

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-295/90033(DRP); 50-304/90033(DRP)

Docket Nos. 50-295; 50-304

Licenses No. DPR-39; DPR-48

Licensee: Commonwealth Edison Company  
Opus West III  
1400 Opus Place - Suite 300  
Downers Grove, IL 60515

Facility Name: Zion Nuclear Generating Station, Units 1 and 2


Inspection At: Zion, Illinois

Inspection Conducted: December 9, 1990 through January 14, 1991

Inspectors: J. D. Smith

R. J. Leemon

A. M. Bongiovanni

Approved By:   
M. J. Farber  
Site Director

  
Date 1/30/91

Inspection Summary

Inspection from December 9, 1990 through January 14, 1991 (Reports No. 50-295/90033(DRP); 50-304/90033(DRP))

Areas Inspected: Routine, unannounced resident inspection of licensee action on previous inspection findings; summary of operations; operational safety verification and engineered safety feature (ESF) system walkdown; surveillance observation; maintenance observation; engineering and technical support; safety assessment and quality verification; licensee event reports (LERs); and training.

Results: Of the 9 areas inspected, no violations or deviations were identified in 8 areas. One non-cited violation of failure to meet the technical specification for reactor trip breaker outage time was identified in paragraph 9 of this report.

The operators' response to the Unusual Event (UE) and subsequent Unit 2 shutdown resulting from the inoperability of two safety injection pumps was good. Plant material condition could be improved as indicated by the excessive number of

fluid leaks and outstanding work requests on plant equipment. Radiation monitor failures have occurred due to the lack of a preventive maintenance program. The station security contract was awarded to another company during this report period and the transition proceeded smoothly with no observable impact on plant security.

The licensee is taking steps to improve the reliability of the Emergency Diesel Generators (EDGs) by performing walkdowns of the EDGs to identify all needed corrective and preventative maintenance and material condition improvements. The licensee's root cause analysis was extensive when the 2A EDG failed its surveillance test due to high crankcase pressure. The use of a load cell while lifting the 1D reactor coolant pump (RCP) could have averted the sling failure.

The technical staff's support and extensive investigations in an effort to determine the cause of the low safety injection (SI) pump recirculation flows was considered a strength. The technical staff involvement with the 1D RCP investigation and EDG maintenance has been evident. The technical staff continued to be supportive of the Operations Department.

The residents consider senior management support and oversight in the control room a weakness. Inadequate communication was evidenced by the lack of real time knowledge on the part of the shift management during the SI pump inoperability event. Also, during this event, senior operations management guidance was not provided when an additional problem was encountered.

## DETAILS

### 1. Persons Contacted

\*T. Joyce, Station Manager  
T. Rieck, Superintendent, Technical  
\*W. Kurth, Superintendent, Production  
R. Budowle, Onsite Nuclear Safety  
T. Broccolo, Director, Services  
D. Karjala, Director, Performance Improvement  
W. Stone, Assistant to Technical Superintendent  
D. Redden, Assistant to Production Superintendent  
P. LeBlond, Assistant Superintendent, Operations  
R. Johnson, Assistant Superintendent, Maintenance  
J. LaFontaine, Assistant Superintendent, Work Planning  
\*D. Wozniak, Project Manager, ENC  
\*D. Bump, Nuclear Quality Programs, Superintendent  
\*C. Schultz, Quality Control Supervisor  
R. Chrzanowski, Regulatory Assurance Supervisor  
\*W. T'Niemi, Technical Staff Supervisor  
R. Milne, Security Administrator  
\*T. Saksefski, Regulatory Assurance  
R. Cascarano, Unit 2 Operating Engineer  
W. Demo, Unit 1 Operating Engineer  
M. Carnahan, Unit 0 Operating Engineer  
W. Mammoser, PWR Projects

#### US NRC

\*M. J. Farber, Site Director

\*Indicates persons present at the exit interview January, 14, 1991.

The inspectors also contacted other licensee personnel including members of the operating, maintenance, security, and engineering staff.

