

Appendix

NOTICE OF VIOLATION

Commonwealth Edison Company

Docket No. 50-304

As a result of the inspection conducted on July 17 through August 31, 1982, and in accordance with the NRC Enforcement Policy, 47 FR 9987 (March 9, 1982), the following violation was identified:

The Confirmatory Order of February 29, 1980 Item E.1.C. states that the licensee shall "Impose an administrative order requiring expeditious shutdown whenever an independent train of the auxiliary feedwater system and any one of the following are inoperable: All backup sources of off-site power, one of the two diesel generators supplying power to the other independent train or either of the other trains of the auxiliary feedwater system."

The licensee's June 26, 1980, response to the Confirmatory Order indicated that the reactor would be shutdown within 12 hours if 2 out of 3 auxiliary feedwater pumps are inoperable.

Contrary to the above, on August 22 and 23, 1982, an expeditious shutdown was not performed when the 2B diesel generator failed with the 2B auxiliary feedpump out of service. Unit 2 was operated for seventeen hours in this condition.

This is a Severity Level IV violation (Supplement I).

Pursuant to the provisions of 10 CFR 2.201, you are required to submit to this office within thirty days of the date of this Notice a written statement or explanation in reply, including for each item of noncompliance: (1) corrective action taken and the results achieved; (2) corrective action to be taken to avoid further noncompliance; and (3) the date when full compliance will be achieved. Consideration may be given to extending your response time for good cause shown.

Dated

R. L. Spessard, Director
Division of Project and
Resident Programs

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-295/82-19(DPRP); 50-304/82-17(DPRP)

Docket Nos. 50-304, 50-295

Licenses No. DPR-39, DPR-48

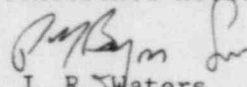
Licensee: Commonwealth Edison Company
P. O. Box 767
Chicago, IL 60690

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

Inspection At: Zion, IL

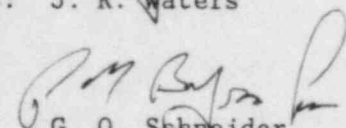
Inspection Conducted: July 17 through August 31, 1982

Enforcement Conference Held: September 9, 1982

Inspectors:  J. R. Waters

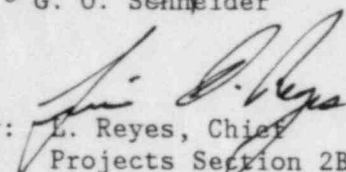
9/22/82

Date

 G. O. Schneider

9/22/82

Date

Approved By:  L. Reyes, Chief
Projects Section 2B

9/22/82

Date

Inspection Summary

Inspection on July 17 through August 31, 1982, Enforcement Conference held September 9, 1982 (Reports No. 50-295/82-19(DPRP); 50-304/82-17(DPRP))

Areas Inspected: Routine unannounced resident inspection of Licensee Action on Previous Inspection Items; Primary to Secondary Leakage; 1981 Vent and Purge Times; Reactor Trip of August 2, 1982; Primary to CCW Leakage; Fire in "O" Diesel Generator Room; Licensed Power Level; Shutdown Required by Confirmatory Order; Partial Shutdown due to Spray Pump Inoperability; Operational Safety Verification; Monthly Maintenance Observation and Monthly Surveillance Observation. The inspection involved a total of 350 hours by two NRC inspectors including 45 hours onsite during off-shifts. Results: Of the twelve areas inspected no items of noncompliance were identified in eleven areas; one item of noncompliance was identified in the other area (violation of a Confirmatory Order, Paragraph 10).

