

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-295, 50-304
License Nos: DPR-39, DPR-48

Report No: 50-295/96008, 50-304/96008

Licensee: Commonwealth Edison Company

Facility: Zion Nuclear Plant, Units 1 and 2

Location: Opus West III
1400 Opus West III
Downers Grove, IL 60515

Dates: June 8 through July 26, 1996

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EXECUTIVE SUMMARY

Zion Nuclear Plant, Units 1 and 2 NRC Inspection Report 50-295/96008; 50-304/96008

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a five-week period of resident inspection. In addition, it included the results of announced inspections of chemistry, operator licensing, and operational performance.

Operations

- The Operating Engineer's decision not to perform a service water valve lineup verification and a root cause analysis as part of the plant restart on May 19 was considered a weakness in the self-checking program (section 01.3).
- A fuel handler demonstrated inattention to detail by allowing an unqualified person to perform rigging which resulted in the drop of a portable filtration unit in the fuel transfer canal (Section 01.4). The subsequent recovery effort was good and showed teamwork (Section 01.5).
- A non-cited violation was identified for failure to perform all the administrative requirements, such as, quality control review, operating engineer review, and drawing review by design engineering prior to returning a steam flow instrument channel to service (Section 03.1)
- A violation was identified when a licensed operator inadvertently placed an excessive load on the 2B emergency diesel generator (EDG) during performance of a monthly Technical Specification (TS) surveillance. This is a no response violation (Section 04.1).
- The Unit 1 reactor coolant drain tank pumps were operated deadheaded for two hours due to an out-of-service error and inattention to detail (Section 04.3)
- The Unit Supervisor's command and control during the dynamic simulator examinations was considered a weakness. Additionally, inattention to detail, self checking, and use of annunciator response procedures contributed to Job Performance Measure (JPM) failures (Section 04.4).
- The continuing training program was considered satisfactory with examination overlap a strength (Section 05.1).
- A licensed operator's questionable medical qualifications were not resolved in a timely manner. Tracking and resolution of questionable medical qualifications was considered a weakness (Section 05.2).

- A violation was identified for crediting watchstanding time for individuals in positions that did not require a license as defined in the facility's technical specifications and subsequently designating them as on-shift Unit Supervisors without prior completion of 40 hours in the Unit Supervisor position under the direction of a senior operator (Section 05.3).
- Some control room administrative processes, such as, newly implemented computer systems for electronic work control and out-of-services, appeared to be an additional burden on the operators (Section 06.2).

Maintenance

- The system engineer (SE) performed well by identifying a scaffolding interference problem around the Unit 1 high pressure turbine. However, the contractors demonstrated poor maintenance practices in erecting the scaffolding. In addition, the scaffolding procedure did not require sufficient management review (Section M1.2).

Engineering

- A violation was identified for the untimely response of system engineering in documenting and addressing a bypass flow condition around the charcoal filters (Section E2.1).
- A violation was identified by the inspectors for the failure to document the spent fuel pool rerack analysis in the FSAR (Section E3.1).

Plant Support

- A violation was identified for the failure to incorporate the rerack analysis in the FSAR.
- The licensee's water chemistry control program was considered strong (Section R1.1).
- Although the post accident sampling system and routine sample line flow instruments were unreliable, the chemistry staff ensured that sample line purge times were adequate (Section R1.2).
- Chemistry technicians demonstrated good analytical techniques, with the exception of some weaknesses concerning attention to detail. Improperly labeled chemistry standards were identified in the chemistry laboratory.
- A violation, a non-cited violation, and an unresolved item were identified concerning inadequate adherence to radiological control procedures (Sections R4.1, R4.2, and R4.3).
- Site quality verification (SQV) audits of the radiological environmental monitoring program were thorough, with some minor exceptions. The inspectors identified weaknesses in radiological practices that were similar to previous SQV findings (Section R7.1).

- The inspectors identified two examples of a violation where the licensee failed to initiate a fire protection impairment permit for the 1A EDG carbon dioxide fire suppression system while replacing a discharge timer and to generate a station deficiency report (Section F1.1).

Report Details

Summary of Plant Status

i. Operations

01 Conduct of Operations

01.1 General Comments (71001, 71707 and 71715)

Using Inspection Procedures 71707 and 71715, the inspectors conducted frequent review of ongoing plant operations. A special inspection of operations activities was conducted from May 20 to 24 using Inspection Procedures 71707 and 71715. The focus of the inspection was to observe and assess both day-to-day activities and actions during non-routine activities such as startup operations and recovery from transients. In addition, an operating licensing Requalification Examination Administration Inspection was conducted in accordance with Inspection Module 71001.

01.2 Shift Turnover Observations

a. Inspection Scope (71707)

On May 21, the inspectors observed the shift engineer's turnover and the following shift meeting.

b. Observations and Findings

The shift engineer's turnover was conducted in a professional and systematic manner. Interruptions were minimized by good access control to the control room complex area. The shift engineers complied with Zion's new Station Operating Standards in the performance of their turnover.

The shift engineer conducted the shift meeting in a professional manner. The meeting was attended by all members of the operational staff, plant support personnel (radiation protection and chemistry), nuclear engineering, site quality verification, and plant management. Following normal discussion of the plant status, the plant manager discussed recent configuration control errors. The inspectors observed two way communications between operators and the plant manager concerning the contributing factors to recent human performance errors.

c. Conclusion

The recently implemented Station Operating Standards were being used by all control room personnel. The inspectors observed that the nuclear station operators (NSOs) attention to the control room panels was excellent even during periods of potential distraction.

01.3 Unit 2 Reactor Startup Observation

a. Inspection Scope (71707)

On May 21 and 22, the inspectors observed the Unit 2 startup, following a May 19, shutdown initiated due to the inoperability of two emergency diesel generators.

b. Observations and Findings

The licensed shift supervisor (LSS) overseeing the startup received several distracting telephone calls. Some of these calls were not directly related to the startup and probably would have been better managed by someone not directly involved in the startup.

The operators had to respond to numerous rod deviation alarms while pulling the control bank rods. The rod deviation alarms were due to the rod position indication (RPI) system and the control rod step counters being out-of-tolerance greater than 12 steps. The licensee stated that a lag time between the process computer's calculations and the RPI system's position indication contributed to the numerous alarms. Although this problem did not directly impact safety, it distracted the operators from other ongoing startup activities.

The inspectors noted good nuclear engineering (NE) support to the operators during the startup activities. This was particularly evident when the operators received a rod bottom drop alarm. The operators entered the appropriate Abnormal Operating Procedure to recover from the alarm and with the assistance of NE, successfully adjusted the position indication for the affected rod.

During a review of the licensee's preparations for startup, the inspectors observed that the trip analysis section in GOP-0, "Plant Startup," had not been completed by the OE. The plant shutdown was not a result of a trip; therefore the trip analysis section was not required. The inspectors noticed that listed items, such as, root cause of the manual trip and proposed corrective action, were equally applicable to startups following unplanned shutdowns. The trip analysis section would have provided an additional check to ensure activities required for startup were completed.

c. Conclusion

The inspectors also considered the OE's decision not to perform a root cause analysis as part of the trip analysis was another example of weaknesses in the licensee's self-checking program.

