

PHILADELPHIA ELECTRIC COMPANY

LIMERICK GENERATING STATION

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SANATOGA, PA 19464-2300

(215) 327-1200, EXT. 3000

DAVID R. HELWIG  
VICE PRESIDENT  
LIMERICK GENERATING STATION

December 28, 1992

Docket No. 50-352  
License No. NPF-39

Director, Office of Enforcement  
U.S. Nuclear Regulatory Commission  
ATTN: Document Control Desk  
Washington, DC 20555

SUBJECT: Limerick Generating Station, Unit 1  
Response to a Notice of Violation and  
Payment of Civil Penalty  
EA 92-179

Attached is Philadelphia Electric Company's response to a  
Notice of Violation for Limerick Generating Station (LGS), Unit  
1, which was contained in your letter dated November 25, 1992.

The cited violations involved the failure to perform adequate  
radiation surveys and the failure to adequately inform the work  
crews of the radiological conditions in all portions of the  
drywell. The attachment to this letter provides a restatement of  
the violations followed by our response. A check in the amount  
of \$62,500 in payment for the civil penalty is enclosed.

If you have any questions or require additional information,  
please contact us.

Very truly yours,

*DR Helwig*

JLP:cah

050003

Enclosures

Attachment

cc: T. T. Martin, Administrator, Region I, USNRC, w/Attachments  
T. J. Kenny, USNRC Senior Resident Inspector, LGS, w/Attachments

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PDR ADOCK 05000352  
Q PDR

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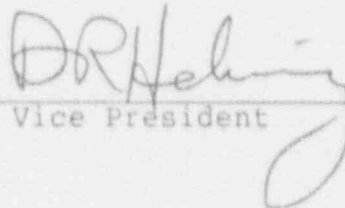
COMMONWEALTH OF PENNSYLVANIA :

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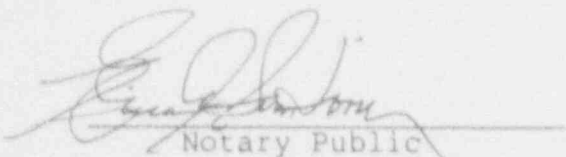
COUNTRY OF CHESTER :

D. R. Helwig, being first duly sworn, deposes and says:

That he is Vice President of Philadelphia Electric Company; that he has read the response to the Notice of Violation concerning inadequate radiation surveys and inadequate radiation condition notification, and knows the contents thereof; and that the statements and matters set forth therein are true and correct to the best of his knowledge, information, and belief.

  
Vice President

Subscribed and sworn to  
before me this *28<sup>th</sup>* day  
of *December* 1992.

  
Notary Public

Notarial Seal  
Erica A. Santon, Notary Public  
Tuckertown Twp., Chester County  
My Commission Expires July 10, 1995

Reply to a Notice of Violation

Violation A

Restatement of the Violation

10 CFR 20.201(b) requires that each licensee make such surveys as may be necessary to comply with the requirements of 10 CFR Part 20 and which are reasonable under the circumstances to evaluate the extent of radiation hazards may be present. As defined in 10 CFR 20.201(a), "survey" means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions.

Contrary to the above, on July 8, 1992, the licensee did not make adequate radiation surveys to assure compliance with the part of 10 CFR 20.101 that limits the radiation exposure to the whole body and the skin of the whole body. Specifically, during the drywell entry to the 303 foot elevation individuals moved to and worked in a restricted area on the 296 foot elevation that had not been surveyed. Further, during a subsequent drywell entry on the 296 foot elevation, the licensee failed to identify and evaluate the extent of the radiation hazard associated with a beam of radiation located in close proximity to workers who were repairing a main steam line sample isolation valve (HV-041-1F084). The beam exhibited radiation levels in the work area readily accessible to personnel ranging from about 3 roentgens per hour (R/hr) to about 25 R/hr, and created a substantial potential for the workers to receive exposures in excess of 10 CFR 20.101(a) limits.

Response

Admission of Violation

Philadelphia Electric Company (PECo) acknowledges the violation.

Reason for the Violation

The reasons for the lack of a survey for the work performed on the 296 foot elevation on July 8, 1992, is discussed in the response to Violation B.

The reasons for not identifying and evaluating the extent of the radiation hazard associated with the beam of radiation is discussed below.