### 2. Licensee Actions on Previous Inspection Findings (92701, 92702)

#### Violations

(Closed) Violation (295/89036-01(DRP); 304/89032-01(DRP)) Licensee changed the facility without performing the required 50.59 review for emergency diesel generator room vent fans. The licensee's corrective actions for these violations are adequate and the inspectors have no further concerns.

#### Unresolved

(Closed) Unresolved Item (295/90013-01(DRP)) Review of evaluation and root cause analysis for the June 1990 unit 1 boric acid tank (BAT) low

level. The engineering evaluation as documented in deviation report 22-1-90-088, states that the technical specification (TS) requirement of 5140 gallons of borated water corresponds to a 51% level indication of the tank, contrary to 40% as thought at the time of the event. TS 3.2.1.F requires 5140 gallons of borated water be available in the BAT or the unit must be placed in hot shutdown within four hours. The tank level dropped below 5140 gallons for approximately 37 minutes prior to level recovery; therefore, no TS violation occurred. This unresolved item is correspondingly closed.

#### Open Items

(Closed) Open Item (304/88023-03(DRP)) Review of final implementation of corrective actions for the inadvertent safety injection. The inspector reviewed the licensee actions and has no further concerns.

(Closed) Open Item (295/89034-01(DRP); 304/89029-01(DRP)) EDGs bearing failure root cause evaluation. The EDG investigation reports for the 1A and 0 EDGs addressed the root causes for the bearing failure; therefore, the inspector has no further concerns.

(Closed) Open Item (295/89034-03(DRP)) Charging pump failure during maintenance test run due to incorrect maintenance. Licensee corrective actions appear to be adequate and the inspector has no further concerns.

#### Administrative Closures

NRC Region III management has reviewed the existing open items for the Zion station and have determined that the following open items will be closed administratively due to their safety significance relative to emerging priority issues and the age of the item. The licensee is reminded that commitments directly relating to these open items are the responsibility of the licensee and should be met as committed. NRC Region III will review licensee actions by periodically sampling administratively closed items. The items below are considered closed:

(Closed) Bulletin (295/85003-BB; 304/85003-BB) Bulletin 85-03, "Motor Operated Valve Common Mode Failures During Plant Transients"

(Closed) Violation (304/86022-04(DRS)) Inadequate procedure relating to open and close knife switches

(Closed) Open Item (295/87038-01; 304/87039-01(DRS)) Review of Final Safety Components list

(Closed) Bulletin (295/88002-BB; 304/88002-BB) Bulletin 88-02, "Rapidly Propagating Fatigue Cracks in Steam Generator Tubes"

(Closed) Open Item (295/88010-03(DRS); 304/88011-03(DRS)) Evaluation of cause for snubber hydraulic fluid contamination

No violations or deviations were identified.

### 3. Summary of Operations

#### Unit 1

The unit entered this inspection period in hot shutdown and was in the process of heating up in preparation for returning the unit to service from a forced outage. On December 11, 1990, control room alarms indicating ID RCP problems were received and the pump was secured. The unit was placed in cold shutdown for the remainder of the report period to facilitate the repairs to the pump.

#### Unit 2

The unit operated at power levels up to 100% until December 26, 1990 at 10:41 a.m., when the 2A EDG failed its surveillance test due to a high crank case pressure. This failure was the fifth failure in the past 100 tests and required the licensee to repair the EDG or place the unit in hot shutdown within twenty hours. The 2A EDG was declared operable later that day after the completion of repairs and a successful operability test. The unit operated routinely until January 4, 1991 when the 2A and 2B SI pumps failed their operability tests due to low recirculation flow which placed the unit on a four hour clock to hot shutdown. An UE was declared due to the TS required plant shutdown. The UE was terminated the next day when the recirculation flows were found acceptable and the pumps were declared operable. On January 10 the unit was taken critical and on January 11, the unit was synchronized to the grid. The unit operated at power levels up to 100% for the remainder of the period.

No violations or deviations were identified.

