



Boston Edison

Pilgrim Nuclear Power Station
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E. T. Boulette, PhD

Senior Vice President — Nuclear

June 10, 1996

BECO Ltr. #96-055

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

Docket No. 50-293
License No. DPR-35

SUBJECT: REPLY TO NOTICES OF VIOLATION (REFERENCE
NRC INSPECTION REPORT NO. 50-293/96-02)

Dear Sir:

Enclosed is Boston Edison Company's reply to the Notices of Violation contained in the subject inspection report. Enclosures 1 and 2 respond to Notices of Violation 1 and 2, respectively.

Please do not hesitate to contact me if there are any questions regarding the enclosed reply.

E. T. Boulette
for E. T. Boulette, PhD

DWE/dmc/vio96-02

Enclosure 1: Reply to Notice of Violation 1
Enclosure 2: Reply to Notice of Violation 2

cc: Mr. Thomas T. Martin
Regional Administrator, Region I
U.S. Nuclear Regulatory Commission
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Enclosure 1

Reply to Notice of Violation 1

As a result of an inspection conducted on February 28, 1996, through March 8, 1996, the following violation of NRC requirements was identified (VIO 50-293/96-02-03).

NOTICE OF VIOLATION 1

"Technical Specifications, Appendix A, Section 6.11, requires that procedures for personnel radiation protection shall be adhered to for all operations involving personnel radiation exposure.

"Procedure No. 6.6-010, Revision 6, Section 8.6 states, 'When using calibration sources greater than or equal to Tech Spec limits (i.e., 100 μ Ci of Beta and/or Gamma, ...), the following practices shall be followed: ... (d) ENSURE the source is locked and the keys controlled when the source is not in use.'

"Contrary to the above, on February 27, 1996, the inspector found a 15,000 μ Ci Beta/Gamma source that was not locked and was not in use.

"This is a Severity Level IV violation (Supplement IV)."

REASON FOR THE VIOLATION

The dosimetry calibration laboratory is a locked laboratory with two keys, one kept by the dosimetry calibration technician and one kept by the senior radiological engineer. After reviewing the electronic dosimeter calibration process on March 1, 1996, the NRC inspector began examining the condition of the calibration laboratory, including the setup for calibrating a pocket optical dosimeter (POD). The POD calibration setup consisted of a Shepherd Model 423 Dosimeter Irradiator containing an 11,300 μ Ci Cs-137 source (source N-265).

When the NRC inspector pulled on the source rod for the calibrator to verify the integrity of the source locking mechanism, the source rod rose about 6 inches. The source lock for the POD calibration irradiator was locked but had not properly latched the source rod. The NRC inspector replaced the source rod and the senior radiological engineer called the dosimetry calibration technician to the laboratory with an RO-2 survey meter to determine the dose rate from the exposed source. After arrival, the technician performed a dose rate survey with the source exposed in the same manner it was exposed as a result of the check by the NRC inspector. The highest dose rate at a distance of 30 centimeters was 60 mR/hr. With the source returned to its secured position, all three individuals examined the locking mechanism. The source lock was locked but not properly secured. The locking mechanism consisted of a nipple on the source rod over which a latch on the locking mechanism must be placed to properly secure the source.

When the dosimetry calibration technician last used the source, the technician thought the source had been properly secured after its use. The technician, however, had inadvertently not properly secured the locking mechanism latch over the nipple on the source rod. Therefore, even though the locking mechanism for the calibration source was locked per Procedure 6.6-010, "Inventory, Control and Leak Checking of Radioactive Test Sources," Step 8.6[1](d), the source was not secured.

Problem Report 96.0081 was written to document the problem.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

After discovering the problem, the dosimetry calibration technician retrieved the source lock key and properly secured the calibration source on March 1, 1996. The latch was securely fastened over the nipple so that it would remain in place on the source rod. On March 1, 1996, all other calibration sources were inspected to ensure their locking mechanisms were locked and secured. The inspection identified no other calibration sources that were improperly secured.

The problem was discussed with radiation protection technicians, radiological operations supervisors, and radiological support personnel. The responsible dosimetry calibration technician received counseling regarding self-checking and ensuring that sources are properly secured.