DETAILS

1. Persons Contacted

- +*K. Graesser, Station Superintendent
- *E. Fuerst, Assistant Station Superintendent, Operations
- G. Pliml, Assistant Station Superintendent, Administrative and Support Services
- K. Kofron, Assistant Station Superintendent, Maintenance
- *R. Budowle, Unit 1 Operating Engineer
- +*J. Gilmore, Unit 2 Operating Engineer
- L. Pruett, Assistant Technical Staff Supervisor
- +P. LeBlond, Assistant Technical Staff Supervisor
- A. Miosi, Technical Staff Supervisor
- B. Schramer, Station Chemist
- *R. Aker, Health Physics Engineer
- C. Silich, Technical Staff Engineer, ISI
- *B. Harl, Quality Assurance Engineer
- *R. Placko, Quality Control Engineer
- B. Kurth, Master Instrument Mechanic
- +F. Lentine, Nuclear Licensing Administrator
- J. Marianyi, Operating Engineer
- +C. Reed, Vice President of Nuclear Operations
- +D. P. Galle, Nuclear Station Operations
- +R. E. Jortberg, Nuclear Safety
- +R. A. Flessner, Nuclear Station Technical Services
- +G. P. Wagner, Nuclear Station Technical Services
- +T. J. Raush, Nuclear Licensing

*Denotes those present at the exit meeting of August 31, 1982

+Denotes those present at the Enforcement Conference of September 9, 1982

2. Summary of Operations

Unit 1 operated at power levels up to 100%. No reactor trips or shutdowns occurred during the inspection period.

Unit 2 operated at power levels up to 100%. Three license required partial shutdowns (Paragraphs 8, 10 and 11) and one reactor trip (Paragraph 6) occurred during the inspection period.

3. Licensee Action on Previous Inspection Items

(Closed) Open Item (295/82-14-01): Missing Piece of Broken Valve Guide. This topic was included in Enforcement Conference on July 21, 1982 (Reports No. 50-295/82-17; 50-304/82-15). No grounds for enforcement action were found. Minor procedural inconsistencies which were identified after the enforcement conference have been resolved.

4. Unit 1 Primary to Secondary Baseline Leakage Measurement

In a June 18, 1982 letter from F. G. Lentine to D. G. Eisenhut the licensee committed to performing a base line primary to secondary leakage test after Unit 1 had reached equilibrium operating conditions. This test was performed on July 27, 1982. The test consisted of securing steam generator blowdown for approximately nine hours and measuring the buildup of radioactive nuclides in the steam generator. The test showed no accumulation of nuclides thus indicating no primary to secondary leakage in any steam generator. Additionally, weekly isotopic analysis of steam generator samples has shown only trace amounts of long lived nuclides and no short lived nuclides.

No items of noncompliance or deviations were identified.

5. NRR Request for Information

By a July 27, 1982 memo from H. R. Denton to the Regional Administrators, the Office of Nuclear Reactors Regulation requested data on the cumulative containment vent and purge times for 1981. The Resident Inspectors Office provided the following data for time spent purging and venting above Mode 5:

	<u>Unit 1</u>	<u>Unit 2</u>
Vent	164.5 hours	116 hours
Purge	0 hours	203.7 hours

No items of noncompliance or deviations were identified.

6. Unit 2 Reactor Trip of August 2, 1982

During full power operation on August 2, 1982 the 2C feedwater pump speed dropped by approximately 600 rpm for no apparent reason. This occurred at about 8:10 a.m. Operators placed the M/A controller in manual and increased the demand signal to approximately 98% to restore the pump to proper speed. The operators then proceeded to start up the idle 2A feedwater pump in preparation for securing the 2C pump. During the transfer from the 2C to the 2A feedwater pump, the fault that had caused the 600 rpm drop on the 2C pump disappeared. The pump responded to the 98% demand signal and tripped on overspeed. The Loop C steam/feed flow mismatch bistable was already tripped due to a faulty steam pressure transmitter. When the 2C feedwater pump tripped the steam generator level dropped to the low level (25%) trip point. This completed the logic for a steam/feed flow mismatch coincident with low steam generator level reactor trip. The trip occurred at approximately 8:45 a.m. August 2, 1982. The reactor was returned to criticality at 12:55 p.m. and restored to the grid at 10:32 p.m., after correcting the steam pressure transmitter fault.

No items of noncompliance or deviations were identified.

7. Primary to Component Cooling System Leak

At about 8:15 a.m. on August 10, 1982 a high radiation alarm was received on ORT-PRO7, the radiation monitor for the No. "O" component cooling heat exchanger outlet. Within an hour high radiation alarms were also received on 1-R-17 and 2-R-17 monitors for the No. 1 and No. 2 component cooling heat exchanger outlets. Samples of the component cooling system confirmed the existence of a primary to CCW system leak. Since the system is operated cross-tied between units it was not known which unit had the leak. By isolating various components the licensee determined the leak to be in the Unit 1 pressurizer steam space sample cooler. The cooler has been isolated. The most recent activity sample indicates 1.28×10^{-2} $\mu\text{Ci/cc}$ in the component cooling system. Due to operational difficulties the licensee does not plan to decontaminate the component cooling system.