### 4. Operations Safety Verification and ESF System Walkdown (971707 and 71710)

#### a. Operational Safety

During the inspection period, the inspectors verified that the facility was being operated in conformance with the licenses and regulatory requirements and that the licensee's management control system was effectively carrying out its responsibilities for safe operation. This was done on a sampling basis through routine direct observation of activities and equipment, tours of the facility, interviews and discussions with licensee personnel, independent verification of safety system status and limiting conditions for operation action requirements (LCOARs), corrective action, and review of facility records.

On a sampling basis the inspectors daily verified proper control room staffing and access, operator behavior, and coordination of plant activities with ongoing control room operations; verified operator adherence with the latest revisions of procedures for ongoing activities; verified operation as required by TSs; including compliance with LCOARs, with emphasis on ESFs and ESF electrical alignment and valve positions; monitored instrumentation recorder

traces and duplicate channels for understanding, off-normal condition, and corrective actions being taken; examined nuclear instrumentation and other protection channels for proper operability; reviewed radiation monitors and stack monitors for abnormal conditions; verified that onsite and offsite power was available as required; observed the frequency of plant/control room visits by the station manager, superintendents, assistant operations superintendent, and other managers; and observed the Safety Parameter Display System for operability [and general observations of control room, housekeeping, etc.].

b. ESF Systems (71707)

During the inspection, the inspectors selected accessible portions of several ESF systems to verify status. Consideration was given to the plant mode, applicable TSS LCOARs, and other applicable requirements.

Various observations, where applicable, were made of hangers and supports; housekeeping; whether freeze protection, if required, was installed and operational; valve position and conditions; potential ignition sources; major component labeling, lubrication, cooling, etc.; whether instrumentation was properly installed and functioning and significant process parameter values were consistent with expected values; whether instrumentation was calibrated; whether necessary support systems were operational; and whether locally and remotely indicated breaker and valve positions agreed.

During the inspection, the accessible portions of AC electrical power system; DC electrical power system; reactor protection system; containment and support system; SI systems; radiation monitoring system; service water system; component cooling water system; main and auxiliary steam system; EDG and auxiliaries system; plant fire protection system; and control room system were inspected to verify operability. The inspectors verified the operability of selected emergency systems, reviewed tagout records, and verified proper return to service of affected components. Tours of the auxiliary and turbine buildings were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify the maintenance requests had been initiated for equipment in need of maintenance.

c. Onsite Event Follow-up (93702)

Leaks from the Component Cooling Water (CCW) Heat Exchangers

On December 14, 1990, a leak in the CCW system was detected by a decreasing CCW surge tank level. The CCW system was walked down by Operations personnel and the Technical Staff system engineer; however, no apparent leaks were found. Samples were taken at various locations including sumps, interfacing components, and the reactor coolant system; however, no chromates from the CCW

system were detected. The CCW heat exchangers were isolated and also sampled. No chromates were detected in the number 0 heat exchanger; however, the number 1 heat exchanger sample indicated a slight presence of chromate (180 ppb). When the service water side of the number 2 CCW heat exchanger was isolated, the licensee noted a slowed rate of surge level decrease and an increased concentration of chromates in the sample which indicated tube leakage. The licensee plans to conduct eddy current testing and associated tube repairs on the number 1 and number 2 heat exchangers.

In early June 1990, the licensee inspected and repaired the number 1 heat exchanger when chromates were detected in the service water system. The inspector will review the licensee's investigation and conclusion to determine the effectiveness of the June repairs.

#### Unit 2 SI Pumps Inoperable due to Low Recirculation Flow

On January 4, 1991, with Unit 2 at 99% power, both of the Unit 2 SI pumps failed to meet the minimum recirculation flows during their monthly operability tests and were declared inoperable. With both pumps inoperable, TS 3.8.2.D required that the unit be placed in hot shutdown within four hours. An UE was declared due to the TS required shutdown and the unit entered hot shutdown (mode 3). The licensee replaced the common recirculation flow gauge and retested the 2A SI pump; however, the recirculation flow remained less than the required minimum flow of 27 gpm. The recirculation valve was cycled and the line was flushed with hot water to clear any possible boric acid blockages. When the pump was retested again, the obstruction cleared as indicated by a line pressure drop from 400 psig to 35 psig and the recirculation flow increased from 24 gpm to 30 gpm. The UE was terminated on January 5 after successful operability tests of both pumps. The licensee's root cause investigation is discussed in paragraph 7.