01.4 Improper Rigging of a Portable Filtration Unit

a. Inspection Scope (71707)

On June 12, a portable filtration unit fell approximately seven feet onto the transfer canal island due to a radiation protection technician (RPT) improperly rigging the unit. The inspectors interviewed the individuals involved with the rigging of the filtration unit, reviewed the station's recently developed rigging procedure, and attended training on the new procedure.

b. Observations and Findings

The 1480 pound filtration unit which measured 46" long, 29.5 wide, and 51" high. It developed an air leak while in the transfer canal; therefore, the unit needed to be lifted out of the canal for a inspection using the fuel building crane. A fuel handler (FH), who had been trained in rigging operations, was assigned to perform the rigging activity.

The FH attempted to use a rope to guide two slings, which were attached to the filtration unit, onto the hook. However, the FH, due to his physical location, was not able to connect the slings unto the hook. Therefore, a RPT who was assigned RP coverage, assisted him. The RPT mistakenly connected the rope onto the hook instead of the two slings. The FH did not notice that the rigging was improper as the unit was lifted from the transfer canal. While the unit was being lifted, the rope broke and the unit dropped approximately seven feet onto the transfer canal island.

The licensee suspended all transfer canal activities. The licensee conducted an investigation which revealed the following root causes: 1) a shackle should have been used for connecting the two slings onto the hook; 2) an unqualified RP technician was allowed to connect unit; and 3) management oversight was lacking.

c. Conclusion

The inspectors reviewed the licensee's root causes for this event and concluded that the FH demonstrated inattention to detail when he allowed an unqualified person to perform the rigging activity.

01.5 Good Teamwork and Communication During Portable Filtration Unit Retrieval

a. Inspection Scope (71707)

On June 21, the FHs successfully rigged and retrieved the portable filtration unit from the transfer canal. The inspectors observed the rigging and lifting of the unit, attended the as low as reasonable achievable (ALARA) meetings, and verified personnel respirator certifications and instrument calibration dates were current.

b. Observations and Findings

The ALARA coordinator conducted two briefings for the retrieval evolution. One briefing was for a RPT to enter into the canal to obtain smears and a survey; the other briefing was for a FH to enter into the canal to connect the slings to the hook on the fuel building crane. Both the FH and the RPT had to don respirators to enter the transfer canal. The inspectors verified that their respirator certifications were current and that the RPT's instrumentation was within its calibration period.

Prior to the lift, the inspectors verified that the FH had completed the plant's required rigging training and that the portable filtration unit had been properly rigged.

c. Conclusion

The inspectors concluded that the retrieval of the unit was conducted in a very controlled manner. In support of the retrieval effort, the inspectors considered that the ALARA coordinator demonstrated good leadership and provided clear directions and expectations during the ALARA briefings. The inspectors also observed good communication and coordination among fuel handling, radiation protection, and decontamination personnel during retrieval of the portable filtration unit.

03 Operations Procedures and Documentation

03.1 Steam Flow Channel Improperly Returned to Service

a. Inspection Scope(71707)

On June 12, operations personnel identified that a steam flow channel had been improperly returned to service by instrumentation mechanics (IMs) personnel. The inspectors attended the investigation meeting.

b. Observations and Findings

As part of a design change, IMs replaced steam flow transmitter, 1FT-512. After the transmitter was replaced, the IMs incorrectly returned the transmitter's associated bistable to service upon successfully completing the calibration. The transmitter replacement work was governed by ZAP 510-02C, "Exempt Change Program," Revision 5.

This procedure required the completion of certain administrative requirements prior to closing and declaring the work package operational. However, these administrative requirements, which included a quality control review and release, operating engineer review, and drawing review by design engineering, had not been completed prior to

returning the steam flow channel to service.

A contributing factor to the occurrence of this error was that the work package did not have a PT-14, "Inoperable Equipment Surveillance Test," Revision 6 (used to track inoperable safety related equipment) or an out-of-service (OOS) as described by ZAP 300-06, "Out of Service Process," Revision 8 associated with the work package. The use of either an OOS or a PT-14 would have assured the steam flow channel was returned to service only after verifying that all administrative requirements had been met.

The licensee initiated timely and effective corrective actions which included administrative closeout of the work package and properly restoring the channel to service. Concurrently, the licensee conducted a meeting with all the involved departments to determine the root causes and long-term corrective actions for the event. The licensee determined that the work package was incorrectly considered closed. A standing order was issued to assure that all design change work packages had either an OOS or an PT-14 associated with each work package.

c. Conclusion

Although the channel was returned to service incorrectly, the channel was technically operable because the IMs had successfully performed the required calibration. The failure to perform all the administrative requirements as required by ZAP 510-02C, prior to returning the steam flow channel to service, is a violation of 10 CFR 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawings." However, this violation was identified by the licensee and could not have been reasonably prevented by the licensee's corrective action for a previous violation or a previous licensee finding that occurred within the past two years. Therefore, this licensee-identified and corrected violation is being treated as a Non-cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-295/304-96008-01(DRP)).

04 **Operator Knowledge and Performance**

04.1 Diesel Generator 2B Excessive Load Event

a. Inspection Scope (71707)

On July 15, a licensed operator inadvertently placed an excessive load on the 2B EDG during performance of a required TS surveillance test. The inspectors interviewed the nuclear station operator (NSO) and the unit supervisor involved in this event. The inspectors also reviewed the EDG's design in the UFSAR and inspected the control room switches involved in the event.

b. Observations and Findings

At 5:20 p.m., while testing the 2B EDG using PT-11-DG2B, "2B Diesel Generator Loading Test," Revision 6, the NSO attempted to manipulate the

voltage adjust rheostat to raise KVARs from 700 to 750. However, he inadvertently manipulated the speed control rheostat (governor). The NSO realized his error, returned the speed control rheostat to its original position, and notified the unit supervisor. The operator's error resulted in loading the EDG to 4.606 megawatts (MWs) for approximately 5 seconds. The load was greater than the 4 MW required by the surveillance; however, the licensee determined that this error had not invalidated the surveillance. The inspectors verified that the EDG had not exceeded its rated capacity of 5 MW.

Due to these two events involving misoperation of EDGs, the licensee implemented a standing order (SO) on July 17 for diesel generator testing oversight. The SO stated that a higher level of attention and oversight was required and that a complex evolution briefing would be held prior to all EDG performance testing. It also stated that shift supervision would monitor all EDG testing and submit a completed Management Monitoring Report.

c. Conclusion

The inspectors concluded that although the 2B EDG had not been overloaded, this event was identical to a previous misoperation of the 2A EDG which occurred on May 19 (see NRC Inspection Report 50-295/304-96007).

PT-11-DG2B, Paragraph 5.0, "2A Diesel Operability Test," Step 18.a.1. states "increase load in 200 kilowatt steps per minute until desired load is reached on 2JI-AP57, "Output KW" while following the guidelines of attachment 1, 2B D/G START/STOP AND LOADING/UNLOADING RECORD." Step 22 states "decrease load in 200 kilowatt steps per minute until desired load is reached on 2JI-AP57, "Output KW" while following the guidelines of attachment 1, 2B D/G START/STOP AND LOADING/UNLOADING RECORD." Attachment 1 requires the EDG to be held at full load for 210 minutes and defines full load as ≥ 4 MW.

