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ILLINOIS POWER COMPANY



CLINTON POWER STATION, P.O. BOX 678, CLINTON, ILLINOIS 61727

February 12, 1990

Docket No. 50-461

Mr. A. B. Davis
Regional Administrator
Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Subject: Response to the Notices of Violation in NRC
Inspection Report 50-461/89037 dated January 12, 1990

Dear Mr. Davis:

This letter provides the Illinois Power Company (IP) response to the Notices of Violation in the Nuclear Regulatory Commission (NRC) Inspection Report 50-461/89037. The Notices of Violation concern the failure to adequately survey and post a High Radiation Area. Attachment A addresses both Notices of Violation.

IP recognizes the severity of this event and believes that the information contained in this letter adequately responds to the Notices of Violation. IP will discuss this event in detail at the February 28, 1990, meeting between members of your staff and IP.

Sincerely yours,

F. A. Spangenberg, III
Manager - Licensing and Safety

JAB/krm

Attachment

cc: NRC Clinton Licensing Project Manager
NRC Resident Office
Illinois Department of Nuclear Safety

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Attachment A
Response to the Notices of Violation
in Inspection Report 50-461/89037

The Notices of Violation state in part:

"...on December 5, 1989, two carpenters were allowed to enter a high radiation area to erect scaffolding before a comprehensive radiation survey was made of the area...

...on December 4, 1989, the WE filter pit was not posted as a High Radiation Area even though it contained general area radiation levels of 800 mr/hr."

I. Background and Cause of the Violations

On November 28, 1989, a Radiation Work Permit (RWP) was initiated to specify and establish the radiological controls for breaching the Equipment Drain Processing System (WE) filter C (OWE-01FC). The RWP specified the work to be performed as remove and inspect the WE filter C tube bundle. The RWP was approved and issued to remove the three piece shield plug to allow access to the pit where the filter is located. The RWP specified that survey data on the filter would be obtained after the shield plug was removed.

On December 4, 1989, the three-piece shield plug was removed to gain access to the filter pit, after which a survey of the filter pit was performed by a Radiation Protection Technician (RPT). The RPT used a teletector probe which produced a survey of only the top eight feet of the pit. The RPT verbally reported to the Radiation Protection Shift Supervisor (RPSS) that the exposure rate in the surveyed areas of the filter pit was less than 2 millirem/hour. The pit was not required to be posted as a radiation area since the measured exposure rate was so low. This exposure rate was not challenged by the on-duty RPSS even though significant radiation fields had been experienced on previous entries into WE filter pits. No entry was made into the WE filter pit on day shift December 4, 1989, due to a discrepancy with Site Safety Standard (SSS) #8, Confined Space Entry. The discrepancy with SSS #8 was resolved and, after receiving negative results from a sample for industrial gases, the pit was cleared for entry on the second shift.

On December 5, 1989, two carpenters asked the on-duty RPT if they could sign onto the RWP so they could enter the pit to erect scaffolding. The on-duty RPT noted that the RWP had been issued and asked the carpenters if they had any questions. He then offered a copy of the RWP to the carpenter's foreman and issued a personnel time record (PTR) to the carpenters permitting them to enter the pit. The carpenters acknowledged by initialling on the PTR that they had reviewed the survey data even though the RWP contained no survey data. At 0830 hours, the carpenters entered the pit to erect scaffolding. Upon exiting the filter pit, the carpenters read their pocket dosimeters (PDs) for the first time since entry into the pit. Recognizing an unexpectedly high PD readings they notified the Radiation Protection (RP) office.

Immediately upon being notified of the high PD readings, RP management suspended all work in the filter pit, initiated a detailed radiation survey of the filter pit and, pending investigation, suspended the carpenters' access to the radiological controlled area. The detailed radiation survey confirmed the pocket dosimeter readings. Upon receipt

Attachment A
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in Inspection Report 50-461/89037

of this confirmation, the filter pit was posted as a High Radiation Area, the carpenters' thermoluminescent dosimeters (TLDs) were submitted for rush processing, their dose margins were verified, and the operability of their pocket dosimeters and the teletector used on December 4, 1989, was also verified. Additionally, all RWPs without current survey data were suspended. RP management also requested that the on-duty radwaste supervisor reverify the WE system tagout to verify that the unexpectedly high PD readings were not the result of an inadequate system tagout.

A critique of this event was conducted by an RP supervisor who did not have line responsibility for this activity. The critique identified the root causes of this event to be the inadequate radiological survey of the filter pit, the improper authorization to perform radiological work and the inadequate supervision of these activities by RP supervision. Contributing factors were determined to be: the RPT failed to recognize the filter pit internal area had not been adequately surveyed and the RP shift supervisors and RPTs failed to discuss the status of pit surveys during shift turnovers. In addition, the carpenters signed on the PTR, acknowledging that they had reviewed the survey data even though no survey data was included on the RWP.