#### d. Current Material Condition (71707)

The inspectors performed general plant as well as selected system and component walkdowns to assess the general and specific material condition of the plant, to verify that Nuclear Work Requests had been initiated for identified equipment problems, and to evaluate housekeeping. Walkdowns included an assessment of the buildings, components, and systems for proper identification and tagging, accessibility, fire and security door integrity, scaffolding, radiological controls, and any unusual conditions. In one case, control room personnel were not cognizant of the reason for scaffolding which was erected in the control room.

During the quarterly Nuclear Regulatory Commission (NRC) meeting on January 3, 1991, a tour of the facility was conducted to evaluate plant maintenance activities and plant material condition. The NRC staff observed that the plant material conditions could be improved as indicated by the excessive number of fluid leaks and outstanding work requests on plant equipment.

e. Radiological Controls (71707)

The inspectors verified that personnel were following health physics procedures for dosimetry, protective clothing, frisking, posting, etc., and randomly examined radiation protection instrumentation for use, operability, and calibration.

The resident inspector attended a radiation monitor task force meeting. Discussions centered on current corrective maintenance activities such as drive belt replacements and motor and fan bearing failures. The licensee lacks a preventive maintenance program to perform the basic oil addition, routine greasing, and drive belt inspections and replacements which has resulted in numerous radiation monitors failures. The licensee plans to develop procedures and a preventive maintenance program to correct the above weakness. The resident staff is monitoring the task force activities and corrective actions.

f. Security (81064)

Each week during activities or tours, the inspector monitored the licensee's security program to ensure that observed actions were implemented in accordance with the approved security plan. The inspector noted that persons within the protected area displayed proper photo-identification badges and those individuals requiring escorts were properly escorted. The inspector also verified that checked vital areas were locked and alarmed. Additionally, the inspector also verified that observed personnel and packages entering the protected area were searched by appropriate equipment or by hand.

On December 7, 1990, Burns International Security Services was awarded the security contract at the Zion Station, effective January 1, 1991. A transition team was developed and the transition was completed on schedule with no change in security force personnel. The transition went smoothly with no impact on the security organization due to the cooperative efforts of American Protective Services, Burns International Security Services, Commonwealth Edison Corporate and Station Security, and the Station Contractor Security Force Management.

g. Assessment of Plant Operations

The operators response to the UE and subsequent Unit 2 shutdown resulting from the inoperability of the two SI pumps was good. Plant material condition could be improved as indicated by the excessive number of fluid leaks and outstanding work requests on plant equipment. Radiation monitor failures have occurred due to the lack of a preventative maintenance program.

No violations or deviations were identified.



5. Monthly Surveillance Observation (61726)

The inspector observed TS required surveillance testing on various systems and verified whether testing was performed in accordance with adequate procedures, whether test instrumentation was calibrated, whether limiting conditions for operation were met, whether removal and restoration of the affected components were accomplished, whether test results conformed with TSs and procedure requirements and were reviewed by personnel other than the individual directing the test, and whether any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

The inspector also witnessed portions of the following test activities:

- PT-2A Safety Injection System Tests
- PT-5 Reactor Protection Logic Test
- PT-11 Diesel Generator Loading Test

The inspectors had no concerns with the conduct of these surveillances.

No violations or deviations were identified.

6. Monthly Maintenance Observation (62703)

Station maintenance activities affecting the safety-related systems and components listed below were observed/reviewed to ascertain that they were conducted in accordance with approved procedures, regulatory guides and industry codes or standards, and in conformance with TSs.

