SPECIAL INSPECTION TEAM REPORT

U.S. NUCLEAR REGULATORY COMMISSION

DRESDEN CONTROL ROD MISPOSITIONING EVENT

SEPTEMBER 18, 1992

INSPECTION REPORT NO'S. 50-237/92033(DRP); 50-249/92033(DRP)

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EXECUTIVE SUMMARY

A special inspection team was assigned to support the NRC Office of Investigations (OI) in response to the Dresden Unit 2 control rod mispositioning event which occurred on September 18, 1992. The team conducted a technical review of the circumstances surrounding the event. The inspection concentrated on the adequacy of the licensee's procedures, operator actions, management involvement, corrective actions, and the safety significance of the event. No nuclear safety limits were approached or exceeded and no deviations were identified in the areas inspected. Two apparent violations with multiple examples were identified.

The two apparent violations included:

- Inadequate corrective action for a previous event
- Failure to follow procedures (five examples)

The initial cause for the September 18, 1992, control rod misposition event was a personnel error during a routine maneuver. While no safety limits were approached, the event is a concern because the subsequent failure to follow programmatic controls was apparently due to deliberate misconduct by the individuals involved. None of the five individuals (a licensed reactor operator, a licensed senior reactor operator, and three non-licensed individuals) reported the error as prescribed by station procedures. The event was discovered when a licensee first line supervisor overheard reference to a control rod mispositioning during a conversation on November 23, 1992.

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-237/92033(DRP); 50-249/92033(DRP)

Docket No. 50-237; 50-249 License No. DPR-19; DPR-25

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

Facility Name: Dresden Nuclear Generating Station, Unit 2 and 3

Inspection At: Dresden Site, Morris, IL

Inspection Conducted: November 30 - December 4, 1992

Inspectors: F. L. Brush, RIII, Clinton Resident Inspector
H. Peterson, RIII, Operator Licensing Examiner
B. Siegel, NRR, Project Manager, Division of Reactor Projects

Approved By: Patrick L. Hiland, Team Leader — 9/7/93 Date

Approved By: for Brent Clayton, Chief, Division of Reactor Projects, Branch 1 — 9/7/93 Date

Inspection Summary

Inspection on November 30 - December 4, 1992 (Report No. 50-237/92033(DRP); 50-249/92033(DRP))

Areas Inspected: Special team inspection conducted in response to a Dresden Unit 2 control rod mispositioning which occurred on September 18, 1992, and the failure to promptly report that event. The inspectors reviewed the sequence of events, the safety significance of the event, the licensee's investigation, the qualifications of the personnel involved, the licensee's corrective actions, the licensee's corrective action program with respect to identifying other incidents of not reporting operational problems, and the technical adequacy of applicable procedures.

Results: Two apparent violations with multiple examples were identified. No nuclear safety limits were approached or exceeded and no deviations were identified in the areas inspected. The special inspection team concluded the following:

1. The licensee's corrective actions to a control rod mispositioning event that took place on April 10, 1992, were inadequate. The qualified nuclear engineer (QNE) involved in the September 18 event was also involved in procedural violations during the April 10 event when a control rod was mispositioned due to mechanical problems. The licensee took corrective actions to deal with the mechanical problem; however, the licensee failed to take corrective actions towards personnel failure to take required procedural mitigating actions in accordance with station procedures. This was an apparent violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action."

2. The station control room engineer (SCRE), nuclear station operator (NSO), and QNE failed to follow numerous Dresden Station procedure requirements. The most significant of these were: failure to take mitigating actions in accordance with Dresden Operating Abnormal Procedure (DOA) 300-12, "Mispositioned Control Rod," including the failure to immediately stop all rod movements, and the failure to take corrective action to insert the mispositioned rod to its full-in position; failure to establish the required second verification for control rod movements with the rod worth minimizer (RWM) rod blocks out of service; failure to obtain prior approvals from a senior reactor operator (SRO) for rod manipulation and load change; and the intentional failure to record and notify the appropriate personnel of the event. This was an apparent violation of Dresden Technical Specification (TS) 6.2.A.1 which requires implementation of plant operating procedures.

1.0 Introduction

On November 24, 1992, Dresden senior site management informed the NRC Region III office of a potential failure to report a control rod misposition event that had occurred on September 18, 1992. Initial information from the licensee indicated that five employees, both licensed and non-licensed, had knowledge of a control rod misposition event at the time of occurrence, but failed to report the event in accordance with site procedures. In response to the initial information, Region III management directed the Region III Operator Licensing Branch Chief to conduct a preliminary on-site assessment of the known facts the evening of November 24. That initial assessment concluded that the information provided by the licensee was reasonably accurate and that an unreported control rod misposition event had occurred on September 18. Several apparent violations of site procedures, 10 CFR Part 50, and/or plant technical specifications were identified.