Failure to accomplish steps 18.a.1. and 22 of the 2B DG operability test in accordance with PT-11-DG2B by increasing and decreasing the load on the 2B EDG by approximately 600 KW in 5 seconds is a violation of 10 CFR Part 50, Criterion V. However, no notice of violation was identified in this case due to the escalated actions taken on August 23, 1996, in response to Inspection Report 50-295/304-96007(DRP) and because the criteria in NUREG-1600, the "General Statement of Policy and Procedures for NRC Enforcement Action, "Section VII.B.4 were met.

04.2 Non-Licensed Operator Rounds

a. Inspection Scope (71715)

During the special inspection of operational performance conducted from May 20 to 24, the inspectors toured the plant with equipment operators and attendants to assess their knowledge and the quality of their rounds.

b. Observations and Findings

The inspectors accompanied two non-licensed operators during their plant rounds. In both cases, the individuals were well trained and had a strong knowledge of the plant. However, instances were noted which demonstrated the lack of a questioning attitude. The most significant was that an operator did not question a door that was propped open to allow an air hose to be routed to a work area. The control room had not been notified of the condition, and it was not until the inspectors identified the condition to the operator that the appropriate actions were taken. The inspectors were concerned that the door that had been propped open was a fire door; however, subsequent inspection determined that it was not.

c. Conclusion

The inspectors concluded that the equipment operators had strong knowledge. However, the lack of a questioning attitude was observed for a potential fire protection concern.

04.3 Unit 1 Reactor Coolant Drain Tank Pumps Run Without a Discharge Path

a. Inspection Scope (71707)

On June 24, the licensee identified that both Unit 1 reactor coolant drain tank (RCDT) pumps were deadheaded due to failure to realign the RCDT flow path following a placement of an OOS for a holdup tank (HUT) maintenance activity. The inspectors interviewed the shift engineers and the radwaste supervisor, reviewed the OOS checklist and ZAP 300-06, "Out of Service process," Revision 8, and discussed the pump operability with the SE.

b. Observation and Findings

On June 23, the HUT was taken OOS for maintenance activities on the HUT's recirculation pump and valve. The operations work group prepared the OOS checklist and special instructions informing the oncoming licensed shift supervisor (LSS) that the normal flow path from RCDT to the HUT would be isolated because of the OOS. However, the LSS did not see the special instructions and failed to verify the effect the OOS would have on the plant in accordance with ZAP 300-06. Therefore, the need to realign the RCDT pump discharge path was not recognized and was not communicated to the incoming crew.

The RCDT pumps started, as required, when they reached their respective RCDT level setpoints of 46 and 82 percent. The equipment operator noted that the level was not decreasing and identified the problem. The licensee found that the normal discharge flow path from the RCDT tank to the HUT was isolated because of the OOS. The 1A pump was deadheaded about 2 hours and the B pump for several minutes. Subsequent testing showed that the pumps were not damaged.

c. Conclusion

On August 8, 1995, a similar event occurred where the Unit 1 RCDT pumps were started and run without a discharge path due to improper valve alignment. The inspectors considered that this operational error was another example of inattention to detail.

04.4 Licensed Operator Evaluations (71001)

a. Inspection Scope (71001)

The inspectors observed and evaluated operator performance during a requalification examination administration June 12 through 14, 1996, for two crews' dynamic simulator examinations and a sample of Job Performance Measures (JPMs).

b. Observations and Findings

During the dynamic simulator examinations the Unit Supervisors (US) demonstrated weaknesses regarding command and control. This was also identified by the facility evaluators as a generic issue. One licensed individual failed two JPMs which resulted in an unsatisfactory evaluation while four other licensed individuals failed only a single JPM which resulted in a satisfactory evaluation overall. The JPM's failed were "Lineup the Feedwater System for Automatic Operation," and "Respond to Main Generator High Stator Water Conductivity."

c. Conclusion

The inspectors concluded the crew's and individual operator's performance during the dynamic simulator examination was satisfactory. However, the US's command and control during the dynamic simulator examinations was considered a weakness. Additionally, the inspectors concluded that inattention to detail, lack of self checking, and failure to use Annunciator Response procedures contributed to the JPM failures.

05 Operator Training and Qualification

05.1 Licensed Operator Requalification Program Review

a. Inspection Scope (71001)

The inspectors reviewed examination materials, records, and procedures pertaining to the licensed operator requalification training program on June 10 to 14. In addition, the inspectors observed the requalification examination administration.

b. Observations and Findings

No written examination questions, dynamic scenarios, or JPMs administered during the annual examinations were repeated from week to week or from the previous year for the current examination cycle. The inspectors consider the lack of examination overlap a strength.

The licensee evaluator's abilities to identify weaknesses, effectively use followup questioning, and evaluate operator performance were considered good. The use of competencies in addition to identified critical tasks as evaluation criteria during JPM performance was also considered good.

The following were recent program changes:

1. The licensee evaluators identified and evaluated generic training issues during the annual examinations which are then incorporated into the training program and assigned to specific crews, specific individuals or all licensed personnel as appropriate.
2. The crews conducted facilitated self critiques following simulator training sessions and the training staff debriefed with the shift engineer following the training week.

c. Conclusion

The inspectors concluded that the licensee's continuing training program was satisfactory. The program was revised based on operational performance and industry events, and satisfactorily evaluated operator skills. The inspectors considered the lack of examination overlap a strength. The recent program changes described above were considered good.

05.2 Conformance With Operator License Conditions, Medical Qualifications

a. Inspection Scope (71001)

The inspectors reviewed the licensee's medical program for licensed operators on June 10 to 14 and assessed compliance with 10 CFR 55.53 requirements.

b. Observations and Finding

The licensee had committed to develop and initiate a medical program procedure following the 1995 NRC requalification inspection (Inspection Report 50-295/304-95013(DRS), section 2.2, page 3). On July 16, 1995, the licensee revised ZAP 200-09A, "Control of 10 CFR 55 Requirements for Licensed Individuals," Revision 2, section G.3.b, page 4, to require the Training Department to enter an individual's last NRC physical examination date into the biennial Medical History computer database for tracking.

The inspectors identified that an operator's biennial NRC physical had not been updated as required by ZAP 200-9A. The medical examination was due by May 23, 1996, but appeared to be a month overdue based on the database information. The inspectors determined that the medical examination was performed during April; however, certain medical conditions identified required resolution. Notification to the NRC of the situation appeared adequate but the issue was not resolved in a timely manner. As of June 14, the licensee was still waiting for information from the operator's personal physician regarding the medical condition and therefore had not resolved the issue.

The inspectors questioned the licensee regarding the operator's availability and license status. The licensee assumed that the medical qualifications were satisfactory. Therefore, the operator was still on the Active License List and allowed to be on shift. However, the individual was on vacation.