The following items were considered during this review: the limiting conditions for operation were met while components or systems were removed from and restored to service; approvals were obtained prior to initiating the work; activities were accomplished using approved procedures and were inspected as applicable; functional testing and/or calibrations were performed prior to returning components or systems to service; quality control records were maintained; activities were accomplished by qualified personnel; parts and materials used were properly certified; radiological controls were implemented; and fire protection controls were implemented. Work requests were reviewed to determine the status of outstanding jobs and to assure that priority is assigned to safety-related equipment maintenance which may affect system performance.

a. Maintenance Events

Planned Maintenance on the 1A EDG

As part of a planned effort to improve the reliability and the performance of the EDGs the licensee conducted a Planned Availability of Components and Systems (PACS) walkdown of the 1A EDG to identify

all needed corrective maintenance, preventative maintenance and material condition improvement work. After identifying the scope of work, the EDG was taken out of service to accomplish the repairs. The licensee intends to conduct PACS walkdowns of the other EDGs and at the first opportunity, perform the necessary repairs.

#### 2B EDG Wrinkle Belly Replacement

On December 11, 1990, during a routine sampling, water was observed in the oil of 2B EDG. Investigation indicated that a wrinkle belly failed, causing water from the water jacket to leak into the crank case of the diesel. The licensee replaced the wrinkle belly, tested the EDG and returned the diesel to service. The failed wrinkle belly was sent to a lab for analysis to determine the root cause of the failure.

#### 2A EDG Crank Case Overpressure

December 26, 1990, the 2A EDG failed its surveillance test due to high crank case pressure (CCP) which resulted in engine oil being blown on the floor. Investigation found that the engine crankcase vent line flame arrestor was frozen. The licensee performed a temporary modification to replace the flame arrestor with a wire screen mesh. The EDG was satisfactorily tested with the CCP returning to its normal range. A review of the relationship between the CCP readings and the outdoor temperatures for previous surveillances indicated an increasing pressure trend in CCP readings regardless of the outdoor temperature. This trend indicated that the frozen flame arrestor was not the root cause for the increased CCP readings. The licensee cleaned the EDG crank case breather filters which further reduced the CCP readings. The licensee also performed an engine analysis to determine if some piston rings were leaking. The engine analysis results indicated no unusual blow by or degradation of combustion components of the engine. The root cause is a very small internal water leak, the source of which has not yet been identified. This caused the flame arrestor to freeze, and the filter to clog with a oil water mixture. The licensee will perform preventative maintenance on the filter to reduce the effects of this problem.

#### Unit 1 RCP

On December 6, 1990, alarms were received on the 1D RCP indicating possible seal problems. Pump tests and evaluations by the licensee and Westinghouse revealed no seal problems. On December 11 during system heatup, the 1D RCP seal alarms recurred and the pump was secured. The unit was placed in cold shutdown to facilitate repairs.

On December 20 the pump seal package was pulled. The Number 1 seal was damaged, the Number 2 seal was found bound to the shaft, and graphitar was found in the seal package. While lifting the pump out of the casing, the sling in one leg of the lifting rig broke. The

pump fell approximately three inches and was wedged in the pump casing. The licensee secured the pump by removing the slack in the other two legs of the lifting rig and stopped work to evaluate and investigate the cause of the sling failure. The licensee had a video tape of the lifting operation which was reviewed by the staff. The cause of the sling failure is being investigated.

The licensee inspected inside the pump casing for indication of binding or damage caused from the fall. No problems were indicated. The pump was re-rigged, lifted and placed in a shielded cask on the refueling floor of the containment. A boroscope inspection of the pump indicated damage to the pump radial bearing.

To reduce the radiation levels above the pump casing, a special radiological shield (mancan) was placed in the pump casing to allow work on the pump flange. The licensee is presently machining eleven bolts which were cut off during the disassembly. The threads will be dressed up and inspected prior to pump re-assembly.