Inadvertent entry into the pit during this event by unauthorized personnel was unlikely because, to reach the mezzanine where the pit is located, a portable ladder must be retrieved and erected. A ladder and scaffold must be used to descend into the pit. When work is not in progress, the ladder is removed from the pit.

II. Corrective Actions Taken and Results Achieved

In December 1989, the Directors of Plant Radiation Protection and Plant Maintenance conducted training for mechanical maintenance and contractor personnel on this event. Specifically, that if the carpenters had checked their PDs frequently, this event would have been mitigated. The training also included other lessons learned and briefings of other exposure incidents at other plants in an effort to increase worker awareness of unplanned exposures. Since August 1989, RP management has been briefing maintenance and RP personnel on all unplanned exposure incidents in the U.S. nuclear industry.

During the detailed survey of the filter pit the 2 millirem/hour reading could not be reproduced. Therefore, the dose rate measurement qualifications of the RPT who performed the survey immediately after the plug was removed were revoked until retraining and recertification was completed. Additionally, the RPT's dose rate measurement activities will be directly supervised for a period of one month.

RPTs who issue the RWPs for work have been provided with a method of visually identifying RWPs for which changing radiological conditions are expected due to the nature of the work to be performed. In addition, a work instruction that provides guidelines on the conduct of pre-job briefings has been issued to RPTs. This instruction will ensure that briefings are conducted based upon current survey data and that the

Attachment A
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in Inspection Report 50-461/89037

survey is representative of the work to be performed. Issuing the RWP PTR is dependent upon completion of the briefing.

III. Corrective Actions to Prevent Recurrence

The carpenters who were involved in this event, and all personnel with access to the protected area, will receive a written reminder emphasizing that checking personal dosimetry frequently is important and that initialling a PTR indicates that survey data has been reviewed. This action will be completed by February 15, 1990.

Radiation Worker Training (RWT) will be revised to include the lessons learned from this event. (RWT is revised periodically to include exposure incidents in the U.S. nuclear industry.) The revision will specifically address that each individual is responsible for reviewing the survey data on an RWP prior to initialling the PTR and that PDs must be checked periodically to ensure prompt identification of an unexpected radiological condition and to prevent overexposure. This action will be completed by March 30, 1990.

The WE filter C pit shield plug has been posted with a sign stating "High Radiation Area-Contact RP Prior to Entry". Also, a review was completed to ensure that shield plugs which can be removed by the use of rigging are posted as above.

Routine tasks with a potential for significant radiation exposure will be conducted in accordance with Radiological Work Plans. The plans will include expected radiological conditions (based on historical information), a brief description of the task, suggested protective requirements and appropriate radiological hold points. The work plan for the removal and inspection of the WE filter tube bundle, including shield plug removal, will be completed by March 30, 1990.

In 1990, RP management instituted a worker awareness initiative to encourage personnel to look at their pocket dosimeters frequently. Unannounced interviews with personnel in the Radiologically Controlled Area (RCA) will be conducted by RP personnel and plant directors on a periodic basis.

An independent assessment was performed on the radiological operations section, including RPT training review, work control evaluation, adequacy of RP field coverage and radiological operations supervision.

The Supervisor - Radiological Operations is providing on-the-job training for the RP Shift Supervisors on an individual basis in order to identify their weaknesses and strengthen their supervisory skills. The RP Shift Supervisors will approve issuance of RWPs only after consulting historical data and ensuring appropriate hold points are included in the RWP. RWPs will only be approved for closure after an RPSS verifies that hold points were signed by an RPSS. The turnover process has been formalized and RP Shift Supervisors have been instructed to take whatever time is necessary to ensure a complete turnover of ongoing jobs. Prior to December 1991, those personnel who currently are RP

Attachment A
Response to the Notices of Violation
in Inspection Report 50-461/89037

Shift Supervisors will attend extended systems training in order to improve their plant knowledge.

The personnel involved in this incident were made aware of these crucial failures during the course of critiquing and counselling.

Prior to the next scheduled plant outage (PO-3), maintenance and contractor personnel performing or supervising maintenance activities in the RCA will attend a formal briefing which will detail all of the lessons learned and the corrective actions being taken to preclude recurrence of this event.

IV. Date When Full Compliance Will Be Achieved

Illinois Power Company will be in full compliance upon the implementation of the Radiological Work Plans and incorporation of this event into Radiological Worker Training by March 30, 1990.