The licensee could not resolve the questionable medical qualifications prior to the individual's return from vacation and removed the individual from licensed duties on June 18 pending resolution. Additionally, the operations department issued a memorandum regarding this issue to licensed individuals on June 21 as a corrective measure. The memorandum expectations included training department scheduling of all required physicals three months prior to the due date and the individual license holders were to personally resolve any matters thirty days following notification of any discrepancies.

c. Conclusion

The inspectors determined the licensed operator medical program procedures did not detail program limitations, expectations, and responsibilities to preclude an individual from standing watch with questionable medical qualifications. The procedures in place could have allowed the medical condition to continue for an indeterminate amount of time. The licensee did not expedite the medical qualifications' resolution until after the NRC inspectors questioned the operator's status. The inspectors considered the licensee's tracking and resolution of questionable medical qualifications a weakness.

05.3 Conformance with Operator License Conditions, Maintaining Active Status

a. Inspection Scope (71001)

The inspectors reviewed the licensee's program for maintaining active operator licenses on June 10 to 14 and assessed the licensee's compliance with 10 CFR 55.53 requirements.

b. Observations and Finding

The inspectors identified that the licensee allowed two licensed senior operators to take credit for active license duty watchstanding in the work control organization, specifically the Outage OOS Team, which was

not a required licensed shift crew position defined in the facility's technical specifications. This practice occurred during three calendar quarters of 1994 (first, second, and fourth). Subsequently, the operators were designated as on-shift Unit Supervisors, responsible for directing licensed activities of licensed operators, without completing 40 hours of shift functions in the Unit Supervisor position under the direction of a senior operator.

The inspectors questioned the licensee regarding whether active licensed duty credit for watchstanding in support positions was still being practiced. A licensee representative stated that Zion had performed a detailed review and confirmed that this practice only occurred in 1994. In addition, the inspectors identified that the computer database which tracked licensed duty watchstanding time had no controls to preclude giving credit for a full 12-hour watch when an individual stood only a partial watch. For example, the computer database took information regarding shift position manning from the logs at the start of each shift and automatically credited the Updated Active Licensee Log with a 12-hour shift. However, if an operator left the watch position a few hours after logging in, for any reason, the computer database system did not have the capability to properly credit the individual for only a partial watch. Therefore an operator could be incorrectly credited for a full 12-hour watch.

c. Conclusion

The inspectors concluded that the licensee's practice for crediting watchstanding time for senior operators in positions that did not require the individual to be licensed as defined in the facility's technical specifications and subsequently designating them as on-shift Unit Supervisors without prior completion of 40 hours in the Unit Supervisor position under the direction of a senior operator were contrary to NRC requirements and a violation of 10 CFR 50.54(1), "Conditions of License," 55.53, "Conditions of Licenses," and 55.4, "Definitions" (50-295/304-96008-02(DRS)). The inspectors also concluded that the computer database that tracked licensed duty watchstanding time to maintain active operator's licenses was a weakness.

05.4 Regualification Training Records

a. Inspection Scope (71001)

The inspectors reviewed training records to ensure compliance with 10 CFR 55.59(c)(5), "Regualification Program Requirements - Records," on June 10 to 14.

b. Observations and Findings

The inspectors determined that the licensee satisfactorily maintained the required training records in the program notebooks. Also, the licensee implemented crew notebooks in May 1996 which maintained regualification records with more emphasis on self assessment. The

inspectors noted that the crew notebooks kept post training briefs, summary of crew's self assessments, simulator training student feedback forms, and simulator trainee critiques.

c. Conclusion

The inspectors considered that the crew notebooks had the potential for being a good self assessment and feedback tool. The crew notebook was still too new to fully assess its effectiveness.

06 **Operations Organization and Administration**

a. Inspection Scope (71707)

During the special inspection of operational performance conducted from May 20 to 24, the inspectors reviewed the licensee's Operator Workaround List, implementation of computer systems, and control room logs.

b. Observations and Findings

The licensee implemented an Operator Workaround List to track items that would inhibit operator response to normal and off-normal events. The inspectors noted the following weaknesses with the implementation and use of this list:

- The list was not routinely reviewed by licensed operators to ensure awareness of all plant conditions. The operators only reviewed the list during periodic training. The list was not treated by the operations department as a living document to maintain operator awareness of OOS equipment and its subsequent effects on the plant.
- The list contained between 70 and 80 items. A review of these items showed that the threshold for adding an item to the list was low. The number of items on the list diluted the importance of each item in lieu of focusing on equipment deficiencies which impacted operator response in accordance with station procedures.
- The inspectors interviewed several levels of the plant management and staff to determine their understanding of the definition of an operator workaround. The inspectors did not receive consistent answers from those interviewed.

The inspectors noted that the operations staff received insufficient training on newly implemented computer systems for administrative control of work activities, such as the electronic work control system, the PT-14 system used for tracking OOS equipment, and the workaround list. The inspectors observed that, between crews, there was some disagreement as to when to use the new computer systems and the old hand written systems.

There appeared to be excessive redundancy in keeping control room logs. Each unit operator maintained a log, as did their supervisor. In addition, the shift engineer also maintained a station log. During interviews with shift engineers, they stated that their logs consist of their logs and entries from both the operator and supervisor logs. Keeping three redundant logs added to the overall administrative burden of operations supervision and distracted personnel from the other shift duties and their ability to make plant tours.

c. Conclusion

The inspectors concluded that the implementation of new computer processes has introduced additional administrative burdens on operations supervisors. These, with existing burdensome administrative tasks such as answering telephone calls to the control room and maintaining redundant operator logs, had made it difficult for operations supervisors to perform routine plant tours to observe material condition and ongoing work activities, according to the supervisors.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments

a. Inspection Scope (62703)

The inspectors observed all or portions of the following work activities: 1A SI pump recirculation line modification; 1A EDG CO₂ discharge timer replacement; 2A EDG lube oil cooler, jacket water cooler and intercooler cleaning and inspection; and the 1C SG atmospheric relief valve replacement

b. Observations and Findings

The inspectors observed that the craft personnel performing the work were knowledgeable of their assigned task. Work packages were available at the work location and were used by the craft. The inspectors reviewed the work packages and considered them acceptable.

c. Conclusion

The inspectors concluded that the maintenance activities observed were performed well with the exception of the 1A EDG CO₂ discharge timer replacement (see Section F1.1).

M1.2 Improperly Erected Scaffolding

a. Inspection Scope (62703)

On June 18, the turbine/generator system engineer (SE) identified that scaffolding in the Unit 1 high pressure turbine area could potentially

interfere with the operation of two governor control valves. The inspectors interviewed the SE, the scaffolding foreman, the shift engineer, and the root cause investigator.

b. Observations and Findings

On June 13, contractors erected scaffolding to inspect a steam leak from an expansion joint located between the high pressure turbine and the "B" moisture separator reheater. The scaffolding was approved by the scaffolding foreman on June 14. However, a need to investigate additional steam leaks from different areas of the high pressure turbine required modification of the scaffolding.

