



Commonwealth Edison

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October 31, 1985

Mr. James G. Keppler
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Byron Station Units 1 and 2
I&E Inspection Report Nos.
50-454/85-038 and 50-455/85-042
NRC Docket Nos. 50-454 and 50-455

Reference (a): October 1, 1985 letter from W. D. Shafer
to Cordell Reed

Dear Mr. Keppler:

Reference (a) provided the results of an inspection by Mr. Hueter on August 28 and 29, 1985 at Byron Station. During this inspection, certain activities appeared to be in violation of NRC requirements. Attachment A to this letter contains Commonwealth Edison's response to the Notice of Violation appended to Reference (a).

Our review of Item 2 in the Notice of Violation provided in reference (a) has not concluded that this item was correctly categorized as noncompliance with NRC regulations. The bases for our conclusions are detailed in the attached report, and we request your reconsideration in light of the information we have provided.

Please direct any questions you may have regarding this matter to this office.

Very truly yours,

D. L. Farrar
Director of Nuclear Licensing

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Attachment

cc: Byron Resident Inspector

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ATTACHMENT A

VIOLATION 1

Technical Specification 6.8.1.a requires that applicable procedures for activities recommended in Appendix "A" of Regulatory Guide 1.33, Revision 2, February 1978, be written, established, implemented and maintained. Section 7.a of Appendix "A" of Regulatory Guide 1.33, Revision 2, specifies procedures for sampling, monitoring, and discharging effluents from the liquid radioactive waste system. Step F.1.c of Byron Chemistry Procedure BCP 400-T50, Revision 3, for liquid radwaste releases requires verification/recording, by both the radwaste operator and the radwaste forman prior to starting a release that the circulating water blowdown rate is equal to or greater than the minimum rate stated in Section C, Step 3, of the procedure. Item 4 of Section C, Prerequisites, of Byron Chemistry Surveillance Procedure OBCS 11.1.1.1-1, Revision 1, for radioactive liquid effluents state that the release tank shall be released with the circulating water blowdown system flow rate as specified in the Liquid Radwaste Release Tank Release Form, BCP 400-T50.

Contrary to the above, a ten minute, 2700 gallon liquid radwaste release into the circulating water blowdown line was begun at 23:59 on August 22, 1985, without positive verification that circulating water blowdown flow rate existed to provide required dilution before release to an unrestricted area, due to a misunderstanding in a telecon between the radwaste operator in the radwaste control room who initiated the release and personnel in the reactor control room who provided information regarding the circulating water blowdown flow rate. The verification failure, in turn, resulted in a ten minute release to the blowdown line (and ultimately to the river) without circulating water blowdown flow rate required to provide the dilution.

RESPONSE

Based on a subsequent analysis and the actual chemistry samples, we have determined that the 2700 gallons of radwaste liquid were adequately diluted prior to being released to the river.

Our analysis applied an empirical relationship, used to calculate the dispersion of matter in turbulent flow through a pipe, to a simplistic model of the event. The results demonstrate that a bolus of water would have mixed and diffused over hundreds of feet of pipe prior to being released to the river. This model did not account for many complexities that would have enhanced the dilution, such as initial mixing of the radwaste injection into approximately 99,500 gallons of trapped water in the blowdown piping, the turbulent action of filling the blowdown piping, and the tortuous path of the piping following the contour of the land down to the river. The actual chemistry samples taken of the discharge corroborate that adequate dilution took place prior to being released.

CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

The release of radwaste liquid was terminated and the circulating water blowdown line was isolated at the discharge prior to any undiluted radwaste liquid being released into the river. The blowdown line (approximately 2 1/2 miles of 30 inch diameter pipe) was filled to dilute the 2700 gallons of radwaste liquid. The blowdown line discharge valves were opened and the diluted radwaste liquid was discharged to the river. Four chemistry samples of the discharge were taken at 20 minute intervals and the results indicate that no 10 CFR Part 20 limits were exceeded.

All liquid releases subsequent to this event have been in compliance with the applicable procedure.