No items of noncompliance or deviations were identified.

8. Fire in the "O" Diesel Generator Room

At 1:49 a.m. August 11, 1982 control room operators received a report of a fire in the "O" Diesel Generator room. The diesel had been running loaded for about an hour as part of surveillance testing due to the 1A Diesel Generator being out of service. The shift engineer immediately called the Zion Fire Department due to the serious potential presented by a fire in the diesel generator room. Meanwhile equipment operators manually activated the "O" Diesel Generator room CO system which extinguished the fire (the fire did not become large enough to activate the CO system automatically). The Zion Fire Department arrived onsite and was admitted to survey the diesel generator room.

Since the fire resulted in the degradation of ESF equipment and an offsite agency was involved, the licensee declared a site alert. As required by Technical Specifications for less than two diesels operable, a power reduction was commenced on Unit 1. (Both units were initially at full power) The Senior Resident Inspector was dispatched to the site and arrived in the control room at 3:30 a.m. The repairs to the 1A Diesel Generator were completed and an operability test was commenced at 3:40 a.m. At 4:57 a.m. the 1A Diesel Generator Operability test was completed satisfactorily. At this point the Unit 1 power reduction was stopped and the site alert terminated. Unit 1 was returned to full power.

The licensee determined that a turbo charger lube oil filter gasket had failed. The oil sprayed on an exhaust manifold where it ignited. An additional 10 to 15 gallons of lube oil leaked to the floor of the diesel generator room. Clean up and repairs were completed and the "O" Diesel Generator returned to service at 8:30 p.m. on August 11, 1982.

No items of noncompliance or deviations were identified.

9. Position on Licensed Power Level

The inspector reviewed Onsite Review Form OSR/005/82 covering the definition of rated thermal power. This OSR proposes that steady state reactor power be determined by using secondary system calorimetrics. The OSR also presents a statistical analysis of the errors associated with a calorimetric calculation. Based on the statistical analysis the OSR concludes that if a 480 minute (eight hour) calorimetric indicates 100.5% power there is a 99% chance that the licensed steady state power level of 3250 mwt has been exceeded. Conversely at an indicated 99.5% power level there is 100% assurance that 3250 mwt has not been exceeded.

Based on the above, the OSR proposed that full power operations be conducted as follows:

- a. 60 minute calorimetrics will be calculated hourly, a 480 minute calorimetric will be calculated once a shift, and a 10 minute calorimetric will be calculated once a day.
- b. If a 60 minute calorimetric indicates greater or less than 100.0% operators should take action/monitoring to restore reactor power to 100.0% per the 60 minute calorimetric.
- c. If 60 minute calorimetric indicates greater than or equal to 100.5% or a 10 minute calorimetric indicates greater than or equal to 101.0%, operators should immediately reduce power until a ten minute calorimetric indicates 100.0%.
- d. The licensed steady state power of 3250 mwt is not considered to have been violated unless a 480 minute calorimetric indicates equal to or greater than 100.5%.

The inspector reviewed the OSR with inspectors from the Region III Division of Engineering and Technical Inspection and with personnel from the office of Nuclear Reactor Regulation. The Licensee's position on licensed power level was compared against the guidelines established in the August 22, 1980 memo from E.L. Jordan. In a meeting on August 17, 1982 the inspector informed the licensee that operational guidelines established by OSR/005/82 did not comply with the requirements of August 22, 1980, E. L. Jordan memo. Specifically the OSR guidelines did not ensure that the steady state power level (defined as the average power level over an eight hour period) would be maintained at or below the licensed power level of 3250 mwt. Additionally, the licensee's statistical analysis appears to be oversimplified and incomplete. The licensee was informed that to exceed 3250 mwt would require a change to their license. They were also told that any new method of determining steady state power should be submitted to the NRC per 10 CFR 50.59.