The detection of the pump problem and subsequent work has been performed well with one exception. A load cell was not used while lifting the pump and binding could have contributed to the sling failure.

b. Assessment of Maintenance

The licensee is taking steps to improve the reliability of the EDGs by walkdowns to identify all needed corrective and preventative maintenance and material condition improvements. The licensee's root cause analysis was extensive when the 2A EDG failed its surveillance test due to high crankcase pressure. The use of a load cell while lifting the 1D RCP could have averted the sling failure.

No violations or deviations were identified.

7. Engineering and Technical Support (37828)

The inspectors evaluated the extent to which engineering principles and evaluations were integrated into daily plant activities. This was accomplished by assessing the technical staff involvement in non-routine events, outage-related activities, and assigned TS surveillances; observing on-going maintenance work and troubleshooting; and reviewing deviation investigations and root cause determinations.

a. Engineering Involvement

Unit 2 SI Pumps Low Recirculation Flow

On January 4, 1991, both of the Unit 2 SI pumps failed to meet the minimum recirculation flows during their monthly operability tests and were declared inoperable. The licensee performed extensive

investigations in an effort to determine the cause for the low SI pump recirculation line flows. The manual valves, check valves and motor operated recirculation line valves were checked to verify their operability and no problems were found. Discussion indicated that the flow restriction was caused by blockage, possibly from boric acid, which broke loose when the line was flushed with hot water. Any restriction in the two-inch SI recirculation line would have moved through the 10" refueling water storage tank (RWST) standpipe vent line and into the unit 2 RWST.

The licensee inspected the Unit 2 RWST using a submarine with a camera to identify any debris. In an area below the vent line penetration, an accumulation of debris was found. All of the debris was successfully removed using a gripper claw attached to the submarine. None of the debris could positively be identified as the blockage cleared from the SI recirculation line. The most logical blockage would have been crystallized boric acid. Small boric acid chunks were found in various areas at the bottom of the RWST. Radiography tests (RT) were performed for the RWST standpipe, recirculation line, and suction lines from the bottom of the RWST. No obstructions were found by the RT.

The extensive efforts performed by the licensee to identify the root cause of the recirculation line blockage were inconclusive. As a precautionary measure, routine operability tests were performed on all ESF pumps which take a suction from the RWST. Additionally, the licensee has performed weekly operability tests to verify acceptable minimum recirculation flow, vibration data and pump performance. The review of the root cause evaluation of this event will be added to Open Item (304/90026-02(DRP)). This Open Item was identified during the last inspection period when the 2A SI pump was declared inoperable due to low recirculation flow.

Since debris was found in the Unit 2 RWST, the licensee plans to inspect the Unit 1 RWST for debris.

b. Assessment of Engineering and Technical Support

The technical staff's support and extensive investigations in an effort to determine the cause of the low SI pump recirculation flows was considered a strength. The technical staff involvement with the 1D RCP investigation and EDG maintenance has been evident. The technical staff continued to be supportive of the Operations Department.

No violations or deviations were identified.

8. Safety Assessment and Quality Verification (SAQV)

The effectiveness of management controls, verification and oversight activities in the conduct of jobs observed during this inspection were evaluated. Management and supervisory meetings involving plant status

and plans were attended to observe the coordination between departments. The results of licensee corrective action programs were routinely monitored by attendance at meetings, discussions with the plant staff, review of deviation reports, and root cause evaluation reports.

a. Station Management Oversight of Control Room Activities

Although the control room reorganization has resulted in improved shift management oversight, senior management oversight and support of control room activities is considered weak. For example, the lack of close supervision and communication between operations senior and shift management was evidenced by the shift management's lack of "real time" knowledge concerning the action plan to recover the Unit 2 SI pumps to prevent the unit shutdown. Also, during the January 4, 1991 UE for Unit 2, the most senior management person to visit the control room was the station duty officer. With approximately ten minutes remaining on the LCOAR clock to hot shutdown, problems with the P-7 permissive logic were experienced. The operations crew decided not to trip the main turbine and to manually trip the reactor to avoid a turbine trip-reactor trip situation if the permissive did not clear within the next few minutes. When power had decreased to less than five percent, the P-7 permissive was received. The operator proceeded with the shutdown in accordance with the normal shutdown procedure. The unit reached hot shutdown with one minute remaining on the LCOAR clock. No senior management oversight in the control room was provided during this event.

