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TELEPHONE  
AREA CODE 716 546-2700

September 30, 1974



Mr. James P. O'Reilly, Director  
Directorate of Regulatory Operations  
Region I  
U. S. Atomic Energy Commission  
631 Park Avenue  
King of Prussia, Pennsylvania 19406

Subject: Abnormal Occurrence 74-16: Dilution of "A" Accumulator  
concentration to less than 1800 ppm boron  
R. E. Ginna Nuclear Power Plant, Unit No. 1  
Docket No. 50-244

Dear Mr. O'Reilly:

In accordance with Technical Specifications, Article 6.6.2a, the  
attached report of Abnormal Occurrence 74-16 is hereby submitted.

Very truly yours,

*Keith W. Amish*  
Keith W. Amish

Attachment

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50-244  
incident  
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1. Report Number: 50-244/74-16
- 2a. Report Date: September 30, 1974
- 2b. Occurrence Date: September 18, 1974
3. Facility: R. E. Ginna Nuclear Power Plant, Unit No. 1
4. Identification of Occurrence:

This abnormal occurrence is defined by Technical Specifications Article 1.9b, violation of a limiting condition for operation.

5. Condition Prior to Occurrence:

The plant was at steady state operation at 91% power. All systems were in normal operation.

6. Description of Occurrence:

The regular bi-monthly samples of water were taken from the "A" and "B" accumulators on September 18, 1974. The results of the analysis showed that the boron concentration in the "A" accumulator was 1617 ppm. The boron concentration in the "B" accumulator was 2551 ppm. A second set of samples were obtained at 1715 hours and the analysis of these samples gave the same results.

After the second set of samples verified that the boron concentration in the "A" accumulator was below the Technical Specification limit of 1800 ppm, in accordance with recommendations from the Plant Operations Review Committee, partial draining and filling of the "A" accumulator began, using 2330 ppm boron refueling water storage tank water for filling. Also, an orderly power reduction to shutdown of the plant began at a rate of 10% per hour.

Samples were taken and analyzed every hour and power reduction continued until the accumulator boron concentration was returned to above 1800 ppm. This occurred at approximately 1930 hours. A sample, taken an hour later, verified that the boron concentration was within specifications and increasing.

After verifying proper steam generator chemistry, power level of the unit was returned to the original steady state level. The partial draining and filling of the accumulator continued until the boron concentration exceeded 2000 ppm. Once a concentration in excess of 2000 ppm was achieved, the boron concentration was checked throughout the night every two hours.

7. Designation of Apparent Cause of Occurrence:

The cause of the occurrence can be attributed to leakage of primary coolant into the "B" Loop accumulator through one of the following paths:

- a. Through Loop "B" cold leg check valve 867A, and accumulator discharge check valve 842A into the "B" Loop accumulator.

- b. Through Loop "B" cold leg check valve 867A, accumulator test valve 839B and accumulator test valve 839A into the "B" Loop accumulator.
- c. Through Loop "A" cold leg check valves 867B, 878D, and Loop "B" accumulator fill valve 835A.

The in-leakage to the accumulator has been calculated to be approximately .03 gpm.

At this time, path a. appears to be most probable, since Valve 835A was checked for leak tightness during the spring shutdown.

8. Analysis of Occurrence:

At no time during this occurrence was there an unsafe condition for the general public or the plant personnel. The accumulator water boron concentration was well above the core critical boron concentration, and, therefore, accumulator injection could have aided in plant shutdown if necessary. This was so even though the reduction in accumulator boron concentration reduced the negative reactivity available for insertion. Additionally, throughout the occurrence, peaking factors were well below Technical Specification limits, thus reducing the consequences of any accident which might have occurred.

9. Corrective Action:

Closer surveillance of the boron concentration in the "A" accumulator will be maintained as long as in-leakage is detected. A new procedure for the frequency of monitoring and for the increasing of the "A" accumulator boron concentration has been written and approved by the PORC. Investigation is underway to determine the leakage pathway and maintenance will be scheduled to inspect the suspect valve or valves when practical.

10. Failure Data:

- a. Slight leakage of primary coolant into the accumulator was detected in 1973 with negligible diluting effect. As a result of this leakage, the check valves between the reactor coolant and accumulator were inspected and cleaned during our early 1974 shutdown.
- b. Equipment Identification: Darling Valve and Manufacturing Company 10 inch swing check valves.