On November 25, 1992, Commonwealth Edison's Chief Nuclear Operating Officer, Mr. M. J. Wallace, in a letter to Mr. A. B. Davis, Regional Administrator, Region III, described the licensee's immediate actions upon receipt of information that a control rod misposition event was intentionally not reported. That letter also described the licensee's planned follow up actions, which included senior management oversight and a special investigative task force.

1.1 Event Summary

On September 18, 1992, control rod movements were being performed to reduce the flow control line (FCL). At the time of the event, reactor power was about 85 percent and the FCL was at 103.7 percent. That combination resulted in high average power range monitor (APRM) alarms. In order to clear the high APRM alarms, the FCL was to be lowered by inserting control rods. Control rod insertion was being performed in accordance with "Special Instructions" (SI) prepared by a qualified QNE and approved by a licensed SRO. During the control rod movement sequence, a wrong control rod was inserted from its "full out" notch position 48 to notch position 36, a distance of about three feet of the twelve foot control rod length.

Contrary to procedural requirements, control rods continued to be inserted before taking corrective action for the mispositioned rod. The mispositioned rod was eventually restored to its "full out" position under the direction of the QNE. Five individuals were aware of the sequence of events concerning the mispositioned control rod; the station control room engineer (licensed SRO), the qualified nuclear engineer, the Unit 2 nuclear station operator (licensed reactor operator (RO)), and two nuclear engineers in-training. None of the five knowledgeable persons reported the control rod movement error as required by station procedures.

On November 23, 1992, a licensee first line supervisor overheard reference to a control rod misposition event during a conversation. Additional questioning and review of available records indicated to licensee first line supervision that a potential intentional failure to follow station reporting requirements had occurred. That information was reported to licensee senior management on the morning of November 24.

1.2 Special Inspection Team Formation

Subsequent to the notification of this event, the NRC Office of Investigation (OI) concluded that an immediate investigative effort was appropriate. The OI investigative report is an internal NRC document separate from this inspection report. Region III management determined that a special inspection team was warranted to support that investigation. The purpose of the team was to provide technical assistance to the investigative effort due to the seriousness of the apparent withholding of information concerning the September 18 control rod mispositioning event. On Friday, November 27, 1992, the special inspection team was formed consisting of the following personnel:

Team Members:
P. Hiland, R-III, Chief, DRP Section 1B
B. Siegel, NRR, Project Manager
H. Peterson, R-III, Operator License Examiner
F. Brush, R-III, Clinton Resident Inspector

The team arrived on site November 30, 1992.

1.3 Special Inspection Team Charter

A charter was formulated for the special inspection team and transmitted from E. G. Greenman, to P. L. Hiland on November 30, 1992, with copies to appropriate EDO, OI, NRR, AEOD, and RIII personnel (Attachment 1).

The special inspection team was terminated on December 31, 1992.

2.0 Sequence of Events (Charter Item 1)

A chronology of actions related to the rod mispositioning event on September 18, 1992, was assembled by the licensee. That chronology was used along with information from interviews, computer alarm typer printouts, and the control rod SI sheets to develop the following chronology of events:

NOTE: All times are in Central Standard Time (a.m.).
Asterisked times are approximate.