The licensee has instituted a temporary change to Station Procedure PT-0 to ensure that the eight hour calorimetric does not

exceed 100.0%. The licensee has indicated that they intend to pursue the issue of licensed power level further with the NRC.

No items of noncompliance or deviations were identified.

10. Unit 2 Shutdown Required by Confirmatory Order

At 7:10 p.m. August 22, 1982 the licensee attempted to start the 2B Diesel Generator to verify its operability prior to a planned outage of the "O" Diesel Generator. The 2B Diesel Generator failed to start due to a broken cam shaft in the air start sequencer. The 2B motor driven auxiliary feedpump was already out of service for repairs. The failure of the 2B Diesel Generator rendered the 2C motor driven auxiliary feedpump inoperable since the emergency onsite power supply had been lost. Technical Specifications allow continued operation with two of three auxiliary feedpumps inoperable for seven days. The shift supervisors did not realize that station standing order No. 150 of December 24, 1981 required that the unit be in hot shutdown within twelve hours if emergency power to one auxiliary feedpump was lost while another auxiliary feedpump was inoperable.

The standing order was based on Item E.1.C. of the Zion Confirmatory Order of February 29, 1980. The oncoming shift engineer for the day shift on August 23, 1982 realized that the standing order required that the unit be shut down and at approximately 8:30 a.m. a shutdown was commenced. The licensee classified the situation as an unusual event and notified the NRC operations duty officer. Meanwhile the repairs to the 2B Diesel Generator were completed and an operability test was successfully completed at 11:55 a.m. August 23, 1982. At this point the unusual event status was terminated. The licensee commenced a return to full power at 12:45 p.m. August 23, 1982. Power had been reduced to 75% before the 2B Diesel Generator repairs were completed.

The Confirmatory Order of February 29, 1980 Item E.1.C. states that the licensee shall "Impose an administrative order requiring expeditious shutdown whenever an independent train of the auxiliary feedwater system and any one of the following are inoperable: All backup sources of offsite power, one of the two diesel generators supplying power to the other independent train or either of the other trains of the auxiliary feedwater system." The licensee responded to the Order in a letter to the NRC dated June 26, 1980. Appendix A of the response states in part, "Specifically, Commonwealth Edison has addressed the following items. ...C. ...These proposed Technical Specifications require the associated diesel generator to be operable in order to consider the auxiliary feedwater pump to be operable. An additional Standing Order has been issued requiring reactor shutdown within 12 hours if 2 out of 3 auxiliary feedwater pumps are inoperable. These actions meet the requirements specified in E.1.C above." Contrary to the above, on August 22 and 23, 1982 an expeditious shutdown was not performed when the 2B Diesel Generator failed with the 2B auxiliary feedpump out of service. Unit 2 was operated for seventeen hours in this condition. This is considered an item of noncompliance (304/82-17-01).

An enforcement conference concerning this occurrence was held September 9, 1982 at the NRC Region III headquarters. The licensee was represented by personnel denoted in Paragraph 1. The circumstances surrounding the event were reviewed with the licensee. The licensee explained how the supervisory personnel on shift misinterpreted the requirements of the standing order when they applied Technical Specification operability definitions. The situation of Technical Specifications being superseded by a standing order was felt by the inspector to be contributory to the confirmatory order violation. Additionally, the licensee is in the process of revising the Technical Specifications regarding auxiliary feedpump operability. The proposed Technical Specification revision which NRR has reviewed allows continued operation for eight hours and the reactor be placed in hot shutdown within the next 12 hours with 2 of the 3 auxiliary feed pumps inoperable. The revision is expected to be incorporated by mid October.

In addition of the licensee representatives denoted in Paragraph 1 the following NRC Representatives were present at the September 9, 1982 Enforcement Conference:

R. L. Spessard, Director, Division of Project and Resident Programs
J. F. Streeter, Chief, Projects Branch 2
L. A. Reyes, Chief, Projects Section 2B
P. M. Byron, Project Inspector, Section 2B
J. R. Waters, Senior Resident Inspector, Zion Station

No other items of noncompliance or deviations were identified.