b. Evolution of the Management Action Plan (MAP) Program

During the Summer of 1989, the licensee developed the Performance Improvement Plan (PIP) to effectively manage issues that were identified by multiple organizations and to consolidate the associated corrective actions. The action plans are maintained on a computer data base. As PIP was used, it became apparent that it was a desirable tool to manage action plans. The licensee initiated additional PIP action plans to implement changes to improve their effectiveness. Many of these plans were not driven by outside agencies, but rather a desire to improve performance. The licensee developed the Top 14 Priority Items list to focus attention on the most important issues.

During the Fall of 1990, the licensee decided to upgrade PIP by formalizing it into a procedure (ZAP 16-51-3), adding administrative controls for reviews and approvals and providing guidance for items such as effectiveness reviews. The licensee intends to re-evaluate the top priority issues every six months to ensure proper priority. The top priorities for the first half of 1991 have been identified and divided into two areas, improve the station and improve the team. Each department is expected to evaluate the top priorities and identify or develop action plans for their area that are applicable to these priorities.

The program was also renamed the MAP program to prevent the perception that plant performance would not improve until all of the action plans were completed. The program was designed to be a perpetual management action planning tool. All open PIP items were converted into MAP items and periodic status reports on completion of action steps are provided.

c. Assessment of SAQV

The residents had concerns regarding the amount of senior management support and oversight in the control room. Inadequate communication was evidenced by the lack of real time knowledge of the shift management during the SI pump inoperability event. Senior operations management guidance was not provided when a problem was encountered during the Unit 2 shutdown.

No violations or deviations were identified.

9. LER Followup (92700)

Through direct observations, discussions with licensee personnel, and review of records, the following event reports were reviewed to determine that reportability requirements were fulfilled, immediate corrective action was accomplished, and corrective action to prevent recurrence had been accomplished in accordance with TSs. The LERs listed below are considered closed:

UNIT 1

<u>LER NO.</u>	<u>DESCRIPTION</u>
295/89027	Failure to Perform Required Technical Specification Action for Failed Radiation Monitor
295/90009	Incorrect Surveillance for ORT-PR18B
295/90022	Reactor Trip Breakers Technical Specification Violation

Regarding LERs 295/89027 and 295/90009, the required TS surveillances for the inoperable radiation monitors were missed due to a lack of communications and personnel error. As corrective action, the licensee has developed an out of service surveillance procedure for radiation monitors. The TS surveillances and operability requirements are pre-written on individual out of service sheets for each monitor. Implementation of the procedure should prevent reoccurrence. These LERs are considered closed.

Regarding LER 295/90022, the licensee identified that on September 15, 1990, the Unit 1 Train A reactor trip breaker was racked out for approximately fifteen hours during a periodic test, PT-5. TS 3.1 and Table 3.1-1 state a maximum allowable outage of eight hours or within four hours, the unit shall be in hot shutdown. During the fifteen

hours on September 15, the unit operated continuously in mode 1, power operations. The root cause was an inadequate review of procedures following a 1989 TS amendment. The operations staff failed to recognize that PT-5 should have been revised to include the maximum allowable outage time for the reactor trip breakers. Inadequate training on review of TS changes was a contributing cause. Failure to place the unit in hot shutdown on September 15 when the allowable outage time exceeded the action statement of TS 3.1 and Table 3.1-1 is considered a violation (295/90033-01). However, this violation meets the criteria of 10 CFR 2 Appendix C, Section V.G.1., and therefore, no notice of violation was issued.

