

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket Nos: 50-237, 50-249
License Nos: DPR-19; DPR-25

Report No: 50-237/98006(DRP); 50-249/98006(DRP)

Licensee: Commonwealth Edison Company

Facility: Dresden Nuclear Station, Units 2 and 3

Location: 6500 N. Dresden Road
Morris, IL 60450

Dates: February 9-13, 1998

Inspector: R. Lerch, Project Engineer

Approved by: M. Ring, Chief
Reactor Projects Branch 1

EXECUTIVE SUMMARY

**Dresden Generating Station, Units 2 and 3
NRC Inspection Report No. 50-237/98006(DRP); 50-249/98006(DRP)**

This was a special inspection from February 9-13, 1998, to review activities of simultaneously inerting or deinerting the drywell and torus as reported in Licensee Event Report (LER) 237/97-011.

Operations

- **Issues involving the use of drywell and torus containment isolation valves were not promptly and thoroughly dispositioned at Dresden, resulting in an unanalyzed bypass of a containment feature during inerting and deinerting evolutions. An apparent violation was identified involving the failure to ensure that the design basis was correctly translated into procedures such that procedures allowed simultaneous opening of drywell and torus ventilation valves. A second apparent violation was identified for failure to promptly identify and correct the conditions which allowed this practice following notification of the issue by the LaSalle Station and by NRC inspectors.**
- **Once initiated, corrective actions to stop the practice of inerting and deinerting the drywell and torus together were effective. The licensee's self-assessment of the timeliness of the corrective actions did not address the performance of the operations or the regulatory assurance departments.**
- **The independent safety evaluation group was actively and effectively searching for procedures that allowed the torus to be bypassed, and getting them revised.**

Report Details

I. Operations

O3 Operations Procedures and Documentation

O3.1 Drywell and Torus Inerting and Deinerting Practices

a. Inspection Scope (92700, 92701)

The inspector interviewed licensee personnel and reviewed documentation of actions taken by the licensee as corrective action for Licensee Event Report (LER) 237/97-011 (attached) and pertaining to unresolved Item 237/97006-04; 249/97006-04. The LER documented the applicability to Dresden of issues raised at LaSalle Nuclear Power Station regarding venting the drywell and torus simultaneously through a common header. This practice, performed during power operations to inert or deinert the containment atmosphere, created a direct connection between the two volumes, which bypassed the pressure suppression function of the torus in the event of a large break loss of coolant accident (LOCA). The unresolved item documented that the licensee had been notified of ventilation isolation valve concerns by telephone from LaSalle and by NRC inspectors, but only stopped using the process when questioned by an inspector while preparing to perform the venting operation again.

b. Observations and Findings

As discussed in the LER, the licensee identified four procedures which would permit simultaneously opening the isolation valves to drywell and torus ventilation piping. This pathway between the two volumes would allow some bypass of the torus down comers and could result in higher containment pressure during a large break LOCA. The pressure suppression function of the torus is described in the Updated Final Safety Analysis Report, Section 6.2.1. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," required, in part, that measures shall be established to assure that the design basis is correctly translated into procedures. The failure to prepare procedures that would not bypass the pressure suppression function of the suppression pool is an apparent violation of 10 CFR Part 50, Appendix B. (EEI 237/98006-01; 249/98006-01)

As documented in Inspection Report No. 50-237/97006; 50-249/97006, it appeared that inspectors were responsible for identifying the torus bypass issue at Dresden, prompting corrective actions, including changes in the operation of the plant, and prompting notification of the NRC in accordance with Title 10 CFR 50.72. The following is a sequence of events that led to these conclusions.

EVENTS SUMMARY TIME LINE:

Feb. 21, 1997 (Friday)

LaSalle communicated concerns that having isolation valves to the drywell and the suppression pool (or torus) open during power operation was not analyzed for a loss of coolant accident and might overpressurize the standby gas treatment system (SBGT). This was communicated in a morning phone call between

ComEd stations. This issue was also announced and discussed at the plan-of-the-day meeting, but no follow-up action was taken.

March 24 (Monday)

The licensee for LaSalle Station issued an LER which described several concerns including potential overpressurization of the SBT system and bypass of the pressure suppression function of the suppression pool (torus) by having drywell and torus isolation valves open at the same time. The LER was not received at Dresden until April 4th.