Initial Plant Conditions

Unit 2	699 MWe
Unit 3	762 MWe

TIME	EVENT
07:15*	The lead nuclear engineer (LNE) directed the QNE to reduce the flow control line by inserting peripheral control rods. The QNE, with two nuclear engineers in training (NEITs), proceeded to the control room.
07:25	The QNE and NEITs entered the control room.
07:31-07:56	Control rod arrays 8C1 (4 rods) and 8C2 (4 rods) inserted from full-out notch position 48 to full in notch position 00.
08:15-08:17	Four control rods from array 3 inserted to position 12.
08:17	Control rod H-1 selected to clear rod block monitor alarms.
08:17-09:45	Reactor power increased about 100 MWe using reactor recirculation flow. QNE filled out another control rod SI sheet to insert array 8D1.
09:49	The Unit 2 NSO inserted control rod H-1 from position 48 to position 36 by mistake. The QNE instructed and the NSO inserted array 8D1 (4 rods).
09:52*	The QNE informed the SCRE that the NSO had inserted a wrong rod.
09:53*	The QNE filled out an SI to insert control rod H-1, along with four other rods in array 5, to position 00.
09:57-10:05	The NSO inserted five rods from array 5 to position 00.
10:05-10:13*	The SCRE, NSO, QNE, and NEITs held a discussion in the Unit 2 back panel area.
10:13-10:16	The NSO, at the direction of the QNE, withdrew array 3 (4 rods) from position 12 to 48.
10:19-10:22	The NSO, at the direction of the QNE, inserted array 8D2 (4 rods) to position 00.
10:23	The NSO, at the direction of the QNE, withdrew two rods from array 5 to position 48.
10:26	The LNE entered the control room to provide guidance to the QNE concerning the number (too many) of peripheral control rods that had been inserted.
10:30*	QNE filled out SI sheets to insert arrays 10A1 and 10A2 from position 48 to position 20.

10:34-10:36 The NSO inserted arrays 10A1 and 10A2 to position 20.

10:38-10:42 The NSO withdrew the remaining rods in array 5 to position 48.

11:25 The LNE left the control room.

NOTE: The inspectors concluded that at least one of the SI sheets was signed by the SCRE subsequent to the rod adjustments. It was also concluded that the QNE made changes to at least one SI sheet without the SCRE's knowledge.

3.0 Special Inspection Team Review

3.1 Cause of the Rod Mispositioning Event

The September 18, 1992, rod mispositioning event was caused by personnel error on the part of the NSO and QNE. The initial mistakes were made by not following approved plant procedures; however, the subsequent actions to not report the event exhibited a lack of integrity from individuals knowledgeable of the event occurrence (SCRE, NSO, and QNE). The lack of management oversight by the Shift Engineer (SE), SCRE, and the LNE was also a contributing factor.

3.2 Initial Licensee Response

Upon becoming aware of the potential for an intentional failure to report the September 18 control rod mispositioning event, licensee management initiated steps to perform an investigation. In addition, the NRC Region III office was verbally informed of the event on November 24, 1992. On November 25, 1992, the licensee provided a letter (Attachment 2) from Commonwealth Edison's Chief Nuclear Operating Officer to the Region III Regional Administrator detailing both the immediate and planned actions in response to the event. As detailed in that correspondence, the licensee suspended the individuals involved while a licensee investigation was conducted. Licensee senior management initiated coverage on all shifts to communicate the event to all operations personnel, communicate and enforce management expectations, and provide oversight of the qualified nuclear engineers' activities. The licensee's special task force was provided a charter by the General Manager of BWR Nuclear Operations, and directed to perform an investigation into the September 18 control rod mispositioning event.

On December 3, 1992, the licensee provided a letter (Attachment 3) from Commonwealth Edison's Chief Nuclear Operating Officer to the Region III Regional Administrator summarizing the investigation into the control rod misposition event. The licensee concluded that inappropriate actions had been taken by five individuals in response to the September 18, 1992, control rod mispositioning event. As a result of that conclusion, one individual was suspended, and four other individuals were released from employment with Commonwealth Edison.

3.3 Event Safety Significance (Charter Item 2)

The inspectors conducted a detailed review of the data produced by the Powerplex computer system on September 18, 1992. The Powerplex computer system calculated the core thermal parameters as part of its function to monitor the fuel. A review of the reactor coolant and off gas radiological activity data for the month of September was also conducted. There were no fuel thermal limit violations, and no increases in radioactivity. The inspectors concluded that the September 18 control rod mispositioning event and subsequent rod manipulations did not cause nuclear safety limits to be approached.

3.4 Adequacy of Control Rod Movement Procedures (Charter Item 2)

The inspectors conducted a detailed review of the following control rod movement procedures: Dresden General Procedure (DGP) 03-04, Revision 17, "Control Rod Movements"; Dresden Administrative Procedure (DAP) 14-14, Revision 0, "Control Rod Sequences"; Dresden Operating Abnormal Procedure (DOA) 300-12, Revision 02, "Mispositioned Control Rod (W-2, W-3)"; and Dresden Technical Surveillance Procedure (DTS) 8231, Revision 02, "Returning Mispositioned Control Rod(s) To Their In-Sequence Position." The inspectors concluded that these procedures were technically adequate.