An alternative source locking mechanism for the source was fabricated and installed. Except for securing the lock, the new locking mechanism does not require any special manipulations.

The radiological consequences of this event were minimal. At no time was there an unlocked, unposted high radiation area, and the calibration laboratory was locked at all times when the source was improperly secured.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

There are no other calibration sources with locking mechanisms similar to the locking mechanism for the POD calibration irradiator. All other calibration sources with locking mechanisms were reviewed and no conditions were found where a similar type of problem could occur.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on March 1, 1996 (the same day the violation was identified), when the improperly secured calibration source was properly secured.

Please note the clarification regarding the date the violation was identified. The NRC inspector and a senior radiological engineer were in the dosimetry calibration laboratory reviewing the process for calibration of the SAIC PD-1/3 electronic dosimeters on March 1, 1996, when the violation was identified, instead of February 27, 1996, as stated in the violation.

Enclosure 2

Response to Notice of Violation 2

As a result of an inspection conducted February 28, 1996, through March 8, 1996, and information received on March 26-27, 1996, the following violation of NRC requirements was identified (VIO 50-293/96-02-04).

NOTICE OF VIOLATION 2

"10 CFR 20.1802 states, 'The licensee shall control and maintain constant surveillance of licensed material that is in a controlled or unrestricted area and that is not in storage.'

"Contrary to the above, on March 25, 1996, detectable licensed material in a yellow bag labeled radioactive material, originating from the Pilgrim Nuclear Power Station, was found at a non-licensed facility, was not controlled or under surveillance by the licensee and the material was not in storage.

"This is a Severity Level IV violation (Supplement IV)."

REASON FOR THE VIOLATION

The reason for the violation was investigated and could not be determined with certainty. The reason, however, appears to have been the simultaneous transfer of radioactive material and non-radioactive material from the protected area to the trash compaction facility. The following information pertaining to the reason for the violation is based on personnel interviews and investigation after the discovery of the violation.

Trash and laundry, both non-radioactive and radioactive, were picked up and transported together to the trash compaction facility (TCF) by waste control technicians for subsequent sorting, segregation, and dispositioning. The TCF is segregated into a non-radioactive materials area and a radioactive materials area by appropriate postings and boundaries. These activities are controlled via Procedure 6.9-218, "Operation and Control of the Trash Compaction Facility and the Hazardous Materials Storage Area."

Prior to pick-up and transport to the TCF, smear surveys of all exterior surfaces of materials are performed by radiation protection personnel to ensure a bag containing radioactive material is acceptable for transport to the TCF. These surveys are controlled via procedures including 6.3-061, "Radiological Survey Techniques."

The release of vehicles and radioactive materials is controlled via Procedure 6.1-213, "Radiological Controls of Vehicles and Materials."

The yellow plastic bag of radioactive material originated from the chemistry laboratory. Yellow plastic bags are used as part of the radiological controls and are marked "radioactive material" along with the symbol indicating radioactive material. The bag was surveyed by radiation protection personnel and tagged on December 22, 1995. The material was picked up by waste control technicians on or after December 22, 1995, and transferred to the TCF prior to March 21, 1996, the date of shipment to the battery recycler. The transfer to the TCF probably occurred during the week of December 25, 1995. For the transfer to the TCF, the yellow bag (containing the radioactive material) along with other materials that included a non-radioactive cardboard barrel, and a metal pail containing miscellaneous trash were collected within the radiological control area (RCA) for transfer to the TCF. The TCF is located outside the protected area.

During transfer to the TCF, a green bag was apparently put on top of the cardboard barrel. The green bag contained batteries to be recycled and was apparently obtained from the machine shop that is located outside of the RCA but within the protected area. Based on the results of the inspection conducted after the discovery of the yellow bag at the battery recycler, the order of materials in the barrel, from bottom to top, was the yellow bag, the metal pail containing the miscellaneous trash on top of the yellow bag, and finally, the green bag on top of the pail. From the outside, the barrel would have seemed to contain non-radioactive material because only the green bag would have been visible when the cardboard barrel was transported to the TCF. The cardboard barrel was then stored in a portion of the non-radioactive materials storage area inside the TCF until it was shipped to the battery recycler on March 21, 1996. The cardboard barrel was not surveyed prior to shipment to the recycler because the barrel was not known to contain radioactive materials.

