SF-014, is to reinforce each of the affected 1/4-inch mounting plates with a 3/8-inch thick vertical stiffener plate. This modification gives the 1/4-inch thick plate the stiffness of a 1/2-inch plate in seismic qualification as shown in Bechtel Calculation No. 13-CC-ZQ-N01. The inspector examined the DCPs and the proposed fix. They were found to be technically adequate. Although the work has not been done, this item is closed based on the pending corrective action.

(Closed) DER No. 82-80, Low Insulation Resistance Valves For Terminal Blocks Supplied By Conax Co.

The final report submitted by the licensee stated increased surface conductivity of the terminal blocks supplied by Conax Corporation produced excessive errors in some instrument channels. This increased surface conductivity was caused by the steam and chemical spray on the exposed terminals during a simulated MSLB/LOCA event. When this problem was identified, during the Environmental Qualification Tests, the conditional acceptability of the terminal blocks was withdrawn. The terminal blocks were than replaced with environmentally qualified splices. This item is considered closed.

(Closed) DER No. 84-01, Methodology Used to Track Required Testing Activities

The final report submitted by the licensee involved the methodology used to track the required retesting activities. These activities were not described in a documented Startup program. Also, outstanding preoperational retests, during and after turnover to Operations, are not adequately controlled by procedure. The second condition was documented in Corrective Action Request CAR S-83-267-N. Two items requiring retest were also on this CAR. Procedures 90GA-0ZZ22, Discipline Test Schedule, and 90GA-0ZZ02, Startup Information Center, have been revised to provide a documented program to track requirements for outstanding preoperational retest after work is done on previously tested components. This item is considered closed.

(Closed) DER No. 84-10, Abnormal Number of Single Element RTDs Open Circuited

The final report submitted by the licensee identified a potential problem with its Single Element Resistant Temperature Detectors (RTDs) supplied by the Rdf. Corp. During final testing of several RTDs at Rdf an abnormal number of units open-circuited, thus failing inspection. All the RTDs on site were returned to Rdf for inspection. No defects were found. This item is considered closed.

(Closed) DER No. 83-81, Schedule 160 SS Pipe From Gulfalloy Contains a Manufacturing Defect

The final report submitted by the licensee identified 3 spools, each approximately 22 feet long, of 3-inch schedule 160 stainless steel (ss) pipe containing manufacturing defects along its length which violated minimum wall thickness requirements. All three spools have the same heat number (M6233) and no other 3" schedule 160 SS pipe was ordered by the vendor for PVNGS. The minimum wall thickness was measured by the vendor using the shear wave ultrasonic test (UT) method. This method does not identify inclusions. The pipe was subsequently examined on site using the longitudinal wave UT method. This method identified inclusions in the pipes. The wall thicknesses of the pipe were than measured using a micrometer. These measurements revealed the pipes have acceptable wall thicknesses. ASME Section III Code does not specify inclusions by themselves as grounds for rejecting pipe. The licensee, however, did not

indicate if the pipes were acceptable by the ASME Section III Code with the inclusions present. This item remains open.

(Open) DER No. 80-30, Borg-Warner Motor Operated Gate Valve Failed To Close Under Operating Conditions

Revision 1 of the final report submitted by the licensee identifies a Borg Warner 3-inch motor operated gate valve, at Duke Power, that failed to close when actuated under operating conditions of 2485 psi at 650°F with a flow rate of 220,000 lbs. per hour of steam. The potential failure was determined to be inadequate guiding of the valve gate.

This valve is used at Palo Verde as an isolation valve in the safety injection long-term recirculation lines. The safety function of this valve is to open against differential pressure initiating simultaneous cold-leg and hot-leg injection. The valve is closed to terminate simultaneous cold-leg and hot-leg injection.

The valve was tested by Borg Warner to demonstrate the valves operability under the design requirements, at Palo Verde, of 2500 psi differential pressure and 600 gpm flow rate. The valve successfully passed this operability test opening and closing fully. This item will remain open pending the valve passing its pre-operational test.