The inspectors also reviewed the flow control line instruction (FCLI) and SI sheets (DAP 14-14, forms 14-14B, 14-14C, and 14-14D) that were used to document the rod movements before and after the rod mispositioning event. The sheets delineating the control rod moves prior to the event were technically adequate; however, the SI sheets following the event did not reflect the movements that took place. The QNE filled in some of the SI sheets after the control rods had been moved, rather than obtaining prior approval by a licensed SRO as required by procedure. A review of the process computer alarm typer printouts confirmed that the rod movements on various SI sheets were not accomplished sequentially. Moreover, the control rod in question (rod H-1) was not delineated as a mispositioned rod on any of the FCLI or SI sheets.

3.5 Management Involvement in the September 18, 1992, Event (Charter Item 5)

Five individuals were directly involved with the rod mispositioning event, and the subsequent failure to report the incident. The individuals included the SCRE, the Unit 2 NSO, the QNE, and two NEITs. The SCRE (a licensed SRO) was the senior licensee manager directly involved with the event.

Other licensee management, either directly or indirectly involved were the shift engineer (SE) and the lead nuclear engineer (LNE). Both of these individuals had responsibility to monitor and direct performances of their subordinates. The LNE was directly involved with identifying the incorrect operations by the QNE for a similar incident on April 10, 1992. The QNE was reprimanded for improper rod manipulations following

the April 10 event. During the September 18 event the LNE identified that too many peripheral rods were inserted, and entered the control room to counsel the QNE. The LNE failed to bring this situation to upper management attention. The SE, who had the overall responsibility of the day shift on September 18, was unaware of the actions taken regarding control rod movements. The SE was present in the control room during the time of the September 18 event; however, the SE was unaware of activities being performed. This indicated a lack of management oversight to ensure proper performance and adherence to station procedures, and to assure safe plant operations.

3.6 Review of Procedural Compliance (Charter Item 3)

On September 18, 1992, the control room midnight shift was experiencing high average power range monitor (APRM) alarms due to the existing flow control line (FCL). The midnight shift SCRE obtained verbal control rod adjustment instructions from the lead nuclear engineer (LNE) to insert several peripheral control rods in an attempt to reduce the FCL. Those rod adjustments were made; however, the APRM alarms did not clear.

At about 7:15 a.m. on September 18, the LNE instructed the qualified nuclear engineer (QNE) to perform additional FCL rod adjustments. The QNE then proceeded to the control room with two NEITs and prepared a set of "Special Instructions," forms 14-14C and 14-14D from Dresden Administrative Procedure (DAP) 14-14, "Flow Control Line Instructions."

The initial set of special instructions (SI) were approved by the day-shift SCRE. At about 7:30 a.m., with the approval of the SCRE, the Unit 2 day shift NSO initiated FCL rod adjustments in accordance with QNE instructions. During the initial rod manipulation, the utility reactor operator was utilized as a "second verifier." At the time of control rod manipulations, the rod worth minimizer (RWM) rod blocks were bypassed. Therefore, a second verifier for rod movement was required in accordance with Dresden General Procedure (DGP) 03-04, "Control Rod Movements," and Dresden Operating Procedure (DOP) 0400-02, "Rod Worth Minimizer." At 8:17 a.m. the Unit 2 NSO stopped rod insertion after partially completing one page in a series of SIs, and the second verifier left the Unit 2 control panel area. The Unit 2 NSO selected edge control rod H-1 to bypass the rod block monitor (RBM) inputs; this was a station routine practice.

At 9:49 a.m. the NSO recommenced rod insertions and mistakenly inserted control rod H-1 from full-out notch position 48 to notch position 36. Control rod H-1 was not included in the original approved SIs. The NSO inserted the incorrect rod (H-1) without an approved or written rod insertion instruction, and without a second verifier for rod manipulations as required by Dresden General Procedure (DGP) 03-04, "Control Rod Movements," and Dresden Operating Procedure, DOP 0400-02, "Rod Worth Minimizer." Dresden Technical Specifications 6.2.A.1 states the applicable procedures recommended in Appendix A of Regulatory Guide 1.33, Revision 2 dated February 1978, shall be established, implemented, and maintained. Regulatory Guide 1.33 Appendix A.1.c. included

administrative procedures, general plant operating procedures, and procedures for startup, operation, and shutdown of safety related systems. Failure of the NSO and the QNE to adequately perform the required second verification was an example of an apparent violation of approved procedures (92033-01a/50-237, 249 (DRP)).