On June 17, the scaffolding was modified and the scaffolding handrail poles were routed through two governor control valve actuator arms and pivot points. Subsequent to the scaffolding modification, a walkdown was not performed by the scaffolding foreman. The scaffolding remained in place until June 18, when the turbine/generator SE noted the interference. The SE took immediate actions to restore the scaffolding to an acceptable condition and initiated a station deficiency report on the incident.

The licensee performed a Level 3 root cause investigation. Planned corrective actions include a revision to ZAP 920-01, "Use of Scaffolding and Ladders," Revision 4, to require operations personnel to perform a walkdown of modified scaffolding.

c. Conclusion

The inspectors considered that the licensee demonstrated poor attention to detail by failure to recognize the interference of the scaffolding with the actuator arms. Zap 920-01 was also inadequate, in that, it did not require an additional walkdown by the foreman following modifications. However, the SE performed well in walking down his system and discovering the interference with the turbine/generator's governor control valves.

III. Engineering

E2 Engineering Support of Facility and Equipment

E2.1 Unknown Bypass Flow Around Charcoal Bed

a. Inspection Scope (37551)

On June 21, the inspectors observed that there were several holes in two ventilation ducts in the fuel handling building. On July 1, the inspectors walked down the duct with the SE and reviewed the associated ventilation piping and instrument diagrams.

b. Observations and Findings

On June 21, the inspectors informed the Fuel Handling (FH) Supervisor that several in-line manufactured (drilled) holes were found in one duct and that a puncture hole was found in another duct in the fuel building. The inspectors were concerned that the puncture created a potential inleakage point that was not routed through charcoal filters. The FH supervisor stopped all transfer canal work and contacted the control room (CR). The CR dispatched an operations supervisor and requested assistance from the SE.

When the SE arrived at the fuel building, he misinterpreted which duct the inspectors had referenced with the punctured hole, because there were four ducts in the general area. The SE concluded that the holes were not a concern because the holes were in the supply ventilation duct; therefore, the inleakage from the fuel building into the supply ventilation duct could not occur. Plugs were subsequently installed in the holes.

On July 1, the inspectors and the SE walked down the ventilation systems and identified that the duct containing the punctured hole was actually the exhaust ventilation duct from the HUT room. The air flow in the exhaust duct was routed through HEPA filters but not charcoal filters. Therefore, this inleakage point created a unfiltered bypass flow around the charcoal filters which needed to be evaluated.

On July 8, after prompting by the inspectors, the SE took actions to formally evaluate the issue and initiate a PIF. The SE obtained flow measurements in the exhaust duct which indicated a bypass flow of 2 standard cubic feet per minute (scfm). This bypass flow rate was bounded by the bypass flow rate leakage limit, of 11 scfm, for the charcoal filter efficiency test. Therefore, the SE concluded the bypass flow from the hole was not significant.

In addition, the SE considered the installation of a plug into the punctured hole was an acceptable permanent repair. After the inspectors expressed a concern about the repair being temporary, in that the plug could be removed and the deficient condition returned, the SE stated he would write an action request to properly repair the hole with a metal patch.

c. Conclusion

Although the bypass flow around the charcoal bed was not significant, the failure of the system engineer to take prompt corrective actions to document and address this condition adverse to quality until prompted by the NRC inspectors is a violation of 10 CFR 50, Appendix B, Criterion XVI (50-295/304-96008-03(DRP)).

E2.2 Good Discovery and Followup of Missing Parts Evaluation

a. Inspection Scope (37551)

On May 17, in preparation for replacement of blocking latch relay, BR5-1A, in the safeguards test cabinet, the system engineer discovered that a parts evaluation was required by ZAP 510-08, "Evaluation Guidelines for new and replacement parts components and material," Revision 1(G). The evaluation was needed to determine the suitability of the replacement latch relay that was not an identical replacement to the original latch relay. The SE also identified that one had not been completed for a previous latch relay, BR2-A, replacement in March 1996. This inspectors interviewed the system and design engineers and reviewed the work packages.

b. Observations and Findings

The latch relays are used so that safeguards testing can be performed without component actuations. In addition, the blocking latch relays do not perform a safety function. However, these relays were installed in a panel where they could affect other safety related components. The replacement was not a like-for-like replacement because the old and new latch relays were different and were mounted differently than before. Therefore, ZAP 510-08 required that an suitability evaluation, which would also require a separate seismic mounting evaluation, be performed.

After identifying that a parts evaluation was required, the SE initiated the appropriate actions to request a parts evaluation for the May 17 latch relay replacement. The evaluation concluded that new latch relays were an acceptable replacement and that seismic mounting of the new latch relay was not a concern. Therefore, the evaluation also supported the acceptability of the March 1996 latch relay replacement.

The SE also generated a PIF for the earlier latch relay work. For the earlier replacement, a procurement parts evaluation was mistakenly used for the suitability parts evaluation which would have addressed the seismic aspect of the latch relay. This error was an oversight on the part of electricians and the SE involved in the March 1996 work. In addition, the inspectors requested the system engineer to perform a review of all latch relay replacements to determine if there were any latch relays had been installed without having a parts evaluation completed. The system engineer's review concluded that the new latch relays had been installed only during the March and May 1996 latch relay replacement work activities.

c. Conclusion

The inspectors considered that the SE demonstrated good engineering involvement for the May 17 latch relay work as well as in the discovery and followup to the missing parts evaluation for the March latch relay replacement. Failure to perform a parts evaluation for the March 1996 relay replacement is a violation of 10 CFR 50, Appendix B, Criterion

III, "Design Control." However, this violation was identified by the licensee and could not have been reasonably prevented by the licensee's corrective action for a previous violation or a previous licensee finding that occurred within the past two years. In addition, a parts evaluation was performed and the violation was corrected by the end of the inspection. Therefore, this licensee identified and corrected violation is being treated as a Non-cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-295/304-96008-04(DRP)).

E3. Engineering Procedure and Documentation

E3.1 Review of UFSAR Commitments

A recent discovery of a licensee operating its facility in a manner contrary to the Updated Final Safety Analysis Report (UFSAR) description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the UFSAR descriptions. The inspectors reviewed the applicable portions of UFSAR that related to the areas inspected. The following inconsistency was noted between the wording of the UFSAR and the plant practices, procedures and/or parameters observed by the inspectors.

a. Inspection Scope (71707)

While investigating the hole in the exhaust ventilation duct from the Unit 1 HUT tank room, the inspectors identified that UFSAR, Section 15.7.4.1, "Fuel Handling Accident in the Fuel Building," had not been updated to reflect the reracking analysis for the spent fuel pool. The inspectors interviewed a nuclear system engineer and a regulatory assurance engineer.

b. Observations and Findings

The licensee changed the spent fuel pool arrangement (reracking) described in Section 15.7.4.1 of the UFSAR in August 1993, and had not incorporated this change into the UFSAR as of August 30, 1996.

On July 10, the system engineer informed the inspectors that the UFSAR section 15.7.4.1 should have been updated along with the last UFSAR update in 1995. The inspectors noted that the reracking change should have been completed no later than twenty four months after the change.