## UNIT 2

<u>LER NO.</u>	<u>DESCRIPTION</u>
304/90010	Unit 2 Trip due to Condenser Boot Failure
304/90013	Turbine Trip due to Sensed Loss of Turbine Bearing Oil Pressure

Regarding LER 304/90010, this event was discussed in inspection report 50-304/90023(DRP). Another contributing causal factor included premature deterioration due to elevated temperatures and torque values which exceeded the vendor recommended values. The licensee has amended the preventative maintenance program to include periodic change-out of the condenser expansion boots. This LER is considered closed.

Regarding LER 304/90013, discussions with the licensee indicated that the diaphragms in the Unit 1 turbine trip device were planned to be replaced during the present Unit 1 forced outage. The inspector had no further concerns.

In addition to the foregoing, the inspectors reviewed the licensee's Deviation Reports (DVRs) generated during the inspection period. This was done in an effort to monitor the conditions related to plant or personnel performance and potential trend. DVRs were also reviewed to ensure that they were generated appropriately and dispositioned in a manner consistent with the applicable procedures and the quality assurance manual. The following DVRs were reviewed:

22-2-90-100	Inadvertent Injection to RCS through the BIT
22-1-90-088	Boric Acid Tank on Unit 1 Less than 51%

Regarding DVR 22-2-90-100, the event was caused by an operator personnel error, in that, the operator did not verify that the boron injection tank discharge valves had closed prior to moving onto the next step in the procedure. This event did not constitute an ESF actuation; therefore, reporting requirements per 10CFR50.73 and TS 3.2.2.F.3 were not applicable. The inspector had no further concerns.

One licensee identified violation was identified.

10. Training (41400)

During the inspection period, the inspectors reviewed abnormal events and unusual occurrences which may have resulted, in part, from training deficiencies. Selected events were evaluated to determine whether the classroom, simulator, or on-the-job training received before the event was sufficient to have either prevented the occurrence or to have mitigated its effects by recognition and proper operator action. Personnel qualifications were also evaluated. In addition, the inspectors determined whether lessons learned from the events were incorporated into the training program.

Events reviewed included the events discussed in this report. In addition, LERs were routinely evaluated for training impact. Two events reviewed this period were found to have training deficiencies as contributors.

No violations or deviations were identified.

11. Open Items

Open Items are matters which have been discussed with the licensee which will be reviewed further by the inspector and which involve some action on the part of the NRC or licensee or both. One Open Item was discussed in paragraph 7.a.

12. Licensee Identified Violations

In accordance with 10 CFR Part 2, Appendix C, General Statement of Policy and Procedure for NRC Enforcement Actions, the NRC will not generally issue a notice of violation for a violation that meets all of the following tests:

- a. It was identified by the licensee;
- b. It fits in Severity Level IV or V;
- c. It was reported, if required;
- d. It was or will be corrected, including measures to prevent recurrence, within a reasonable time; and
- e. It was not a violation that could reasonably be expected to have been prevented by the licensee's corrective action for a previous violation.

One licensee identified violations disclosed in this inspection is discussed in paragraph 9 of this report.

13. Management Meetings (30703)

On January 3, 1991, the management of the Zion station and the NRC met at the Zion station. The meeting was to review Zion's station progress in the implementation and execution of the MAP program, to discuss recent EDG events, and other topics of mutual interest. The senior NRC management in attendance included: A. B. Davis, Regional Administrator,



Region III; B. A. Boger, Director, Division of Reactor Projects, III/IV/V; H. J. Miller, Director, Division of Reactor Projects, Region III; J. A. Zwolinski, Assistant Director for Region III Reactors, NRR; and W. L. Forney, Zion Oversight Director. The senior licensee management in attendance were as follows: M. Wallace, Vice President, Pressurized Water Reactors (PWR) Operations; K. Graesser, PWR Operations; and T. Joyce, Zion Station Manager.

No violations or deviations were identified.

14. Exit Interview (30703)

The inspectors met with licensee representatives (denoted in Paragraph 1) throughout the inspection period and at the conclusion of the inspection on January 14, 1991, to summarize the scope and findings of the inspection activities. The licensee acknowledged the inspectors' comments. The inspectors also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspectors during the inspection. The licensee did not identify any such documents or processes as proprietary.