March 28 (Friday)

The inspectors questioned Unit 3 operators about the deinerting process being used at the time which had resulted in the opening of both drywell and torus isolation valves, creating a system alignment that bypassed the torus pressure suppression function. At this time, the inspectors discussed their concern, in detail, with the operations shift supervisor.

March 31 (Monday)

The inspectors questioned plant management about actions to address concerns with the inerting/deinerting practices and were informed that the issue had been resolved with the NRC in Safety Evaluation Reports (SERs).

April 4, 1997 (Friday)

After reviewing the SERs, the inspectors informed the regulatory assurance staff that one issue, the potential to over-pressurize standby gas treatment piping, was resolved, but the issue of bypassing the torus was not. The licensee contacted LaSalle Station, obtained the LER, and initiated an engineering review of the issues.

April 4 through 14

The engineering evaluation proceeded with a focus on plant design issues.

April 10 (Thursday)

The inspectors, while in the control room, questioned operators' preparations to inert the Unit 2 drywell and torus simultaneously. Operations staff postponed the evolution until after the plant was shut down.

April 14, 1997 (Monday)

After meetings with the inspectors, the licensee initiated a problem identification form (PIF) for the issues discussed in the LaSalle LER.

April 14 through 25

Engineering and operations personnel revised the applicable inerting and deinerting procedures to prohibit a valve lineup that bypassed the torus.

April 25 (Friday)

The Plant Operational Review Committee (PORC) reviewed and approved actions to address the torus bypass issues. The PORC minutes indicated that reportability was still under review.

April 14 through 30

The inspectors inquired on several occasions if use of the torus bypass inerting/deinerting procedures was going to be reported (in accordance with 10 CFR 50.72). After being told that this issue would not be reported, the inspectors met with the licensee on April 30 to further discuss the issue. After that meeting, the licensee made a 10 CFR 50.72 notification. An LER was submitted on May 29, 1997. There was no specific nuclear tracking system (NTS) item to track reportability, and the engineering review of NTS Item No. 237-201-97-44901 was closed out on April 25, 1997.

Title 10 CFR Part 50, Appendix B, Criterion, XVI, "Corrective Action," stated, in part, that measures shall be established to assure that conditions adverse to quality, such as deficiencies, deviations, and nonconformances are promptly identified and corrected. The licensee had several opportunities to identify and initiate corrective actions for the use of inerting and deinerting procedures at Dresden that resulted in the bypass of the torus pressure suppression function. Failure to promptly identify and correct the procedures was an apparent violation of 10 CFR Part 50, Appendix B. (EEI 237/98006-02; 249/98006-02)

Title 10 CFR 50.72(b)(2)(I) required the licensee to notify the NRC within four hours of any condition, found while the reactor is shut down, that had it been found while the reactor was in operation, would have resulted in the nuclear power plant, including its principal safety barriers, being in an unanalyzed condition that significantly compromises plant safety. Having drywell and torus containment isolation valves open simultaneously was an unanalyzed condition with unknown implications for the function of the containment. Failure to notify the NRC of operation in an unanalyzed condition within four hours is an unresolved item pending further review of the licensee's actions to identify and report the matter. (URI 237/98006-03; 249/98006-03)

c Conclusions

Issues involving the use of drywell and torus containment isolation valves were not promptly and thoroughly dispositioned at Dresden resulting in an unanalyzed bypass of a containment feature during inerting and deinerting evolutions.

07 **Quality Assurance in Operations**

07.1 Licensee Self-Assessment Activities (40500)

a. Inspection Scope

The inspector reviewed the corrective actions described in LER 237/97-011 and the LER closure package and discussed the actions taken with the plant staff. The licensee also informed the inspectors of ongoing activities by the Independent Safety Evaluation Group (ISEG) to identify similar issues at Dresden concerning bypass of the torus suppression function.

b. Observations and Findings

1. Procedures

The licensee revised the applicable inerting and deinerting procedures. The procedures were performed on the simulator prior to implementing them. There were no reported problems with use of the revised procedures.