(Open) DER No. 83-80, Main Feedwater Isolation Valves Failed to Close in 5 Seconds

The final report submitted by the licensee describes the failure of the Main Feedwater Isolation Valve to close in 5 seconds as specified in the FSAR. The nitrogen charge was increased from 3400 psig to 3500 psig and the "G" closed speed control valve was changed from 3/4 open to fully open to shorten the closing time. An analysis of the mass/energy release during a MSLB inside containment was done to evaluate the consequences of changing the required closing time from 5 seconds to 10 seconds. An FSAR change has been submitted for this. The new required closing time is 10-seconds under operational pressure, temperature, and flow rate. Anchor Darling has stated if the valve closes in 8-seconds under no flow conditions the valve will meet the 10-second closing time requirement.

The review of the FSAR change and the 8-second maximum closure time under static test conditions is being done by NRR. The review of the actuator adjustments and the necessary procedure changes will be reviewed during a subsequent inspection. This item will remain open.

(Open) DER No. 83-10, Main Steam Relief Valves Tests Exceed Specified 5% Blowdown Limit

The final report submitted by the licensee describes the Main Steam Safety Relief Valves (MSSV) inability to meet their specified blowdown requirement of less than 5%. Subsequent testing by the vendor established that the valve design was deficient with regard to blowdown adjustment. The valves were modified, retested, and found acceptable.

CE's internal procedure for ordering valves appears weak. CE has previously ordered valves that do not meet design requirements, i.e. Main Feedwater Isolation Valves referenced in DER No. 83-80. This item will remain open pending review of CE's valve ordering procedure.

3. Licensee Action on Previously Identified Items

a. (Open) Follow-up Item (50-530/84-07-17) Defective Cables in Quarantined Area Not Identified With Hold Tags or NCRs

Previous Inspection

The licensee found four reels of safety grade cable stored in the nonconforming materials segregated storage area that were not identified with "Hold Tags" nor did they have Nonconformance Reports prepared to document their status.

This Inspection

The inspector examined the corrective action taken by the licensee to correct this deficiency. Nonconformance Reports (NCRs E4-4378, E4-4379) were generated to record the deficiencies. Procedure Change Notice (PCN 67) to WPP/QCI 254.0 was issued which requires questionable reels be placed in a quarantined area of the reel yard and dispositioned in 4 working days. These corrective actions are acceptable.

The licensee in their reply did not mention how the reels got to the area without an NCR or "Hold Tag" on them. Also, no assurance was given that this is an isolated occurrence and the reels would have been correctly dispositioned if the inspector had not intervened. This item will remain open.

b. (Open) Unresolved Item (50-528/84-15-04) Verification that APS Test Procedures and Bechtel Work Procedures Receive Adequate Documented Design Review by CE

Previous Inspection

The inspector had questions concerning the CE review process of test and work procedures. While the licensee does submit procedures to CE for review and comment, no specific response is required.

This Inspection

The inspector examined the role CE plays in reviewing test procedures. CE has procedures in place covering the review of Startup Tests (90AC-0ZZ02) and Operations Tests (70AC-0ZZ18). The test procedures, procedure changes, and results are also reviewed by the Test Work Group (TWG) which has a CE project representative as a permanent member. The procedure covering the TWG is 90AC-0ZZ09. Any work that is done after testing is documented on a Startup Field Request (SFR) and is reviewed by the TWG. The SFR and its use is described in procedure 90GA-0ZZ19. These procedures adequately

describe CE's responsibility for reviewing tests and test procedures.

The inspector also examined C-E's role in reviewing vendor work procedures. The licensee was unable at this time to provide a written description of how CE reviews and accepts vendor work procedures. This item will remain open.

4. Implementation of Three Mile Island Lessons Learned

The inspector reviewed the below listed items which represent a portion of a comprehensive and integrated plan to improve reactor safety following the events at Three Mile Island, Unit 2 in March 1979. (The item numbers are from Enclosure 2 of NUREG 0737).

A. Followup Items

I.A.1.3.1 Limit Overtime (Shift Manning) (Closed)

The licensee had committed to dictating which upper level management personnel could authorize deviation from the overtime limitations of Generic Letter 82-12. These limitations apply to plant personnel involved in safety related activities, i.e. plant operators, radiation protection technicians, I&C technicians, etc.

The inspector examined a copy of a memo, PVNGS-JRB-M84-361, from J. R. Bynum to E. E. Van Brunt stating that the Opertions Manager, Technical Support Manager, Maintenance Manager and Plant Services Manager are delegated the authority to authorize exceeding the overtime limitations of GL 82-12.

The inspector found this acceptable and therefore, this TMI Action Plan item is considered closed.