CORRECTIVE ACTION TAKEN TO PREVENT FURTHER VIOLATION

Byron Chemistry Procedure BCP 400-T50, "Liquid Radwaste Release Form", has been revised to require independent verification of circulating water blowdown flow by the Shift Control Room Engineer and Radwaste Foreman prior to a release occurring.

A modification has been initiated to provide automatic isolation of a liquid release when circulating water blowdown flow falls below the minimum required flow rate.

A placard will now be posted in the main control room indicating when a release is in progress.

The annunciator response BAR 1-17-A13 for the circulating water pump trip alarm will be revised to consider its affect on liquid radwaste releases.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

BAR 1-17-A13 has already been temporarily revised and will become permanent in accordance with the Byron/Braidwood procedure standardization schedule.

The modification described above will be implemented prior to the end of the first refueling outage.

VIOLATION 2

Technical Specification 3.11.1.1 states in part, "The concentration of radioactive material released in liquid effluents to unrestricted areas...shall be limited to the concentrations specified in 10 CFR Part 20, Appendix B, Table II, Column 2, for radionuclides other than dissolved or entrained noble gases. ...Applicability: at all times. Action: a. With the concentration of radioactive material released in liquid effluents to unrestricted areas exceeding the above limits, immediately restore the concentration to within the above limits..."

Contrary to the above, at 23:59 on August 22, 1985, a liquid radwaste release containing a mixture of radionuclides having a combined concentration of about 30 times the limit specified in 10 CFR Part 20, Appendix B, Table II, Column 2, was initiated from the radwaste release tank to the circulating water blowdown line without the intended 15,000 gpm circulating water blowdown flow rate to provide required dilution before release to an unrestricted area, and responsible personnel did not immediately restore the concentration to within the above limits. Although the effluent monitor on the circulating water blowdown line alarmed within one minute, the release continued for a total of 10 minutes before the monitor increase and alarm were considered valid and the release terminated.

RESPONSE

We believe this violation is based on a misunderstanding of our procedures used for a liquid radwaste release and, therefore, is inappropriate. Compliance with radioactive liquid effluent release limits as required in Technical Specification 3.11.1.1 is assured prior to initiating a release by following Radiation Procedure BRP 1750-1 "Determination of Compliance with 10 CFR Part 20 Liquid Release Limits". This procedure, using release tank activity, liquid release flow rate and the dilution flow rate, calculates the release activities at the point of entry into the unrestricted area and verifies it is within 10 CFR Part 20 limits.

In Chemistry Procedure BCP 400-T50, "Liquid Radwaste Release Form", the release rate necessary to ensure the aforementioned limits are met is further cut in half to provide a margin of safety. In this same procedure the high radiation alarm setpoints for the circulating water blowdown radiation monitor are determined and set based on the anticipated activity of the diluted mixture, not on 10 CFR Part 20 limits.

It is our understanding that this violation is predicated on the belief that initiation of the circulating water blowdown radiation monitor alarm indicates a release in excess of allowed limits and, therefore, requires immediate action per Technical Specification 3.11.1.1. Such a

belief is not correct. Although the purpose of the radiation monitor is to assure ultimate compliance with the Technical Specification limits, that compliance is achieved by setting the alarms to initiate at concentrations much lower than the limits established by the Technical Specification. This lower setting of the alarm provides an operator the time to determine the cause for initiation of the alarm and to take appropriate corrective actions before the Technical Specification limits are reached.

In this case, the alarm was promptly acknowledged and its possible cause was investigated. When it was learned that a release with no dilution flow was the cause, the release was immediately terminated and an action plan was developed and implemented to prevent exceeding Technical Specification 3.11.1.1. Actual chemistry samples of the discharge proved compliance with the Technical Specification.

Since initiation of the blowdown radiation monitor alarm did not indicate an effluent exceeding Technical Specification limits, the alarm did not require the operator to take the immediate action called for in the Technical Specification. Based on the foregoing, Commonwealth Edison requests the NRC to reconsider whether Technical Specification 3.11.1.1 was violated.