While preparing the UFSAR change to incorporate the rerack analysis done HOLTEC, the SE identified that the analysis did not use an organic filter efficiency of 70% as specified in Regulatory Guide 1.25, "Assumptions Used For Evaluating the Potential Radiological Consequences of a Fuel handling Accident in the Fuel Handling and Storage Facility for Boiling and Pressurized Water Reactors." Therefore, as a conservative measure, the SE recalculated the HOLTEC results using RG 1.25 and determined that the total iodine dose received to the thyroid increased from 27.2 REM to 40.8 REM.

The SE submitted an engineering request to determine if the HOLTEC analysis should have included the assumptions in RG 1.25. The SE also stated he would initiate a change to the UFSAR to include the HOLTEC analysis using RG 1.25.

The SE documented the subject UFSAR discrepancy in a letter dated July 29, 1996. This letter is included as Attachment 2 to this report.

c. Conclusion

The inspectors considered the failure to properly update the UFSAR and use the correct analysis demonstrated a lack of attention to detail and is a violation (295/304-96008-05(DRP)) of 10CFR 50.71(e)(4).

IV. Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Plant Water Chemistry and Chemistry Quality Control

a. Inspection Scope (84750)

The inspectors reviewed the licensee's water chemistry control program including the level of chemical contaminants in primary and secondary systems and staff review of the data. The inspectors also reviewed the laboratory and in-line instrument quality control program including calibrations, performance testing, and interlaboratory analysis programs.

b. Observations and findings

The licensee's water chemistry control program was considered a strength. The chemistry department's monthly and cycle reviews contained good evaluations of the water quality for both units. Overall, water quality for both units was good. The licensee's water quality program was consistent with industry guidelines, and primary water quality was very good. However, circulating water inleakage was a problem for Unit 2 throughout the current operating cycle. Frequently, the licensee diverted steam generator (SG) blowdown from Unit 1 to Unit 2 to aid in the removal of contaminants from Unit 2. Consequently, both Unit 1 and Unit 2 SG sodium, chloride, and dissolved oxygen concentrations were slightly elevated for periods of time. The licensee took appropriate actions to reduce the level of contaminants and return the systems to normal chemistry levels.

The quality control (QC) program for laboratory and in-line instruments was well implemented. The chemistry staff properly identified and evaluated QC data trends. However, the inspectors noted some weaknesses in the documentation of QC data reviews for analytical instrumentation. The licensee's performance in interlaboratory comparison programs

indicated excellent analytical accuracy. The inspector noted a minor non-conservative bias in the licensee's high purity germanium gas geometry, which the licensee planned to evaluate.

c. Conclusion

The licensee's water chemistry control program was considered a strength, with good review of operational data. Periods of Unit 2 circulating water inleakage resulted in slightly elevated concentrations of chemical impurities in steam generator chemistry. Quality control of laboratory and in-line instruments was effectively implemented.

R1.2 Post Accident Sampling System (PASS) Operability and Quality Control

a. Inspection Scope (84750)

The inspectors reviewed the post accident sampling system (PASS), which was used to obtain reactor coolant samples under both accident and routine conditions. The inspectors reviewed PASS operability, QC results, and maintenance history. The inspectors also verified the adequacy of the licensee's sample line purge times.

b. Observations and Findings

Historically, the licensee has had difficulties in maintaining PASS operability. Several in-line instruments have required continual corrective maintenance, resulting in low availability. Based on an evaluation of its NRC commitments for the PASS, the licensee performed a safety analysis and reduced its in-line monitoring commitments. The licensee's evaluation demonstrated that several in-line monitors could be eliminated without losing the ability to monitor significant parameters. As a result of this evaluation, the licensee was in the process of abandoning all of its PASS in-line monitoring instrumentation, with the exception of the gas chromatograph. The licensee expected that the reduction in instrumentation would focus efforts in maintaining the remaining instrumentation and would improve the overall operability of the system. The inspectors reviewed the licensee's PASS QC results, which indicated that samples obtained from the PASS were representative of primary coolant and that the PASS dilution factor was accurate.

The inspectors also reviewed the status of the licensee's replacement of sample line flow orifices in the PASS. The licensee had previously identified problems concerning several sample line pressure indications. In 1993, the chemistry staff initiated an action request to replace the instrumentation. Subsequently, the licensee had performed an initial engineering evaluation and had obtained replacement parts, but the new equipment design could not be installed into the available space. At the time of this inspection, system engineering representatives indicated that current PASS sample line pressure indications did not accurately correlate to sample line flow rates. The inability to accurately determine sample line flow impacted the licensee's ability to

ensure that sample lines were adequately purged prior to obtaining required samples. However, chemistry and system engineering personnel indicated that resolving the design concerns and completing the repairs was of low priority.

The inspectors reviewed the licensee's chemistry sample purge times. At a fixed pressure indication in the sample lines, the chemistry staff had evaluated PASS and normal sample flow to ensure adequate purges of sample lines. Based on this analysis, the sample purge times for PASS and routine sample points were adequate. If the evaluated sample line pressure could not be obtained, additional guidance would be provided by chemistry management.

c. Conclusion

Although post accident sampling system and routine sample line flow instrumentation were unreliable, the chemistry staff ensured that sample line purge times were adequate to obtain representative samples.

R.1.3 Implementation of the Radiological Environmental Monitoring Program (REMP)

a. Inspection Scope (84750)

The inspectors toured the environmental air sampling stations and reviewed the 1995 annual report and environmental sample results.

b. Observations and Findings

The environmental air sampling stations were in good material condition. Air sampler flow meters were calibrated as required. The inspectors identified that the text of the offsite dose calculation manual (ODCM) contained minor inconsistencies and that the 1995 Annual Report contained sample results for indicator milk samples when only control milk locations existed. These inconsistencies indicated minor weaknesses in the review of the program.

c. Conclusion

The licensee effectively implemented the REMP and no measurable radiological impact on the environment from plant operations was identified.

R4 Staff Knowledge and Performance in RP&C

R4.1 Chemistry Sample Collection and Laboratory Practices

a. Inspection Scope (84750)

The inspectors observed the analytical technique and radiation protection practices demonstrated by chemistry technicians (CTs). Observations included CTs obtaining primary coolant and secondary system

samples and performing analyses in the chemistry laboratory. The inspectors also reviewed the preparation and control of laboratory standards and reagents.

b. Observations and Findings

The inspectors identified two iron standards in the chemistry laboratory which had been incorrectly labeled with respect to shelf life. The CT, who had prepared the 4 part per million iron standards, labeled the standards as expiring after six months instead of the three months directed by chemistry procedures. The chemistry superintendent indicated that the standards had been used in an optional analysis. Since the standards were not used in an analysis required by Technical Specifications or by other requirements, no violation was identified. The inspectors also identified some inconsistencies in the method in which reused sample containers were pre-rinsed with sample to reduce cross chemical contamination of samples. The licensee planned to review the practices and ensure that proper analytical practices were implemented.