At the time of initial event occurrence, the QNE recognized the error and informed the NSO. It was apparent from the action taken to stop rod insertion that the NSO also recognized the error. Upon recognition of the control rod mispositioning, the NSO was required to take mitigating actions in accordance with Dresden Operating Abnormal Procedure (DOA) 300-12, "Mispositioned Control Rod." DOA 300-12 section C.2, immediate operator actions, required that the NSO discontinue all control rod movement and recirculation flow increases. Subsequent corrective action was delineated in DOA 300-12, section D.2.a.(1); "IF a single control rod is inserted greater than one even notch from its in-sequence position, THEN continuously insert the mispositioned control rod to position 00." The NSO failed to take the required corrective action and took unapproved directions from the QNE to insert two additional arrays of control rods in an attempt to recover the correct rod sequence. Failure of the NSO to discontinue control rod movements and insert the mispositioned control rod to its fully inserted position was an example of an apparent violation of approved procedures (92033-01b/50-237, 249 (DRP)).

The NSO failed to adequately perform any portion of the abnormal procedure for a mispositioned control rod, DOA 300-12. Additional required operator actions that were not performed by the NSO included, notifying supervisors, logging the event in the NSO operating logs, and monitoring Off-Gas release for possible fuel damage. The NSO and QNE continued to correct the rod configuration, and by 12:00 noon the NSO indicated in the operating log that FCL adjustments were completed. There was no mention of any problems associated with the rod manipulations, a significant load increase, or the existence of a mispositioned control rod in the NSO log. Failure to take additional required corrective action per DOA 300-12 and the failure of the NSO to properly document required Unit log entries was an example of an apparent violation of approved procedures (92033-01c/50-237,249 (DRP)).

After the initial rod mispositioning, the NSO took immediate action (within less than fifty seconds) and inserted control rod array 8D1 from position 48 to 06, contrary to the required immediate action to stop all rod motion. This array of rods was apparently part of the approved SIs; however, it was performed out of sequence from the original FCL plan. It was not part of the same SI which was partially completed at 8:17 a.m.. The NSO and QNE proceeded to further manipulate the control rod configuration to correct the Unit 2 rod sequence without prior SCRE approval. The SCRE and the NSO failed to adequately perform their duties and responsibilities in accordance with DAP 07-29, "Reactivity Management Controls." This was an example of an apparent violation of approved procedures (92033-01d/50-237, 249 (DRP)).

The QNE directed the NSO to insert a second array (array 5) of five control rods from position 48 to 00, this included the initially mispositioned rod H-1 being inserted from position 36 to 00. This action was directed by the QNE to the Unit 2 NSO without written or approved instructions from a licensed SRO. The QNE did not develop or have the SCRE review and approve this rod sequence change SI until after the rod manipulation had been completed. The rod manipulation, a licensed activity, was not directed by the SE or the SCRE as required by DAP 07-01, "Operations Department Organization." Directing licensed activity by a non-licensed individual, i.e. the QNE, without prior SRO approval was an example of an apparent violation of approved procedures (1) (92033-01e1/50-237, 249 (DRP)).

The inspectors noted that an increase in reactor recirculation flow was performed between 8:30 and 10:40 a.m.. The flow increase resulted in a load increase of about 100 Mwe, 12% reactor power. As stated during interviews, the on-duty SCRE and SE were unaware of this load increase. The inspectors concluded that this load change was performed without prior knowledge or approval by an SRO licensed individual. This was an example of an apparent violation of approved procedures (92033-01e2/50-237, 249 (DRP)).

Following the completion of the rod sequence manipulation, the SCRE reprimanded the individuals involved, this included the NSO, QNE, and two NEITs. During discussions with these individuals, the SCRE emphasized the need to slow down, reduce levity in the control room, prevent personnel from getting into trouble, and stated this event was not going to leave the control room.

3.7 Previous Events (Charter Item 13)

The inspectors reviewed information on past events of a similar nature to that of the September 18 event. Two previous events, April 10 and May 12, 1992, were noted as potential concerns. Both events were identified and reported in accordance with the licensee's deviation report program (DVR).

The May 12 event occurred on Unit 3 during a planned reactor shutdown. Control rods were being inserted in accordance with unit shutdown procedures and the control rod sequence package. The Unit 3 NSO incorrectly inserted control rod C-5 from position 12 to position 8. This rod was inserted out of sequence, and the appropriate control rod was G-5. A mispositioned control rod was identified and procedure DOA 300-12 was implemented. The NSO immediately stopped all rod movements, entered DOA 300-12, and performed the required subsequent action by inserting the mispositioned control rod to position 00. After a review of this event, the inspectors concluded that appropriate corrective actions were taken.