After the discovery and notification by the recycler of the yellow bag, waste control and radiation protection personnel were dispatched to the recycling facility on March 25, 1996. The shipment was inspected and surveyed. The yellow bag was found at the bottom of the cardboard barrel; on top of the yellow bag was the metal pail and its contents (miscellaneous trash). These were found beneath the green bag when the green bag, containing the batteries to be recycled, was removed from the barrel at the recycling facility.

Problem Report 96.9137 was written to document the discovery of the yellow bag at the recycling facility.

CORRECTIVE STEPS TAKEN AND RESULTS ACHIEVED

On March 25, 1996, the cardboard barrel and its contents including the green bag and batteries were surveyed with a calibrated frisker. The green bag and its contents were found free of any detectable activity. The maximum measured count rate on the surface of the yellow bag and the other material was 400 ccpm (corrected counts per minute). There was no loose contamination on any of the material. The receiving area at the recycler was surveyed and found to be clean, with no contamination. The findings of the survey were discussed with personnel at the recycling facility. On March 25, 1996, the cardboard barrel, metal pail and miscellaneous trash, and yellow bag were removed from the recycler and returned to the TCF. The green bag and batteries were left at the battery recycling facility.

On March 26, 1996, a more detailed survey was performed to determine the total activity of the material returned to the TCF. The material that was not inside the yellow bag was surveyed and one item, a Marinelli beaker, was found to have detectable activity. The beaker was added to the contents of the yellow bag. The yellow bag and its contents were then weighed and counted three times. The yellow bag and its contents weighed 5.25 pounds. The average total activity for the contents of the yellow bag was 31,989 dpm (based on Co-60). This activity correlated to a total activity of 0.014 μ Ci and an activity per gram of $6E-06$ μ Ci/gm. Therefore, the material did not require labeling as radioactive material as required by NRC regulations (10 CFR Part 20) or U. S. Department of Transportation shipping regulations (49 CFR).

A search was conducted of all areas at the TCF that contain non-radioactive materials. The search identified no radioactive material.

The transport of all radioactive materials from the protected area to the TCF area is now accompanied by a Radiation Protection Department technician. The focus of this intermediate corrective action is to provide Radiation Protection Department oversight of materials transported to the TCF until longer term planned corrective actions are implemented.

The control of the key to the fence that controls access to the TCF area was reassigned from the Station Services Department to the Radiation Protection Department.

Random surveys are being performed by Radiation Protection Department personnel prior to the release of material from the TCF fenced area.

A Radiation Protection Department supervisor has been assigned to work with Station Services Department personnel. The focus of this action is to improve operations at the TCF from a radiation protection perspective. Initially, the supervisor assignment will be full-time. The assignment includes the development of more detailed standing orders for the control of radioactive material and ensuring applicable Station Services Department and Radiation Protection Department personnel receive the related training. Based on completion of the training and subsequent experience, the supervisor assignment may be modified or eliminated.

Storage vans and other storage locations outside the TCF building and within the TCF fence will be locked and the keys will be controlled by the Radiation Protection Department. These actions were completed on June 4, 1996.

CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

Procedures 6.9-218 (currently Rev. 7) and 6.1-213 (currently Rev. 4) will be revised. The focus of the revision is to preclude the co-mingling of non-radioactive material and radioactive material during transport to the TCF. Station Services Department personnel including waste control technicians and applicable Radiation Protection Department personnel will receive training regarding the procedure changes.

Small group meetings with onsite personnel are being held with the Station Director, Plant Manager, and Radiation Protection Department Manager. The focus of the meetings is to ensure personnel are aware of the violation and to emphasize the importance of radioactive material control. These meetings are currently expected to be completed by June 15, 1996.

A cross-functional team is being formed. The focus of the team is to review the overall processes involved in radioactive material control, identify other potential weaknesses, and recommend improvements. Recommendations may be identified that could modify some of the corrective actions taken or currently planned. Based on the completion of the team's activities, the team will be disbanded.

THE DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on March 25, 1996, when the licensed material was returned to the controlled area within the TCF fence.