On July 9, 1996, the inspectors identified that CT contamination control practices were inconsistent with Zion administrative procedure ZAP 620-03, "Transportation, Conditional, and Unconditional Release of Radioactive Materials," revision 2. After collecting primary coolant samples, the CT rinsed the outside of the containers with deionized water to reduce the potential for contamination and performed a radiation survey of the sample with an ion chamber. Subsequently, the CTs removed the samples and instruments from the primary sampling room (a posted, contaminated area). However, the CT did not perform a surface contamination survey of the materials nor did the CT re-package the materials to prevent the spread of contamination, as required by ZAP 620-03. Chemistry and radiation protection (RP) management indicated that it was a longstanding practice to transport chemistry samples via an elevator between the primary sampling room and the chemistry laboratory, which was not a posted contaminated area, without surveying the materials for surface contamination. The lack of assurance that instruments and sample containers were free of contamination introduced a potential for the spread of contamination within the Auxiliary Building. Although the licensee's historical data did not indicate a significant contamination problem, the licensee suspended the practice and implemented more stringent radiological controls.

c. Conclusion

The chemistry technicians demonstrated good analytical chemistry techniques, with the exception of some weaknesses concerning attention to detail relative to laboratory standards.

TS 6.2.2 requires, in part, that radiation control procedures be prepared and implemented. The failure to properly remove items from the primary sample room (a posted, contaminated area) in accordance with procedure ZAP 620-03 is a violation of TS 6.2.2 (50-295/304-96008-05(DRS)).

R.4.2 Decontamination of the Fuel Transfer Canal

a. Inspection Scope (83750)

The inspectors reviewed personnel performance during the decontamination of the Fuel Building transfer canal.

b. Observations and Findings

On June 10, 1996, the licensee identified that a contractor failed to follow station procedures after alarming a personal contamination monitor (PCM). Instead of obtaining RP assistance, the individual performed a survey and identified the contamination on his clothing. The individual disposed of the contaminated section of clothing and successfully passed through the PCM. After the individual informed his supervision of his actions, RP personnel escorted the individual to the decontamination area of the AB, surveyed the individual, and retrieved a contaminated piece of clothing from a garbage receptacle. The licensee documented the event in a problem identification form (PIF). This item is unresolved pending further NRC review (50-295/304-96008-06(DRS)).

On June 7, 1996, the licensee identified that contrary to ZAP 600-3, "Radiation Work Permit Program," Revision 3, a fuel handler failed to follow the applicable radiation work permit and removed equipment from the fuel transfer canal without a RPT present. Under the circumstances, the individual believed that he was authorized to remove tools from the fuel transfer canal. The inspectors discussed the event with the responsible RP personnel, who indicated that an RPT found the equipment in an unlabeled bag. The RPT took control of the equipment and measured a dose rate of 50 mrem/hr on contact with the tools. The individual was wearing the required dosimetry (i.e. thermoluminescent dosimeter and electronic dosimeter), which would have alarmed if the dose rate from the tools had been significantly greater. The licensee took immediate corrective actions including a halt in the fuel transfer canal activities and additional instructions to the work groups.

Failure to follow the radiation work permit procedure is a violation of 10 CFR Appendix B, Criterion V, "Instructions, Procedure, and Drawings." However, this violation was identified by the licensee and could not have been reasonably prevented by the licensee's corrective action for a previous violation or a previous licensee finding that occurred within the past two years. Therefore, this licensee-identified and corrected violation is being treated as a Non-cited Violation, consistent with Section VII.B.1 of the NRC Enforcement Policy (50-295/304-96008-07(DRS)).

c. Conclusion

The inspectors concluded that personnel performance issues, both radiological and maintenance, have had negative effects on the progress of the fuel transfer canal decontamination project.

R4.3 Conclusions

Chemistry technicians demonstrated good analytical techniques, with the exception of some weaknesses concerning attention to detail. Improperly labeled chemistry standards were identified in the chemistry laboratory. In addition, a violation, a non-cited violation, and an unresolved item were identified concerning inadequate adherence to radiological control procedures.

R7 Quality Assurance in RP&C Activities

R7.1 Quality Assurance Assessments (84750)

a. Inspection Scope (84750)

The inspectors reviewed audits performed by the licensee's site quality verification (SQV) staff of radiation protection and chemistry program implementation.

b. Observations and Findings

The SQV staff performed annual reviews of the REMP implementation. The SQV staff reviewed the performance of the environmental sample collector, REMP sample results, land use census, and annual report. SQV's audit of sample collector activities and land use census data were comprehensive. Findings concerning the land use census were well documented and resolved.

Based on positive performance indicators, the SQV department had reduced its auditing schedule of the chemistry program. Chemistry performance was assessed via field monitoring reports and selected review of chemistry activities. The SQV oversight of chemistry activities appeared acceptable; however, 1994 chemistry findings concerning adherence to RP procedures were not fully resolved.

c. Conclusion

Based on NRC observations of minor inconsistencies in the ODCM and annual report (See Section R.1.3), the inspectors concluded that the review of the annual report data and ODCM was not as comprehensive as the review of REMP. The inspectors identified weaknesses in radiological practices (See Section R4.1) that were similar to SQV findings in 1994.

F1 Control of Fire Protection Activities

F1.1 Inoperability of the 1A Diesel Generator CO₂ System Not Recognized During CO₂ Discharger Timer Replacement

a. Inspection Scope (71750)

On July 2, the inspectors identified that replacement of the 1A EDG CO₂ discharge timer on July 1 had rendered the automatic function of the CO₂ system inoperable. The inspectors reviewed the work package and interviewed fire protection, electrical maintenance, and operations personnel.

b. Observations and Findings

On July 1, the onshift operations crew informed the electricians that the timer could be replaced without taking the CO₂ system out of service. But, with the discharge timer removed, the automatic function of the CO₂ system was rendered inoperable. This inoperable status was not recognized by fire protection, operations, and electrical maintenance personnel during the work. The inspectors were informed, by the electrician, that all the individuals involved were focused on preventing the inadvertent operation of the CO₂ system; therefore, the fact that the CO₂ system would not automatically operate was not identified.

Prior to approving the work, the onshift crew conferred with the fire protection SE. A decision was made to issue the CO₂ lockout key to the electricians to re-enable and disable the CO₂ system at their discretion. Whenever the CO₂ lockout key was used, the automatic function of the CO₂ system was impaired. However, the electricians proceeded with replacing the timer without using the CO₂ lockout key because they felt the key would not prevent actuation. The inspectors subsequently reviewed the electrical prints with an electrician and determined that the use of the CO₂ lockout key does prevent actuation. Although the key was not used, the CO₂ system was impaired due to the timer being replaced.

This timer replacement work impaired the automatic function of the CO₂ system. ZAP 900-02, "Fire Protection System Impairments," Revision 2, required the initiation of an impairment permit and establishment of a continuous fire watch. However, FP and operations personnel did not perform these required actions because operations personnel considered issuance of the CO₂ lockout key had not impaired the automatic actuation of the system. However, the continuous fire watch requirement was coincidentally, accomplished due to another impairment requirement already in place.

The practice of rendering the CO₂ system inoperable and not initiating a fire impairment permit because the CO₂ lockout key has been issued has been longstanding. This practice has not been in compliance with fire protection program requirements of ZAP 900-02 which required that an

impairment be initiated when impairing the fire protection system. This practice demonstrated a lack of understanding of the fire protection system and its requirements.