The April 10, 1992, event occurred on Unit 2 during a control rod sequence adjustment to increase the FCL. Control Rod M-4 was being inserted from position 16 to position 14, when the rod "triple-notched" and inserted to position 10. Under the QNE's direction, the NSO continued to insert control rods (rod M-12) and then withdrew Control Rod M-4 from position 10 to position 14. Subsequently, the rod sequence configuration was corrected.

The licensee identified that Control Rod M-4 was mispositioned; however, corrective actions described in Deviation Report (DVR) 12-2-92-64 concentrated on the mechanical problem associated with the root cause of the control rod triple-notch. Although the control rod drive hydraulic (CRDH) drive water pressure was normal (280 psi over reactor pressure), there was a mechanical problem in the insert speed control valve (valve 123) causing drive speed to be too fast. The inspectors concluded the licensee took corrective actions for the mechanical problem; however, the immediate actions and operator response to the mispositioned control rod were not in accordance with approved plant procedures.

The operators did not take the mitigating actions in accordance with DOA 300-12, "Mispositioned Control Rod." Control Rod M-4 was mispositioned greater than one even notch, and the procedure required subsequent action to insert the affected rod to position 00. The NSO failed to perform the required action and withdrew the rod to position 14. This was an example of an apparent violation of approved procedure (92033-02a/50-237, 249 (DRP)).

In addition, the QNE directed the NSO to withdraw the mispositioned rod without SRO approval. The SE and/or SCRE were designated to direct licensed activities as required by DAP 07-01, "Operations Department Organization." Directing control rod movement without a senior operating license was an example of an apparent violation of approval procedures (92033-02b/50-237, 249 (DRP)).

For the April 10 event, the licensee identified the abnormal plant condition (mispositioned control rod), but did not identify the failure to implement required procedural corrective actions. The licensee concentrated on the mechanical problem with the CRD system, and failed to implement corrective actions to assure response to future mispositioned control rods was in accordance with plant procedures. This was an apparent violation of 10 CFR 50 Appendix B, Criteria XVI, "Corrective Action," (92033-02/50-237, 249 (DRP)).

3.8 Reportability Requirements of 10 CFR 50.72 and 50.73 (Charter Item 4)

After reviewing the requirements of 10 CFR 50.72 and 50.73, the inspectors determined that the September 18, 1992, control rod mispositioning event was not reportable to the NRC.

3.9 Station Personnel Attitude and External Pressure (Charter Items 7, 11, & 13)

The inspection team interviewed over thirty station personnel. The spectrum of personnel interviewed included nuclear engineers, mechanics, quality control inspectors, senior reactor operators, reactor operators, nuclear engineers in-training, first line supervisors, training supervisors, unit operating engineers, technical staff engineers, equipment operators, and radiation protection technicians.

The following observations were made by the inspection team:

- Although there was not a specific training module to emphasize reporting of errors or deficiencies, it appeared that it was emphasized during tailgate (informal work group discussions) sessions on past events and during the normal course of performing duties by first line management.

- The impression obtained from the interviews was that management was not stressing operations over safety, and that personnel believed management expected errors and deficiencies to be promptly reported.

- There was a concern among workers that additional layoffs could occur, or the Dresden Station could be shut down in response to company financial concerns.

- The performance of marginal workers was believed to have improved because of the fear of layoffs, and that performance, not seniority, would be the basis for retention.

- Although Dresden Station had a disciplinary policy, there was a concern among workers that it was not applied in a consistent manner.

- Communication between workers in different disciplines was believed to be improved over the past year.

- Although general training was held on the use of the new problem identification form (PIF), which was part of a new integrated reporting program, some workers thought more specific follow up training was needed for everyone to be comfortable with its use. Some workers interviewed had not received PIF training.

- Most personnel thought the PIF was a significant improvement over the old system, Deviation Report (DVR), and it was simpler and worked reasonably well, considering it had only been in effect 3 months.

- Those that had used the PIF were encouraged by the fact that prompt responses were received, and corrective actions were initiated if the issue was approved.

- Most of those interviewed believed Dresden's performance over the past twelve months had improved, but that it still had a long way to go.

- Some individuals believed there were still a small number of employees that had an "attitude problem."

From interviews and general observation, it was apparent that a feeling of apprehension had influenced Dresden personnel in the performance of their duties. Plant management had distributed memorandums and conducted presentations to inform plant personnel that making a mistake did not result in employment termination; however, some negative impressions remained following management corrective action to the September 18 event.

