

LER SUPPLEMENTAL INFORMATION

BFRO-50- 259 / 83016 R2 Technical Specification Involved 3.7.E.2.b

Reported Under Technical Specification 6.7.2.b(2) * Date Due NRC 03/01/84

Event Narrative:

Unit 1 was at 92-percent power. Unit 2 was in a refueling outage. Unit 3 was at 93-percent power. All three units were affected by this event. As required by Technical Specification (T.S.) 3.7.E.1.b., a charcoal sample from one of the trays in the control room emergency ventilation system (CREVS) train "A" was obtained on February 3, 1983, and sent to an offsite laboratory (per Surveillance Instruction (SI) 4.7.E.4) for analysis for methyl iodide removal efficiency. The analytical result of this sample was found to have a methyl iodide removal efficiency of 25.09-percent. T.S. 4.7.E.2 specifies a minimum removal efficiency of 90-percent.

Four new charcoal absorber trays were put in the system at time of sampling. SI 4.7.E.4 requires the replacement of all charcoal trays whenever testing per T.S. 4.7.E.2 is required. Satisfactory halogenated/hydrocarbon testing was performed. Test results verify system operability.

* Previous Similar Events

BFRO-50-296/82066

Retention: Period - Lifetime; Responsibility - Document Control Supervisor

*Revision: JRC

As part of the investigation initiated by BFRO-50-296/82066 (copy attached), samples were obtained of all four trays in CREVS train "B" and sent to an offsite vendor for analysis. TVA does not have the onsite analytical capability required to determine the iodide removal efficiency of PAC. The analytical results received on April 14, 1983, indicated that three of the four trays sampled had inadequate iodine removal efficiencies.

These reported values were 74.2%, 39.73% and 31.26% for trays 1, 3, and 4, respectively. Tray 2 was changed as part of SI 4.7.E.4 (Iodine Removal Efficiency Test) performed in March 1982.

Previous samples taken from other (SBGT and PCP) systems that use powdered activated charcoal (PAC) have historically met the minimum required removal efficiency of ≥ 90 -percent. For this reason, plant engineers suspected that CREVS train "B" had been fouled by an airborne contaminant (oil, paint solvent, etc.). However, prior to the receipt of the analytical results on train "B", SI 4.7.E.4 was performed on train "A" per SI schedule; as a precautionary measure, all four trays were changed. Analytical results received by phone on March 9, 1983 reported an iodine removal efficiency of 25.09%. LER BFRO-50-259/83016 was initiated and a vendor was contracted to perform a series of analytical tests in an effort to identify the cause(s) of the degraded removal efficiency. The resulting report which was received on May 4, 1983, cited an insufficient amount of activation impregnant present in the charcoal as the cause. A material trace identified a 55 gallon drum of bulk charcoal that had been used to refill CREVS trays as the possible source of the defective charcoal. A sample was sent to the offsite vendor and analytical results obtained on July 26, 1983, confirmed this suspicion. The defective charcoal had not been used in any other plant emergency air handling system.

Further investigation into the cause of the reduced removal efficiency revealed that the charcoal (NACAR G617) was purchased in 1974 and was installed in CREVS trains "A" and "B" in January and August 1981, respectively. According to the Nuclear Air Cleaning Handbook, issued by the Oak Ridge National Laboratory, a shelf life of five years is expected for PAC kept in sealed containers. Plant personnel had no knowledge of this fact and literature addressing PAC and it's properties was not readily available. Additionally, a consultant had indicated previously during this investigation process that PAC in seal containers did not have a shelf life limit. On the basis of existing evidence, it cannot be concluded if both trains were simultaneously incapable of meeting the minimum required iodine removal efficiency prior to December 21, 1982.

There was no effect on public health or safety. There was no safety-related use of the CREVS during this event period.

The defective charcoal has been removed from the site. Plant personnel no longer refill charcoal trays. Plant procedures now require that all four trays in the CREVS train be changed whenever SI 4.7.E.4 is performed on that train. All replacement charcoal trays (CREVS, SBT, PCPS) are filled and sealed by the vendor and come with certification papers. A program to monitor the shelf life will be in effect and the first survey will be performed by July 20, 1984.

TENNESSEE VALLEY AUTHORITY

CHATTANOOGA, TENNESSEE 37401

Browns Ferry Nuclear Plant
P. O. Box 2000
Decatur, Alabama 35602

July 13, 1984

Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

Dear Mr. O'Reilly:

TENNESSEE VALLEY AUTHORITY - BROWNS FERRY NUCLEAR PLANT UNIT 1 - DOCKET
NO. 50-259 - FACILITY OPERATING LICENSE DPR-33 - REPORTABLE OCCURRENCE
REPORT BFRO-50-259/83016 R2

The enclosed report provides followup information concerning the result of
a charcoal sample from the control room emergency ventilation system showed
a methyl iodide removal efficiency less than the required 90-percent. This
report is submitted in accordance with Browns Ferry Unit 1 Technical
Specification 6.7.2.b.(2).

Very truly yours,

TENNESSEE VALLEY AUTHORITY

G. T. Jones

G. T. Jones
Power Plant Superintendent
Browns Ferry Nuclear Plant

Enclosure

cc (Enclosure):
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NRC Resident Inspector, BFN

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