

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-237/92035(DRP)

Docket No. 50-237

License No. DPR-19

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

Facility Name: Dresden Nuclear Power Station, Unit 2

Inspection At: Dresden Site, Morris, Illinois

Inspection Conducted: October 19 through December 15, 1992

Inspector: V. P. Loughheed

Approved By: *Patrick L. Hiland*
for Patrick L. Hiland, Chief
Reactor Projects Section 1B

DEC 24 1992

Date

Inspection Summary

Inspection from October 19 through December 15, 1992 (Report No. 50-237/92035(DRP))

Areas Inspected: This was a special, unannounced safety inspection by a regional based inspector to review the events surrounding the licensee's identification that technical specification (TS) Figure 3.6.1 was incorrect due to inaccurate information being supplied to the Commission as part of the amendment request. Inspection module 92701 was used during this inspection.
Results: One apparent violation of 10 CFR 50.9 was identified. That regulation requires that information provided to the Commission be complete and accurate in all respects.

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

- *R. Flahive, Technical Superintendent
- *T. O'Conner, Assistant Superintendent - Maintenance
- *M. Strait, Technical Staff Supervisor
- *R. Radtke, Regulatory Assurance Supervisor
- *E. Carroll, NRC Coordinator, Regulatory Assurance
- *D. Saccomando, Nuclear Licensing Engineer
- P. Piet, Nuclear Licensing Administrator
- T. Spry, Engineer, Nuclear Engineering Department

U.S. Nuclear Regulatory Commission

- *P. Hiland, Chief, Reactor Projects Section 1B
- *W. Rogers, Senior Resident Inspector
- *M. Peck, Resident Inspector
- *A. M. Stone, Resident Inspector

*Denotes those attending the exit meeting on December 15, 1993.

The inspectors also talked with or interviewed several other licensee employees during the course of the inspection.

2. Licensee Event Report Follow-up

(Closed) Licensee Event Report 237-92020 "Unit 2 Reactor Vessel Exceeded Design Basis Due to Non-Conservative Pressure-Temperature Curve." Review of this item is presented below.

3. Regulatory Requirement, Apparent Violation, and Duration

On October 23, 1989, the licensee submitted a Unit 2 Technical Specification (TS) amendment request which was not accurate in all respects. In this amendment, the licensee attested that sufficient information existed on the material properties of the Unit 2 reactor vessel which justified lowering the reference nil-ductility transition temperature described in TS Figure 3.6.1. The TS amendment request was granted on September 5, 1991. On June 26, 1992, the licensee identified that the material properties used in the TS amendment request were incorrect. This is an apparent violation of 10 CFR 50.9 which requires that information provided to the Commission by a licensee be complete and accurate in all respects. (237/92035-01(DRP)). The apparent violation, which was an isolated example, occurred when the licensee provided inaccurate information to the NRC.

4. Root Cause

In discussions with cognizant licensee individuals, the inspector identified the likely root cause of this specific violation to be insufficient management oversight of contractor employees. Sufficient

oversight was not provided to the contract employee who first discerned a difference in the Dresden Unit 2 reactor vessel material properties as compared to the Unit 3 vessel, or either vessel at Quad Cities. Had oversight been provided, the information might have been invalidated at that time, rather than three years later. Second, insufficient oversight was provided when the contractor informally transmitted the presumed Unit 2 material properties to GE, and when GE used these properties in their calculation. Had management reviewed the inputs to the GE calculation, and questioned their validity, then the incorrect assumptions might have been identified prior to the amendment being submitted. An additional causal factor was the inadequate review performed on the TS submittal which failed to identify that the submittal contained inaccurate information.

5. Identification and Reportability of the Apparent Violation

On June 26, 1992, during a review of the detailed fabrication records (in preparation of a response to Generic Letter 92-01), a licensee engineer identified that the material properties and initial reference nil-ductility temperature provided for the Unit 2 pressure-temperature curve were incorrect. This engineer promptly notified the station of the finding; in turn, the station promptly notified the NRC. The inaccurate technical specification resulted in the plant being in a condition that is outside the design basis of the plant. This is reportable within one hour under the requirements of 10 CFR 50.72. The licensee complied with this requirement, and the report was complete and accurate about the previous inaccuracies.

6. Opportunities for Prior Identification

On November 1, 1990, the licensee received detailed fabrication records from the vessel manufacturer through GE for all the Dresden and Quad Cities reactor vessels. These records were obtained so that the licensee could attempt to reduce the reference nil-ductility value for Dresden Unit 3 and for Quad. However, the records were not reviewed until June 1992, when the licensee was performing a review for Generic Letter 92-01.