There was external pressure on Dresden station employees, both staff and management. Although the external pressures had increased (Commonwealth Edison Corporate and the NRC) due to Dresden's performance, it was not perceived as necessarily excessive. The added attention by the NRC was believed appropriate for declining performance.

3.10 Licensee Investigation of September 18, 1992, Event (Charter Item 8)

Based on the inspection team's review of the licensee's investigation, the licensee's report required more detail. That report did not include specifics associated with the violations of plant procedures, technical specifications, or 10 CFR regulations. The licensee did identify incorrect actions which were taken by the individuals involved in the event; however, the actions were only identified as "inappropriate actions." Undoubtedly, these inappropriate actions were the failure to follow existing plant procedures. The report failed to elevate the significance of this event, rather it appeared to minimize the deliberate lack of following station procedures (abnormal, general, and operating), and the deliberate misconduct of operators to conceal their error. The personnel actions to conceal the event exhibited a lack of integrity.

The licensee's root cause determination of the inappropriate actions were stipulated as "personnel errors." It was true that personnel error initiated the event; however, the lack of management oversight by the SE, SCRE, and LNE was also a contributing factor.

3.11 Crew Briefings and Corrective Action (Charter Items 9 & 10)

During the interviews discussed in Paragraph 3.9, licensee personnel were questioned regarding the extent they were briefed or informed of the September 18, 1992, rod mispositioning event. In general, personnel interviewed were aware of the event. All of the employees present at Dresden the week of November 23 were informed through tailgate sessions and/or the station manager's November 24 "Urgent Notice." Because of

the Thanksgiving holiday, many employees were not at the site the latter part of the week and did not find out about the event until Monday, November 30, 1992. Those employees found out through a combination of tailgate sessions, the station manager's "Urgent Notice," and/or word of mouth upon return to work.

Following completion of licensee's special task group investigation on December 2, 1992, a follow up letter from the Station Manager to Dresden workers, dated December 2, 1992, was distributed to all employees entering or leaving that day after 2:00 p.m. This letter contained a summary of the licensee's task group findings and the actions taken against the five individuals involved. In addition, the Station Manager personally conducted a series of meetings with station employees. One member of the inspection team observed a meeting on December 2 which was attended primarily by the operations staff. The Station Manager's presentation was an expansion of the December 2 letter. It emphasized the reason for dismissal was not for the control rod mispositioning error, but was due to the lack of ethics and integrity. Employees were asked for their comments following the formal presentation, and several candid questions were asked related to the personnel actions taken and disciplinary actions related to mispositioning control rod errors in general. The Assistant Superintendent for Operations also gave a short presentation emphasizing the need to continue with the work at hand.

The inspection team concluded that not only operating crews, but all station employees, had been and were being adequately informed about this event through a combination of meetings, tailgate sessions, and station management lectures.

3.12 Personnel Qualifications and Shift Staffing Levels (Charter Items 6 & 12)

The inspectors reviewed the training records for the lead nuclear engineer and the qualified nuclear engineer on duty September 18, 1992. The records were found to be complete; however, the nuclear engineer training program was not definitive in all of its requirements which permitted some interpretation by the person performing the training.

The inspectors interviewed several Dresden station qualified nuclear engineers on December 4, 1992. The purpose of the interviews was to evaluate the technical knowledge of the qualified nuclear engineers. Based on the response to a prepared set of technical questions, the inspectors concluded that the individuals were knowledgeable of the field of nuclear engineering as it would pertain to the duties of a station nuclear engineer. The involvement of engineering in the training of qualified nuclear engineers appeared adequate. The inspectors noted that the nuclear engineer's qualification program implementing procedures were under revision at the time of the inspection.

On September 18, 1992, the Dresden operating shift staffing was adequately maintained and no overtime guidelines were exceeded. The inspection team noted that numerous operators routinely worked overtime hours, but did not exceed any of the overtime limits, i.e. 16 hours in a 24 hour period, 24 hours in a 48 hour period, or 72 hours in a seven day period. At Dresden, the operating crews consisted of four SRO licensed operators (SE, SCRE, Unit 2 Shift Supervisor, and Unit 3 Shift Supervisor) and four RO licensed operators (Unit 2 NSO, Unit 3 NSO, Center Desk RO, and Utility RO). The NRC Operator Licensing Section evaluated qualifications of the Dresden licensed operators on a periodic basis. The evaluations were made utilizing both the initial license and the requalification examination processes. Through these examinations the competency of licensed operators and adequacy of the licensee's training program was determined. Based on two previous requalification examinations, the Dresden training program and its licensed operators were evaluated to be adequate. However, there were several identified weaknesses, including plant communications, Emergency Operating Procedure utilization, and operator knowledge of administrative topics. The latter concern was addressed during the July 1992 license operator exam, when the licensee initially indicated to the NRC that administrative topics were not crucial, and that referencing procedures was expected.