On July 9, 1992, a control rod pattern change was performed while all personnel were out of the drywell. The new pattern caused the axial power to increase and spread to a wider location in the core. The unique geometry of the control rods, the resulting axial power, the penetration associated in this event, and positioning of equipment in the drywell combined to focus a stream of radiation into a small beam. The detection of the radiation beam was missed during the escort survey performed by the health physics technician because of the small area affected. The lack of clear communication between Health Physics and work groups and lack of a specific procedure to control work in the drywell with the reactor at power were contributing factors.

#### Corrective Action and Results Achieved

On July 9, 1992, a detailed radiation survey identified a small radiation beam following the alarming of a digital dosimeter on a maintenance technician who was standing at a junction box on the 296 foot elevation of the drywell. Work groups were accompanied by Health Physics personnel to prevent entry into the beam during subsequent entries into the drywell.

#### Corrective Actions Taken to Avoid Future Non-Compliance

A root cause analysis was performed by the Independent Safety Engineering Group (ISEG) to identify the cause of the beam and corrective actions needed to prevent a similar unplanned exposure. A subsequent root cause analysis identified broader corrective actions.

A procedure will be issued to provide specific controls for work in the drywell with the reactor at power prior to any occasion for its use. The procedure will specify control of reactor power level and other pertinent plant startup activities. Specific guidance on survey techniques and instruments for detecting similar situations has been incorporated into Health Physics continuing training and will be included in the procedure being developed. All known or expected sources of streaming will be posted or shielded as appropriate to minimize the potential for personnel exposure.

#### Date When Full Compliance was Achieved

Full compliance was achieved on July 9, 1992, when a detailed radiation survey of the 296 foot elevation was completed.

Reply to a Notice of Violation

Violation B

Restatement of the Violation

10 CFR 19.12 requires, in part, that all individuals working in any portion of a restricted area be informed of the radiation in such portions of the restricted area and instructed in the precautions and procedures to minimize exposure to radiation.

Contrary to the above, on July 8, 1992, individuals who were working in a restricted area in the Unit 1 drywell had not been instructed in precautions and procedures to minimize their exposure to radiation. Specifically, workers repairing a main steam line sample isolation valve (HV-041-1F084) were not adequately instructed to remain in their work area on the 303 foot elevation and contact radiological controls personnel prior to moving to other work locations. As a result, the workers entered a work location on the 296 foot elevation of the drywell which had an unrecognized radiation beam with radiation dose rates of between 3 R/hr and 25 R/hr that was readily accessible to the workers. In addition, individuals who worked at the 296 foot elevation had not been informed of the radiation in the portion of the restricted area. As a result, the workers unknowingly entered and worked in general area radiation fields at least 6 times those which were present at their original work location on the 303 foot elevation.

Response

Admission of Violation

Philadelphia Electric Company acknowledges the violation.

Reason for the Violation

The Radiation Work Permit (RWP) for the July 8, 1992 drywell entry was specifically written for the 303 foot elevation. The ALARA pre-job briefing performed on July 8, 1992 stated that Health Physics approval was required prior to moving to a new work location, but the workers did not recognize that their movement constituted a change of work location because of the short distance to the junction box. The lack of clear communications between health physics technicians and the work group caused this violation.



This incident is indicative of less than adequate corrective actions from a previous radiological event that occurred in the Refuel Floor Transfer Canal. The corrective actions for this earlier event had been applied to the specific work group involved and did not include the station maintenance staff.

#### Corrective Actions and Results Achieved

While reviewing the workers' exposures indicated on the self reading dosimeters immediately after exiting the drywell on July 8, 1992, the Health Physics technician noticed that one of the workers had a slightly elevated exposure compared to the other workers. The Health Physics technician questioned the workers and discovered that the individual had left the work location specified by the RWP. The health physics technician immediately counseled the worker at the job site. The worker indicated that he would strictly adhere to all RWP requirements in the future.

#### Corrective Actions Taken to Avoid Future Non-Compliance

Health Physics, Operations, Maintenance, and Technical staff continuing training will include a discussion of the lessons learned from the investigation of this incidence, a review of the incident, and a discussion of communication elements needed for a good pre-job briefing.

In preparation for the upcoming refueling outage on Limerick Generating Station Unit 2, a training program for plant workers will be conducted to enhance their awareness of radiological controls and work practices. The importance of effective communication between health physics personnel and the worker will be discussed during this training. This training program will also be incorporated into future pre-outage training programs.

#### Date When Full Compliance was Achieved

Full compliance was achieved on July 9, 1992 when the work in the drywell was completed, the RWP was closed, and no further drywell entries at power were permitted.