7. Safety Significance

The inspector identified two safety significant concerns with the apparent violation. First, the inaccurate information directly led to a regulatory decision (i.e. granting a requested technical specification amendment.) Had the NRC known that the Dresden Unit 2 reactor vessel material properties claimed in the amendment request were incorrect, the amendment would not have been granted.

Second, use of the inaccurate technical specification figure could have affected the Unit 2 reactor vessel integrity. During the ten months that the amendment request was in effect, two bolt ups and two hydrostatic tests were performed. Both of the bolt ups and one of the hydrostatic tests were done at a more conservative temperature, because

the licensee's procedures had not been revised prior to these activities occurring. The licensee evaluated the effects of the second hydrostatic test being performed under the non-conservative Unit 2 curve and concluded that vessel integrity was not impacted. The inspector agreed with this conclusion, based on review of the operability evaluation. However, the potential existed for future bolt ups and hydrostatic tests to have been performed using the non-conservative technical specification figure, which might have resulted in reactor vessel integrity problems.

8. Programmatic Concerns

The inspector did not identify any other cases where a licensee amendment request contained inaccurate information. However, the last two systematic assessment of licensee performance (SALP) reports mentioned concerns with engineering management oversight of contractor activities. This engineering management weakness was considered by the inspector to be a contributor to the violation.

9. Short-term Corrective Actions

The inspector confirmed that the licensee took appropriate, immediate corrective actions to ensure that the non-conservative curve was not used. Additionally, on September 16, 1992, a new amendment request was submitted to the NRC to correct the Dresden Unit 2 technical specification Figure 3.6.1. This request was under review at the end of the inspection. The licensee also temporarily revised a number of procedures which referenced the incorrect technical specification figure and committed to make permanent revisions in early 1993. These immediate actions were taken without any need for NRC intervention and were appropriate and complete.

10. Sequence of Events Concerning the Incorrect Non-Conservative Pressure-Temperature Curve

In October 1988, as part of the licensee's efforts to respond to Generic Letter 88-11 and Regulatory Guide 1.99, revision 2, a contractor employee reviewed summary documents which described weld procedures and other records used in fabrication of the reactor vessels for Dresden and Quad Cities. This employee, working closely with the General Electric Company (GE) concluded that the electroslag weld material used on the Dresden Unit 2 reactor vessel was different from that used on Dresden Unit 3 or either unit at Quad Cities. The employee documented this conclusion in an October 19, 1988, letter to Commonwealth Edison titled "Impact of Reg. Guide 1.99 Rev. 2 and Generic Letter 88-11 on Commonwealth Edison's Operating Units."

In August 1989, GE revised the pressure-temperature curves for both units at Dresden and Quad Cities in order to comply with Regulatory Guide 1.99, Revision 2. A Dresden Unit 2 specific pressure-temperature curve was developed, based on the October 19, 1988 letter described above. A more generic curve was developed for Dresden Unit 3 and both

units at Quad Cities, based on weld test sample materials. The revised pressure temperature curves were supplied to the Commonwealth Edison Company (CECo) via report SASR 89-54 "PRESSURE-TEMPERATURE CURVES PER REGULATORY GUIDE 1.99, REVISION 2 FOR THE DRESDEN AND QUAD CITIES NUCLEAR POWER STATIONS," Revision 1, dated August 1989.

On October 23, 1989, the licensee submitted a technical specification amendment request for both units at Dresden and Quad Cities Nuclear Power Stations. These amendment requests revised the pressure-temperature curves for all four units. The Dresden Unit 2 curve was specifically separated from the other curves for the three units, based on the above GE report.

On March 23, 1990, the licensee provided additional information supporting the amendment request, including additional information in support of the Unit 2 specific curves.

On September 5, 1991, the Commission granted the requested amendment (Amendment 114 for Unit 2).

On June 26, 1992, during a review of detailed fabrication records (in preparation of a response to Generic Letter 92-01), a licensee engineer identified that the material properties and initial reference nil-ductility temperature provided for the Unit 2 pressure-temperature curve were incorrect.

On July 16, 1992, the licensee submitted a licensee event report which identified that, on one occasion, the temperature was below the conservative Unit 3 curve, although it was within the Unit 2 requirements. The licensee's operability determination concluded that the deviation was not great enough to affect the reactor vessel integrity.

On September 14, 1992, the licensee submitted a new amendment request to revise the Unit 2 pressure-temperature curve to duplicate the Unit 3 curve. This amendment request was under review as of the end of the inspection period.

11. Exit Meeting

The inspectors met with the licensee representatives denoted in paragraph 1 during the inspection period and at the conclusion of the inspection on December 15, 1992. The inspectors summarized the scope and results of the inspection and discussed the likely content of this inspection report. The licensee acknowledged the apparent violation and did not indicate that there was any disagreement with the characterization of the apparent violation. The licensee did not consider any of the information disclosed during the inspection as proprietary in nature.