

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Reports No. 50-295/89035(DRSS); 50-304/89031(DRSS)

Docket Nos. 50-295; 50-304

Licenses No. DRP-39; DRP-48

Licensee: Commonwealth Edison Company  
Post Office Box 767  
Chicago, IL 60690

Facility Name: Zion Nuclear Station, Units 1 and 2

Inspection At: Zion Station and NRC Region III Office

Inspection Conducted: October 13 - November 9, 1989

Inspector:

G. M. Christoffer  
G. M. Christoffer  
Physical Security Inspector

12/28/89  
Date

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R. Leemon  
Resident Inspector

\_\_\_\_\_  
Date

Approved By:

J. R. Creed  
J. R. Creed, Chief  
Safeguards Section

12/28/89  
Date

Inspection Summary

Inspection between October 13 and November 9, 1989 (Reports No. 50-295/89035(DRSS); No. 50-304/89031(DRSS))

Areas Reviewed: Licensee's actions regarding damage caused by potential tampering with a printed circuit board and the potential tampering demonstrated by a loose vent plug on 1LT-502 Rosemount Transmitter.

Results: The licensee was in compliance with NRC requirements in the areas inspected. The licensee was responsive to NRC concerns. The licensee's investigation showed that an unknown person intentionally damaged a printed circuit board, which had no effect on plant operation. The loose vent plug did not represent tampering.

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## DETAILS

### 1. Key Persons Contacted

In addition to the key members of the licensee's staff listed below, the inspectors interviewed other licensee employees and members of the security organization. The asterisk (\*) denotes those present during the telephone exit interview conducted on November 9, 1989.

- T. Joyce, Zion Station Manager, Commonwealth Edison Company (CECo)
- \*R. Budowle, Services Director, CECo
- \*W. Stone, Regulatory Assurance Supervisor, CECo
- T. Satsefski, Regulatory Assurance, CECo
- \*M. Peterson, Regulatory Assurance, CECo
- \*F. Willaford, Corporate Nuclear Security Administrator, CECo
- \*R. Smith, Station Security Administrator, CECo
- J. Gilmore, Quality First, CECo
  
- R. Leemon, Resident Inspector, USNRC, Region III
- \*A. M. Bongiovanni, Resident Inspector, USNRC, Region III

### 2. Entrance and Exit Interviews (IP 30703)

- a. At the beginning of the inspection, Mr. T. Joyce of the licensee's staff was informed of the purpose of this visit and the functional areas to be examined.
- b. The inspector telephonically contacted the licensee representatives denoted in Section 1 at the conclusion of the inspection on November 9, 1989. A general description of the scope of the inspection was provided. Briefly listed below are the findings discussed during the exit interview. The details of these findings are referenced, as noted, in this report. Included below is a statement provided by or describing licensee management's response to each finding.
  - (1) The licensee acknowledged the inspector's comments that NRC Region III concurred with the licensee's conclusion that the unprotected printed circuit board was intentionally cut but that there was no evidence to indicate any malicious attempt to affect safe plant operations.
  - (2) The licensee acknowledged the inspector's comments that NRC Region III concurred with the licensee's conclusion that the loose vent plug did not occur as a result of equipment tampering, but that it could probably have been caused by previous improper maintenance or normal operations activities. We also concurred with their decision to retract the one hour telephone call to the NRC regarding this event.

- (3) The licensee acknowledged the inspector's comments that the licensee took measures to increase security awareness after the security department became aware of the two events. (Refer to Section 3)
- (4) The licensee acknowledged the inspector's comments that the licensee's investigation of the events could have been improved by broadening the scope of the investigation. (Refer to Section 3)

3. Management Effectiveness (IP 81020)

On October 6, 1989, the licensee made a one hour report to the NRC regarding the discovery of a damaged Rosemount printed circuit board which was thought to have been caused by tampering. The circuit board was unsecured and located on a maintenance cart on the 568' level of Unit 1 containment. It was approximately four inches in diameter and cut in two places. The board was used to test the Rosemount Transmitters in Unit 1 containment during the previous several days at the 568' level and was observed as being undamaged at approximately 3:00 p.m. on October 5, 1989, at which time it was left in a plastic bag on the maintenance cart. The damaged circuit board was found on October 6, 1989, at approximately 9:00 a.m. by the Instrument Maintenance (IM) Technician that was working with the board. The board was not safety-related equipment and it was not going to be installed permanently.

The licensee's immediate corrective action was to remove the test circuit board and begin an investigation. They collected access control and radiation records to determine who was in the 568' level area during the time that the board could have been damaged. Three days later, a list was compiled of seven contractor health physics personnel who were working in the area in which the board was located. Those individuals were interviewed by the Station Security Administrator (SSA) and the Corporate Security Director to determine if they had information that might be relevant to the circumstances surrounding the incident. The results of the interviews indicated that no one admitted knowing who damaged the board or when it occurred.

The next day, the circuit board was sent to a forensic test lab for analysis to determine what kind of equipment was used to damage the board. The test results received on October 11, 1989, indicated that the board was cut with a pair of wire cutters, similar to those found next to the circuit board on the IM cart.

Additionally on the same day, the Quality Assurance (QA) personnel were instructed to watch for signs of tampering in containment or other areas of the plant. QA conducted an inspection of containment and observed no damage. The security firewatch patrol in containment was instructed to be observant for suspicious activities or equipment tampering.