The licensee implemented the following corrective actions: 1) revising the fire impairment procedure to require the initiation of a fire impairment permit when rendering the CO₂ system inoperable; 2) adding additional labelling on the CO₂ lockout key to assure an impairment was initiated prior to issuing the key; 3) adding a placard adjacent to the local lockout key switch to assure an impairment was generated prior to using the key; and 4) issuing a standing order informing operations personnel of the requirement to assure an impairment was issued prior to using the key.

c. Conclusion

ZAP 900-02, "Fire Protection System Impairments," Revision 2, states that a barrier impairment permit was required for fire protection equipment that was impaired. Failure to initiate a barrier impairment permit is a violation of 10 CFR 50, Appendix B, Criterion V, (50-295/304-96008-08a(DRP)). The inspectors considered that the fire protection, operations, and electrical maintenance personnel demonstrated a lack of understanding of the operation of the CO₂ system and requirements in ZAP 900-02. The station's implemented corrective actions should be appropriate to prevent recurrence. However, there was a deficient knowledge level that appeared to exist among numerous departments with respect to the fire protection system.

Although the licensee implemented corrective actions to address the problem, the station was untimely in documenting the inoperability of the 1A Diesel Generator CO₂ System; a station deficiency report was not generated for approximately 23 days after July 1. ZAP 700-08, "Problem Identification Process," Revision 10, required that a PIF be generated within 48 hours of discovering an issue. Failure to document this issue on a PIF, as required by ZAP 700-08, is a violation of 10 CFR 50, Appendix B, Criterion V (50-295/304-960008-08b(DRP)).

V. Management Meetings

X1 Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on July 26, 1996. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

R. Tuetken, Vice President, Zion Station
G. Schwartz, Station Manager
B. Giffin, Engineer Manager
B. Fitzpatrick, Operations Manager
L. Simon, Maintenance Superintendent
R. Cascarano, Assistant Operations Manager
W. Stone, Regulatory Assurance Supervisor
D. Hatton, Site Construction Superintendent
T. Hill, Mechanical Maintenance Master
R. Lane, Maintenance Engineering Supervisor
K. Depperschmidt, Instrument Mechanic Master
M. Rode, Fuel Handling Supervisor
J. LaFontaine, Work Control Supervisor
W. Demo, Assistant Superintendent to Operations
G. Ponce, Electrical Maintenance Master
M. Weis, Services Director
B. Schramer, Chemistry Supervisor
G. Kassner, Radiation Protection Supervisor

NRC

G. Grant, Director, Division of Reactor Safety
L. Miller, Chief, Reactor Projects Branch 4

IDNS

J. Yesinowski

INSPECTION PROCEDURES USED

IP 37551: Engineering
IP 62703: Maintenance Observation
IP 71001: Licensed Operator Requalification Program Evaluation
IP 71707: Plant Operations
IP 71715: Sustained Control Room and Plant Observation
IP 71750: Plant Support Activities
IP 83750: Occupational Radiation Exposure
IP 84750: Radioactive Waste Treatment and Effluent and Environmental Monitoring

Items Opened, Closed, and Discussed

Opened

| | |
|----------------------|---|
| 50-295/304-96008-01 | NCV improper return to service of a steam flow channel |
| 50-295/304-96008-02a | VIO personnel error and misoperation of EDG switch |
| 50-295/304-96008-02b | VIO failure to initiate a barrier impairment permit for the inoperability of EDG CO ₂ system. |
| 50-295/304-96008-02c | VIO failure to initiate a PIF when the automatic function of the CO ₂ system was rendered inoperable. |
| 50-295/304-96008-03 | VIO failure of the system engineer to take prompt corrective actions for puncture in exhaust duct from the HUT room |
| 50-295/304-96008-04 | VIO improper crediting of standwatch hours for maintenance operator licenses |
| 50-295/304-96008-05 | NCV failure to perform parts evaluation |
| 50-295/304-96008-06 | URI failure to properly update the FSAR |
| 50-295/304-96008-07 | VIO failure to perform survey prior to removing material from contaminated area. |
| 50-295/304-96008-08 | URI contractor decontaminated himself after alarming monitor |
| 50-295/304-96008-09 | NCV personnel removed equipment from the fuel transfer canal with RPT present |

Closed

None

DEFINITIONS

Violations For Which a "Notice of Violation" Will Not Be Issued

The NRC uses the Notice of Violation as a standard method for formalizing the existence of a violation of a legally binding requirement. However, because the NRC wants to encourage and support licensee's initiatives for self-identification and correction of problems, the NRC will not generally issue a Notice of Violation for a violation that meets the tests of 10 CFR 2, Appendix C, Section V.A. These tests are: 1) the violation was identified by the licensee; 2) the violation would be categorized as Severity Level IV or V; 3) the violation will be corrected, including measures to prevent recurrence, within a reasonable time period; and 4) it was not a violation that could reasonably be expected to have been prevented by the licensee's corrective action for a previous violation. A Violation of regulatory requirements identified during this inspection for which a Notice of Violation will not be issued is discussed in Paragraphs 03.1, E2.2, and R.4.2.

Unresolved Items

Unresolved Items are matters about which more information is required in order to ascertain whether they are acceptable items, violations, or deviations. Unresolved items disclosed during the inspection are discussed in Paragraphs 04.1 and R4.2.

LIST OF ACRONYMS USED

| | |
|-------|---|
| AB | Auxiliary building |
| ALARA | As Low As Reasonably Achievable |
| CT | Chemistry Technician |
| EDG | Emergency Diesel Generator |
| EWCS | Electronic Work Control System |
| FH | Fuel Handler |
| FP | Fire Protection |
| FSAR | Final Safety Analysis Report |
| HUT | Holdup Tank |
| IDNS | Illinois Department of Nuclear Safety |
| IFI | Inspection followup item |
| IM | Instrument Mechanic |
| JPM | Job Performance Measures |
| LSS | Licensed Shift Supervisor |
| MM | Mechanical Maintenance |
| NCV | Non-cited Violation |
| NE | Nuclear Engineer |
| NLO | Non-licensed Operator |
| NSO | Nuclear Station Operator |
| ODCM | Offsite Dose Calculation Manual |
| OE | Operating Engineer |
| OOS | Out-of-service |
| PASS | Post Accident Sampling System |
| PCM | Personal Contamination Monitor |
| PDR | Public Document Room |
| PIF | Problem Identification Form |
| PORV | Power Operated Relief Valve |
| QC | Quality Control |
| RCDT | Reactor Coolant Drain tank |
| REMP | Radiological Environmental Monitoring Program |
| RP | Radiation Protection |
| RP&C | Radiological Protection and Chemistry |
| RWP | Radiation Work Permit |
| RPT | Radiation Protection Technician |
| SALP | Systemic |
| SE | System Engineer |
| SI | Safety Injection |
| SQV | Site Quality Verification |
| TS | Technical Specification |
| URI | Unresolved Item |
| US | Unit Supervisor |
| VIO | Violation |