I.A.1.2 Shift Supervisor's Responsibilities (Administrative) (Open)

Licensee management has verbally committed to developing a corporate policy statement or procedure requiring the Vice President for Nuclear Operations to periodically review the administrative duties of the shift supervisors. The inspector requested to be apprised of the status of this open item. He was informed that action will be completed within a month. The inspector reminded the licensee representative that this is a fuel load item and should be resolved expeditiously. This item remains open pending further inspection.

II.D.3 Direct Indication of Relief and Safety Valve Position (Open)

Of the 4 aspects concerning this TMI Action Plan item that remained open, 3 were closed.

a) Concerning environmental qualification, the inspector reviewed Qualification Report 1414-TR-01, which documents the environmental qualification tests performed on the acoustic monitoring system for pressurizer safety valves. Every

component of the system was tested from the accelerometer to the flow monitoring system cabinet. The tests appear to acceptably comply with the provisions of Regulatory Guideline 1.89. In addition, 2 tracking systems exist to ensure that, when the qualification for a particular component expires, it is either replaced or requalified. This is due to the fact that very few components in the system could be guaranteed for the life of the plant (40 years). The inspector found the environmental qualification documentation acceptable and considers this aspect closed.

b) The inspector reviewed seismic qualification records, also included in Qualification Report 1414-TR-01, for the pressurizer safety valve acoustic monitoring system. The seismic qualification tests appear to acceptably comply with the provisions of Regulatory Guideline 1.100. The inspector found the seismic qualification to have been acceptably completed and considers this aspect closed.

c) Concerning the human factors analysis associated with the acoustic monitoring system, the inspector noted that none was committed to in the Lessons Learned Implementation Report (LLIR) and none was performed. The Office of Nuclear Reactor Regulation found this to be acceptable in the Palo Verde Safety Evaluation Report.

The inspector noted that reference to this system has been included in applicable emergency and recovery procedures, as committed to in the LLIR. The inspector is therefore closing this aspect, based on NRR's evaluation and acceptable completion of commitments made in the LLIR.

d) A confirmatory note in the Palo Verde SER states: "The acoustic monitoring system to provide direct pressurizer safety valve position indication is to be installed and calibrated prior to fuel loading". The inspector notes that although the system has been vendor tested, no calibration has been performed and none is planned until hot plant conditions after fuel load.

The inspector emphasized to the licensee representatives that this issue must be resolved with the Office of Nuclear Reactor Regulation prior to fuel load. This aspect will remain open until it has been acceptably resolved.

I.C.7 NSSS Vendor Review of Procedures (Closed)

This item involves NSSS vendor (CE) review of low power test procedures, power ascension test procedures and emergency procedures for procedure adequacy.

The inspector had previously noted that the CE member of the Test Results Review Group (TRRG) is a voting member on test procedure approval, but not on approval of test results. The inspector

requested explanation as to the reason for this and the degree of review the CE member would actually provide concerning test results.

In an interview with licensee personnel, the inspector learned that the CE representative has the authority to review and comment on test results, just as any other member of the TRRG. His presence at TRRG meetings and his comments during the meetings are recorded in the meeting minutes for documentation. This is established in procedure 70AC-0ZZ17, which defines the functioning of the TRRG.

He has 3 different avenues to allow his comments or dissension to be heard and resolved:

a) TRRG meeting
b) Plant Review Board (PRB) meeting
c) voicing his concerns directly to the Director of Nuclear Operations via letter

The licensee felt it was inappropriate, for commercial reasons, to have the NSSS vendor approve test results for systems which they supplied, especially for the Warranty Run (measuring total MW of steam). The inspector found this response satisfactory, since CE provides the test acceptance criteria for low power test procedures and power ascension test procedures. Therefore, this aspect is considered closed.

Of 134 low power test procedures and power ascension procedures, all low power test procedures have been approved and all but 4 power ascension procedures have been recommended for approval. The inspector examined a small sample of power ascension test procedure packages for evidence of NSSS vendor review and found them to be acceptable.

One aspect of this TMI item remained. It involves the NSSS vendor review of emergency procedures. The inspector examined a copy of a letter dated January 20, 1984. The letter, V-CE-19626, documents CE review of emergency procedures and recovery procedures. CE comments on the procedures are included in a step-by-step manner. Generally, CE found the licensee's approach to emergency procedures very good, and also found that they adhered to CEN-152, Combustion Engineering Emergency Procedure Guidelines. The inspector also reviewed the licensee's response and resolution of CE comments on PVNGS Emergency Procedures. The inspector noted that the comments are addressed one-by-one with the majority of comments being incorporated. Where they weren't incorporated, justification was provided.