2. Staff Performance

Problem identification forms and nuclear tracking system (NTS) items were initiated to prompt review of the issues identified at LaSalle and the timeliness of the Dresden staff's response to these issues. The resolution of the technical issues and the staff performance issues was assigned to the engineering organization. The technical issues, with the exception of 10 CFR 50.72 notification, were properly resolved and closed. The issue of a timely response was documented as NTS Item 237-180-97-01101. A self-assessment to address this NTS item was performed with a sequence-of-events time line, conclusions and recommendations. The time line had substantial inaccuracies, and some conclusions indicating performance deficiencies had no recommended corrective actions. Most notably, no conclusions or actions addressed the performance of the regulatory assurance staff or the issue of the timeliness of the 10 CFR 50.72 notification to the NRC. Deficiencies in performance by operations personnel were only addressed by communicating the conclusions of the report to the operations supervisor.

3. Effectiveness Review

The licensee specified that an effectiveness review be performed of the corrective actions taken. This review, 237-180-97-01101.ER, dated January 20, 1998, also missed key deficiencies in the corrective actions taken. The timeliness of actions by operations and regulatory assurance personnel in response to the suppression pool bypass concerns originally identified at LaSalle Station and raised by the NRC was not discussed. The issue of 10 CFR 50.72 notification timeliness was never addressed. The report did review the effectiveness of the revised operations procedures. It also identified that further improvement was needed in the operating experience (OPEX) program handling of LERs.

4. Operating Experience

Although the LaSalle LER was not obtained until after the NRC raised concerns with the issues described in the LER, the licensee reviewed and enhanced the LER review process. The licensee emphasized a more active approach, including reinforcing use of the licensee's internal "nuclear operations notices" to provide early written transfer of LER issues between stations.

5. Independent Safety Evaluation Group

The licensee provided documentation that PIFs were being generated, as early as March 24, 1997, for procedures where operators could voluntarily bypass torus

suppression. The ISEG group started review of these situations based on an Oyster Creek Plant report. In time, the inerting/deinerting processes might have been identified by ISEG reviewers. However, the resulting activities to correct the identified problems with voluntary bypass of the torus suppression function did not prompt the operations staff to recognize the issue as relating to inerting/deinerting.

c. Conclusions

Once initiated, corrective actions to stop the practice of inerting and deinerting the drywell and torus together were effective. The licensee's self-assessment of the timeliness of corrective actions did not address the performance of the operations or regulatory assurance departments. The ISEG was actively and effectively searching for procedures that allowed the torus to be bypassed and getting them revised.

08 Miscellaneous Operations Issues (92700)

- 08.1 (Closed) LER 50-237/97-011-00: Potential to Bypass Containment Suppression due to Inadequate Safety Evaluation and Review of Procedures. The issues and associated corrective actions were reviewed in Inspection Report No. 50-237/97006 and this report. Further action will be tracked by the items opened in this report.
- 08.2 (Closed) Unresolved Item 50-237/97006-04; 50-249/97006-04: Deinerting the Drywell and Torus. The issues and associated corrective actions were reviewed in Inspection Report No. 50-237/97006 and this report. Further action will be tracked by the items opened in this report.

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 February 13, 1998. 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.

Attachment: Licensee Event Report 237/97-011

PARTIAL LIST OF PERSONS CONTACTED

Licensee

G. Abrel, ComEd NRC Coordinator
R. Freeman, Site Engineering Manager
W. Liscomb, Site Vice President Staff
F. Spangenberg, Regulatory Assurance Manager
D. Winchester, Q&SA Manager

LIST OF INSPECTION PROCEDURES USED

IP 40500:	Effectiveness of Licensee Controls in Identifying, Resolving, and Preventing Problems
IP 92700:	Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities
IP 92701:	Followup

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-237/98006-01; 50-249/98006-01	EEI	Design Control of Drywell inerting
50-237/98006-02; 50-249/98006-02	EEI	Corrective Action for Drywell inerting
50-237/98006-03; 50-249/98006-03	URI	Timeliness of 50.72 report

Closed

50-237/97011-00	LER	Potential to bypass contain press supp due-inad review of procedures
50-237/97006-04; 50-249/97006-04	URI	Deinerting the drywell and torus

LIST OF ACRONYMS USED

DRP	Division of Reactor Projects
EEI	Escalated Enforcement Item (Apparent Violation)
ISEG	Independent Safety Evaluation Group
LER	Licensee Event Report
LOCA	Loss of Coolant Accident
NTS	Nuclear Tracking System
OPEX	Operating Experience
PIF	Problem Identification Form
POD	Plan-of-the-Day
PORC	Plant Operations Review Committee
SBGT	Standby Gas Treatment
SER	Safety Evaluation Report
URI	Unresolved Item