As a result of the interview and test results of the previous day, a one hour report was made on October 12, 1989, to the NRC regarding potential tampering with the 1LT-502 Rosemount transmitter vent plug. The significance of this information was that the plug was located five to eight feet from the cut circuit board.

That same day, the licensee discussed the two incidents at a meeting between CECO and contractor supervisors. The supervisors were told to inform their personnel of the incidents. All contractor employees were asked to provide any information that might be relevant to the circumstances surrounding the incidents. Also, a second security patrol was assigned inside containment to watch for equipment tampering. Corporate security management determined that ten percent of the individuals that were in containment during the time the board was damaged should be interviewed. This resulted in corporate security investigators conducting interviews of 31 out of 293 persons. At this time, the licensee interviewed only those IM persons who were in containment during the time in question. The interviews resulted in no additional information. The interview results indicated that no one admitted knowledge of who had caused the damage to the circuit board or loosened the vent plug. The licensee concluded that an unknown person cut the circuit board for unknown reasons. On the same day, the licensee management representative and the NRC inspectors discussed the licensee's actions regarding the situation. The plant manger made the decision to have a walkdown conducted of Unit 1 containment.

During the backshift on October 13, 1989, IM personnel performed a walkdown of the southeast and southwest quadrants of the 568' level of Unit 1 containment to check instruments for damage or leakage. No evidence of tampering was discovered during this walkdown.

On October 16, 1989, the corporate security representative detailed to Zion became involved in the investigation and the licensee began research on the maintenance history for Rosemount transmitters. On October 17, 1989, a computer printout was obtained of the maintenance history on the Rosemount transmitters installed in Unit 1 containment. Work request (Z85690) for work that had been done on 1LT-502 on September 21, 1989, was reviewed. The three individuals identified with the work request were interviewed, i.e., the IM technician that performed the work, the IM foreman who supervised the technician, and the Quality Control (QC) inspector who reviewed the work request package.

The investigation activity finally revealed that the Rosemount transmitter 1LT-502 was worked on September 21, 1989. The work request was to investigate the cause of a high reading and determine if the problem was the transmitter or electronic. The IM technician observed water (a puddle the size of a quarter) standing on the top of 1LT-502, around the vent plug. He did not observe an actual leak and believed that the water had fallen on top of the transmitter from a source above. He documented this information on the procedure and discussed it with his foreman. No further action was taken by the foreman or the QC inspector that reviewed the work request package. The technician did not touch the vent plug because it was not required as part of the work performed.

On October 18, 1989, the licensee obtained a copy of the Visual Leak Examination of Class I Components (Reactor Coolant System Leak Test), TSS 15.C.21, Revision 4, October 19, 1988. The inspection was conducted on September 7, 1989, to look specifically at ASME Class 1 Components (Reactor Coolant System), however, any unusual conditions observed, such as a leak, on any system or equipment would have been noted and maintenance scheduled. There was no evidence of leakage noted in this report concerning the Rosemount Level Transmitters.

On October 18, 1989, the licensee cancelled the requirement for one of the two security officers that had been assigned to patrol in Unit 1 containment.

On October 23, 1989, the security representatives received an evaluation of the 1LT-502 vent plug, conducted by the Technical Staff/Electrical Group. The evaluation was that a typical vent plug on the Rosemount Transmitter that was tightened "finger tight," in good condition, with no dirt or corrosion products fouling the seating surfaces, has a reasonable probability of having a leak rate below the level necessary to influence transmitter performance.

The licensee concluded that the loose vent plug on 1LT-502, Rosemount Transmitter was not caused by equipment tampering. It could have been caused by previous improper maintenance. There is information to support the position that the vent plug was only "finger tight" at the time of unit shutdown. Water was observed around the vent plug during maintenance on September 21, 1989, which was an indication of a leak at that time. The amount of water observed on September 21 and October 2-3, 1989, was described as a puddle the size of a quarter. There were enough corrosion products on top of the transmitter and supporting bracket to support the position that water had been present for an extended period of time. Additionally, the evaluation conducted by the Technical Staff supports the position that the system could have sustained a leak rate consistent with a "finger tight" vent plug without influencing the transmitter performance.

On October 24, 1989, the licensee retracted the one hour report regarding potential tampering of the 1LT-502 vent plug.

On October 26, 1989, IM personnel were instructed not to leave safety related or environmental qualified (EQ) parts unattended and unsecured in the plant. This action was taken to prevent a similar recurrence of the cut circuit board.

#### 4. NRC Evaluation

On October 13, 1989, a regional security inspector was dispatched to the site to evaluate and monitor the licensee's investigation of the two events and management's involvement in the situation. The regional inspector was assisted by the resident inspector during this inspection. Additionally, the security inspector monitored the licensee's activities in office on a daily basis.

As a result of a combined evaluation by members of the Division of Reactor Projects (DRP) and a Physical Security Inspector, we concurred with the licensee's evaluation that the circuit board was cut by an unknown person and the loose vent plug 1LT-502 was not caused as a result of equipment tampering.

We concluded that the licensee conducted an adequate investigation for both events, however, their investigative actions regarding the vent plug could have been broader in scope. The licensee took no action to check other Rosemount Transmitters until the NRC brought this to their attention. The licensee was slow in reaching their conclusion that it was not equipment tampering.