The inspector is satisfied with NSSS vendor review of low power, power ascension and emergency procedures and thus this TMI Action Plan Item is considered closed.

I.C.2 Shift and Relief Turnover Procedures (Open)

6 aspects remained open concerning this TMI Action Plan Item. The inspector closed one, and five remain open.

a) The licensee committed to include applicable requirements from the Vassallo letter of November 9, 1979, in the body of shift turnover instructions for control room operators. This is to ensure that the operators understand what they are signing for in the shift turnover checklist. The inspector noted that a new procedure has been generated, "Shift Turnover," but not yet approved by the PRB, that specifically addresses shift turnover for SROs, ROs and AOs. The inspector examined this procedure (40AC-9ZZ16) and concluded that this commitment appears to have been met. However, this aspect will remain open until procedure approval.

b) The licensee committed to include the applicable requirements from the Vassallo letter for auxiliary operators. The requirements appear to have been acceptably addressed in the Shift Turnover procedure, but again, this aspect will remain open until procedure approval.

c) The licensee committed to developing a shift turnover checklist for radwaste technicians. The inspector reviewed the procedure for Conduct of Radwaste Shift Operations and saw that a very good checklist had been developed. However, the checklist appeared to apply to the lead radwaste technicians only and no guidance was given for the 2 radwaste technicians normally assigned to the shift. The licensee representative committed to including guidance for the radwaste technicians within the procedure for Conduct of Radwaste Shift Operations. This aspect remains open pending further inspection.

d) A shift turnover checklist has not been developed for radiation protection technicians. The radiation protection supervisor committed to writing a procedure providing shift turnover guidelines. This will include a checklist of pertinent information to be reviewed as part of shift turnover by on-coming radiation protection technicians. The checklist will be stamped in the radiation protection log. This aspect will remain open until verification of implementation.

e) The inspector reviewed the shift turnover instructions for maintenance personnel and while no shift turnover checklist has been instituted, sufficient controls exist to ensure adequate turnover. This conclusion is based on:

   (1) The policy of generally allowing only one shift to work a particular job,

   (2) The individual steps of the Work Order instructions are signed off by the person doing the work only after the step is completed,

   (3) Use of Work Performed Continuation Sheets in the Work Order packages to document problems or significant occurrences during a particular shift.

This aspect is considered closed.

f) This aspect concerns development of a system to evaluate the effectiveness of shift turnover procedures. The inspector noted from the review of the procedure for Shift Turnover that the Plant Superintendent or Dayshift Supervisor reviews operations checksheets on a daily basis to ensure the effective transfer of information. In addition, the Radwaste Unit Supervisor reviews radwaste logs on a weekly basis. This appears to be acceptable, but again, this aspect will remain open until procedure approval.

I.C.3 Shift Supervisor's Responsibilities (Closed)

This TMI Action Plan Item involves the shift supervisor's overall responsibility for plant safety. There were 4 open aspects concerning this item and the inspector closed all of them.

a) The licensee committed to including procedural guidance emphasizing the shift supervisor's managerial function and the need for him to refrain from any single operation during an emergency.

These words have been incorporated into the recently approved Conduct of Shift Operations procedure and therefore, this aspect is closed.

b) The licensee committed to including within the body of the Conduct of Shift Operations procedure provisions for the shift supervisor to remain in the Control Room during accidents to direct the Control Room operators. This commitment has been fulfilled in that the shift supervisor is required by the procedure to remain in the Control Room during accidents. This aspect is closed.

c) The inspector had previously voiced a concern that procedures did not specify who can relieve the shift supervisor during accident situations. Procedure 40AC-9ZZ02 (Conduct of Shift Operations) now establishes that only a licensed SRO can relieve the shift supervisor. The inspector finds this acceptable and this aspect is considered closed.

d) This aspect concerns training programs for shift supervisors emphasizing their management function for safe operation of the reactor plant. The inspector is closing this aspect based on the following findings:

1) Inspector interviews with training personnel who indicated that operators are trained procedure by procedure and that each operator's responsibility is covered.