The licensee initially challenged the NRC on several exam questions related to administrative topics. After some conversation and correspondence with the licensee, the Dresden Station management acknowledged that "In order for operators to perform their job in a safe and error free manner, knowledge of Dresden Administrative Procedures (DAPs) is a necessary requirement," (ref. licensee letter from T. J. Kovach to USNRC dated September 30, 1992). The licensee indicated that training was to be provided to enhance overall awareness of administrative procedures to the members of the operating department.

3.13 Licensee's Long Term Corrective Action (Charter Item 9)

On December 10, 1992, the licensee discussed with Region III management the intended long term action plan for the September 18 control rod mispositioning event. That action plan included the following attributes: Communicate the details of the event to all nuclear station employees; develop a clear interface between the qualified nuclear engineers and licensed operators; evaluate the nuclear engineer training program; develop a corporate policy on expectations for integrity; initiate action to reduce further control rod mispositioning events; evaluate the general employee training program with regard to the subject event; and define responsibility for independent verification of control rod movement.

4.0 Conclusions

After completing the charter, the team was able to make the following conclusions:

- The control rod positioning error did not cause any nuclear safety limit to be approached.
- The control rod mispositioning itself was not reportable to the NRC; however, it was required to be reported to licensee's upper management in accordance with station procedures.
- There was apparent deliberate misconduct by the individuals involved.
- Several apparent violations of station approved procedures and NRC requirements were identified.
- Licensee short term corrective action for this event appears adequate; however, long term corrective actions will require further assessment as it is implemented.

5.0 Exit Interview

The team met with licensee representatives (denoted in Attachment 4) in an exit meeting on August 26, 1993, and summarized the purpose, Special Inspection Team charter items, and findings of the inspection. The team discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the team during the inspection. The licensee did not identify any such documents or processes as proprietary.

ATTACHMENT 4

Personnel Contacted

Commonwealth Edison Company (CECo)

* M. Lyster, Site Vice President
* G. Spedl, Dresden Station Manager
* C. W. Schroeder, Former Dresden Station Manager
  G. Smith, Assistant Superintendent Operation
  D. Elias, Safety Review and Analysis Manager
* T. Rieck, Nuclear Fuel Services Manager
  R. Flessner, Safety Programs Director - SR&A
  M. Healy, counsel to CECo, Newman & Holtzinger
  J. Gutierrez, counsel to CECo, Newman & Holtzinger
* D. Ambler, Executive Assistant to the Site Vice President
* L. Ciuffini, Reactor Operator
* A. D'Antonio, Site Quality Verification Supervisor
* M. Falcone, Nuclear Operations Staff
* R. Flahive, Technical Services Superintendent
* B. Gurley, NRC Coordinator
* N. Kauffman, Human Resource Supervisor
* J. Kotowski, Operations Manager
* S. Lawson, Operating Engineer
* R. Mitzel, Shift Engineer
* J. Paczolt, Dresden Reactor Operator
* K. Peterman, Work Planning
* G. Piccard, Dresden System Engineer
* P. Piet, Licensing Administrator
* S. Reece-Koenig, Performance Assistant Administrator
* J. Shields, Regulatory Assurance Supervisor
* R. Weidner, Dresden Training Supervisor

Nuclear Regulatory Commission (NRC)

* J. Martin, Regional Administrator, RIII
* T. Martin, Deputy Director, Division of Reactor Projects, RIII
* P. Hiland, Chief, Reactor Projects Section 1B, RIII
* F. Brush, Resident Inspector, Clinton
* H. Peterson, Senior Resident Inspector, Byron
* M. Leach, Senior Resident Inspector, Dresden
  R. Anderson, Investigator, Office of Investigation NRC Region III
  J. Ulie, Investigator, Office of Investigation NRC Region III
  B. Clayton, Branch Chief, Division of Reactor Projects Branch 1
  W. Rogers, Senior Resident Inspector, Dresden Station
  M. Peck, Resident Inspector, Dresden Station
* A. Stone, Resident Inspector, Dresden Station

Illinois Department of Nuclear Safety

* R. Zuffa, Resident Engineer, IDNS

* Indicated persons at the exit interview on August 26, 1993.