11. Partial Shutdown Due to Containment Spray Inoperability

At 10:10 p.m. August 26, 1982 operators attempted to start the 2C containment spray pump (diesel driven). The pump failed to start. At the time the "O" Diesel Generator was already out of service for repairs. Since the "O" Diesel provides emergency power for the 2A containment spray pump, 2 of the 3 containment spray pumps were inoperable. Under these conditions Technical Specifications require that the unit be shutdown within four hours. An Unusual Event was declared and a unit shutdown from full power commenced. The problem with the 2C containment spray pump was found to be a loss of the shut signal from the discharge valve. In the test mode the pump must receive a shut signal from this valve in order to start. During an accident this shut signal is not required for a pump start. The fault was corrected and the pump successfully started. The Unusual Event was terminated at 11:43 p.m. August 16, 1982. The power decrease was stopped at approximately 30% and a return to full power commenced at 1:00 a.m. August 17, 1982.

No items of noncompliance or deviations were identified.

12. Region III Division of Project and Resident Programs Reorganization as Applied to Zion Station

As a result of a reorganization of the Region III Division of Project and Resident Programs reorganization of August 15, 1982, Messrs. J. F. Streeter and L. Reyes assumed the Branch Chief and Section Chief positions respectively for the Zion Station resident program.

13. Augmented Inspection Coverage and Assignment of New Resident Inspectors

During the inspection period G.O. Schneider (Instructor-NRC Reactor Training Center) was temporarily assigned to Zion Station to augment the resident inspector coverage. Augmented inspector coverage ceased when F. R. Dunaway and P. L. Hartmann were permanently assigned to Zion Station August 16, 1982.

14. Operational Safety Verification

The inspector observed control room operations, reviewed applicable logs and conducted discussions with control room operators during the months of July and August. The inspector verified the operability of selected emergency systems, reviewed tagout records and verified proper return to service of affected components. Tours of the auxiliary building and turbine building were conducted to observe plant equipment conditions, including potential fire hazards, fluid leaks, and excessive vibrations and to verify that maintenance requests had been initiated for equipment in need of maintenance. The inspector by observation and direct interview verified that the physical security plan was being implemented in accordance with the station security plan.

The inspector observed plant housekeeping/cleanliness conditions and verified implementation of radiation protection controls. During the month of July, the inspector walked down the accessible portions of the Unit 2 safety injection system to verify operability. The inspector also witnessed portions of a gas decay tank discharge.

These reviews and observations were conducted to verify that facility operations were in conformance with the requirements established under Technical Specifications, 10 CFR and administrative procedures.

No items of noncompliance or deviations were identified.

15. Monthly Maintenance Observation

Station maintenance activities on the 2B auxiliary feedwater pump 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 Technical Specifications.

The following items were considered during this review: The limiting conditions for operation were met while components or systems were removed from 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 prevention controls were implemented.

Work requests were reviewed to determine status of outstanding jobs and to assure that priority is assigned to safety related equipment maintenance which may affect system performance.

Following completion of maintenance on the 2B Diesel Generator, the inspector verified that these systems had been returned to service properly.

No items of noncompliance or deviations were identified.

16. Monthly Surveillance Observation

The inspector observed Technical Specifications required surveillance testing on the "O" Diesel Generator and cold leg accumulator boron concentration, and verified that testing was performed in accordance with adequate procedures, that test instrumentation was calibrated, that limiting conditions for operation were met, that removal and restoration of the affected components were accomplished, that test results conformed with Technical Specifications and procedure requirements and were reviewed by personnel other than the individual directing the test, and that any deficiencies identified during the testing were properly reviewed and resolved by appropriate management personnel.

No items of noncompliance or deviations were identified.

17. Meetings, Offsite Functions

During the inspection period the Senior Resident Inspector attended the following offsite functions:

July 21, 1982	Zion Enforcement Conference	Region III Headquarters, Glen Ellyn, IL
August 9, 1982	Meeting with Region III Engineering Personnel on Licensed power level issue	Region III Headquarters, Glen Ellyn, IL
August 30, 1982	Enforcement Committee Meeting	Region III Headquarters, Glen Ellyn, Ill

18. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) throughout the inspection period and at the conclusion of the inspection August 31, 1982, and summarized the scope and findings of the inspection activities.

The Licensee acknowledged the inspector's comments.