2) Shift Supervisor's responsibilities are outlined in the Conduct of Shift Operations procedure including the responsibilities to: (a) maintain safety as the highest

priority and, (b) to maintain a perspective of operational conditions affecting the safety of the plant as a matter of highest priority.

3) Inspector review of learning objectives for training on specific procedures, primarily Conduct of Shift Operations. The inspector notes that the learning objectives for the procedure include a requirement for the operator trainee to learn his principal responsibilities contained within the procedure.

4) An interview conducted with 2 licensed SROs (one shift supervisor and one assistant shift supervisor) who indicated that they had been trained specifically in the Conduct of Shift Operations procedure, page by page.

5) The Vice-President for Nuclear Operations annual memo to all shift supervisors emphasizing the shift supervisor's responsibility for reactor safety.

The inspector noted that the shift supervisor interviewed had not received his copy of the most recent memo from the Vice-President for Nuclear Operations. This was brought to the attention of the Operations Manager. The inspector expressed his concern that the issuance of the memo does little good unless it reaches the persons for whom it is intended. The Operations Manager committed to ensuring that all shift supervisors are made aware of the memo.

B. New Items

I.C.6 Procedures for Verifying Correct Performance of Operating Activities (Open)

NRC Position

References: NUREG 0737
NUREG 0585
NUREG 0660

It is required (from NUREG-0660) that licensee's procedures be reviewed and revised, as necessary, to assure that an effective system of verifying the correct performance of operating activities is provided as a means of reducing human errors and improving the quality of normal operations. This will reduce the frequency of occurrence of situations that could result in or contribute to accidents. Such a verification system may include automatic system status monitoring, human verification of operations and maintenance activities independent of the people performing the activity, or both.

Licensee Commitment

Reference: PVNGS TMI-2 Lessons Learned Implementation Report

In summary, the licensee states:

Use of the Safety Equipment Status Panel which displays the availability of selected equipment important to safety, will reduce the extent of human verification of operations and maintenance activities. In addition, the following requirements will be implemented prior to Unit 1 fuel load:

a) Permission to release systems for maintenance by an SRO.

b) A system shall be made safe to work on.

c) Procedures shall require independent verifications, where appropriate, to ensure that necessary measures, such as tagging equipment, have been implemented correctly.

d) Temporary modifications shall be controlled by approved procedures which shall include a requirement for independent verification.

e) When equipment is ready to be returned to service, proper alignment shall be independently verified by a second person unless alignment is proven by functional testing.

Inspector Findings

References: Procedure 40AC-0ZZ05, Station Tagging & Clearance
Procedure 73AC-9ZZ05, Temporary Modification Control
Procedure 40AC-9ZZ02, Conduct of Shift Operations
Procedure 30AC-9ZZ01, Work Control
Procedure 40AC-0ZZ06, Locked Valve & Breaker Control

The inspector reviewed the above procedures and interviewed licensee personnel to ensure compliance with the requirement and adherence to commitments.

The inspector found that the procedure for Conduct of Shift Operations establishes the conduct of independent verification and includes a list of systems for which independent verification will be performed. The performance of the independent verification will apply to operating procedures as well as surveillance procedures for each individual system. However, not all operating procedures have been completed and approved and the inspector was unable to complete a thorough review of surveillance procedures. Thus, this TMI Action Plan Item will remain open pending further inspection.

In addition, the inspector made the following observations:

a) The procedure for Control of Temporary Modifications adequately addresses the independent verification criteria both for installation and removal of temporary modifications such as jumpers, bypasses, lifted leads and reduced setpoints.

b) The procedure for Station Tagging and Clearance adequately addresses the installation of clearances. The Responsible

Supervisor (Shift Supervisor) assigns personnel to position the equipment and hang the tags and the clearance Request or independently verifies the position of the equipment and placement of the tags.

c) The Conduct of Shift Operations procedure addresses independent verification for clearance removal and system restoration. The systems identified in Appendix B of that procedure will require independent verification. The shift supervisor determines the qualification requirements and designates the individual to perform the independent verification. It is in this respect that the procedure is not clear in defining who a qualified individual might be. I&C technicians should independently verify jumpers and lifted leads, chemists should independently verify chemistry and sampling systems and operators should verify safety systems. This aspect will remain open pending further inspection in this area.

5. Exit Interview

The inspectors met with the licensee management representatives denoted in paragraph 1 on September 14, 1984. The scope of the inspections and the inspector's findings as noted in this report were discussed.