

DUKE POWER COMPANY

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35 MAY 30 P 2 36
May 24, 1985

Dr. J. Nelson Grace, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

Re: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Dr. Grace:

Please find attached a special report concerning the inadvertent discharge of powdex resin to the chemical treatment pond instead of the powdex back-wash tank at Oconee Nuclear Station. This report is submitted pursuant to Oconee Nuclear Station Technical Specification 3.9.4.C and describes an incident which is considered to be of no significance with respect to its effect on the health and safety of the public.

Very truly yours,

H. B. Tucker

Hal B. Tucker

SGG:slb

Attachment

cc: Document Control Desk
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Helen Nicolaras
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

American Nuclear Insurers
c/o Dottie Sherman, ANI Library
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Atlanta, Georgia 30339

Mr. J. C. Bryant
NRC Resident Inspector
Oconee Nuclear Station

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Duke Power Company
Oconee Nuclear Station
Special Report on Inadvertent Discharge of
Powdex Resin to the Chemical Treatment Pond
Instead of Powdex Backwash Tank

Introduction

On April 25, 1985 at approximately 0910 hours, a batch of Powdex resin from Powdex cells 1A and 1D was transferred from the plant to the #2 Chemical Treatment Pond (CTP) instead of to the Powdex Backwash Tank (PBT). At the time of the event, Unit 1 was at hot shutdown, Unit 2 was at 75% Full Power (FP), and Unit 3 was at 100% FP.

The discharge to the #2 CTP resulted from an incorrect valve alignment of valve CTP-7. The Powdex cells' radionuclide activity was greater than the pond radionuclide inventory limit allowed by Technical Specification (TS) 3.9.4(c).

The immediate corrective action was to properly position the valve so the backwash was directed to the PBT. The apparent cause of the incident was attributed to Procedural Deficiency, therefore, procedure changes are being made to ensure that this incident is not repeated. The health and safety of the public were not affected by this incident.

Description of Occurrence

On April 24, 1985 an acid addition was performed to adjust the pH of the #1 CTP. This addition utilizes the water treatment room as the addition point and requires flow control from the Water Treatment Room Sump. On April 25, 1985, valve line-up was being performed to pre-coat Powdex cells 1A and 1D. The procedure being followed required Powdex Sump Discharge Valve (CTP-7) to #2 CTP to be closed.

Meanwhile, Chemistry personnel were determining the status of the acid addition to #1 CTP and the in-service #2 CTP. Based on a telephone call, the Chemistry personnel understanding was that the acid addition had been completed and that to "put #2 CTP in service" was the task at hand. No mention was made of the Powdex pre-coat operation being performed.

Understanding that "to put #2 CTP in service" was his job, Chemistry personnel began to do so following the "Operation of the Conventional Waste System Procedure". To "put the #2 CTP in service", the procedure calls for opening CTP-5 and CTP-7, and closing CTP-6. However, the following step for aligning the Water Treatment Room Sump to the #2 CTP states to open CTP-8 and close CTP-9.

At approximately 0910 hour, personnel involved followed the sequenced procedure and found CTP-5 and CTP-6 properly aligned but found CTP-7 closed. Therefore, CTP-7 was open as stated in the procedure step causing the inadvertent transfer of a batch of used Powdex resins to #2 CTP. The person involved was not aware that CTP-7 was closed due to the pre-coating operation in progress.

At 0912, the mistake was recognized and CTP-7 was closed. Proper personnel were notified of the incident, and it was determined that 15% of the PBT content had been inadvertently discharged into the #2 CTP. The results from activity worksheet calculations for samples from 1A and 1D Powdex cells indicated that Technical Specification 3.9.4(c) had been exceeded.

Technical Specification (TS) 3.9.4(c) was established to ensure that the average radionuclide inventory per batch of used Powdex resin transferred to the CTP's over the previous 13 week period would not exceed 0.01% of the pond radionuclide inventory limit. For this incident, no transfers had been made in the previous 13 week period such that the radionuclide inventory in the Powdex resin discharged into #2 CTP was the 13 week average. The analysis of the Powdex resin batch determined that Technical Specification 3.9.4(c) had been exceeded for I-131.

Cause of Occurrence

The cause of this incident was the misalignment of valve CTP-7. The reason CTP-7 was inadvertently open is due to less than adequate procedural instructions. The procedure did not specify precautions to alert personnel that at certain conditions, Powdex pre-coat valve lineup takes priority when putting the CTP in service. A contributing cause to this incident was less than adequate communication between personnel involved.

In spite of the fact that this type of incident has occurred in the past, (Special Report, dated October 5, 1984), it is considered to be a low frequency recurring event. There have been 175 Powdex pre-coats since September, 1984.

Analysis of Occurrence

An analysis of the radionuclide activity in the Powdex resin from 1A and 1D cells was performed and the quantity of radioactive material for each radionuclide identified was determined. The resin activity was compared to the CTP inventory limit for each isotope, and one isotope, I-131, exceeded the limits set in TS 3.9.4(c) (51,000 MCi for I-131).

Batch transfer of used Powdex resin averaged over the transfers of the previous 13 weeks is limited to 0.01% of the CTP inventory limit. This limit for I-131 is 5.1 MCi.

Since no previous Powdex resin batches have been discharged in the previous 13 weeks, the current radioed pond inventory limit was substantially larger than the amount of radionuclide levels discharged during this incident. All the discharge Powdex resin was contained in the #2 CTP. Decay of radionuclides may be taken into account in determining inventory levels. I-131 has a half life of 8.04 days. Additionally, only 15% of this batch was discharged into #2 CTP.

Therefore, the health and safety of the public were not affected by this incident.

Corrective Action

The immediate corrective action was to correctly position valve CTP-7 to terminate the Powdex Backwash Discharge to #2 CTP. Planned corrective action is to add a Limit and Precaution to the "Operation of the Conventional Waste System" procedure to alert the user of this procedure to become aware of Powdex pre-coating operations before realigning the Powdex sump to a CTP.

In addition, a change to the "Powdex Backwashing Procedure" was approved on April 30, 1985 to ensure that this incident is not repeated. This change requires that a "DO NOT OPERATE" sign be placed on CTP-7 during Powdex sump discharge alignment to the PBT.