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February 28, 1990

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Post-Accident Iodine and Particulate Sampling Capabilities Associated with the Main Vent Effluent - Special Report

REFERENCES: (a) Letter from Mr. A. E. Lundvall, Jr. (BG&E) to Mr. E. J. Butcher, Jr. (NRC), dated September 9, 1985

(b) Letter from Mr. L. B. Russell (BG&E) to Document Control Desk (NRC), dated June 5, 1989

Gentlemen:

The attached Special Report, as required by Technical Specification 6.15, describes a condition that resulted in unavailability of the primary method for post-accident sampling of iodines and particulates in the main vent stack effluent.

Should you have any further questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,

RED/MDM/db

Attachment

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ATTACHMENT (1)

SPECIAL REPORT ON THE AVAILABILITY OF MAIN VENT STACKS SAMPLING FOR PARTICULATES AND IODINE

1. DESCRIPTION

The post-accident method of sampling main vent stack gaseous effluents for particulates and iodines, associated with the Wide Range Noble Gas Monitors (WRNGMs), has not been available for an indeterminate period of time due to sample line heat trace and thermal insulation deficiencies. The ability to take these samples is a requirement of Administrative Technical Specification (T.S.) 6.15, "Post-Accident Sampling," which states that we will maintain the ability to obtain and analyze samples of radioactive iodines and particulates in gaseous plant effluents under accident conditions.

Alternate post accident, particulate and iodine sampling methods are used when the WRNGMs are unavailable. The alternate methods of post accident sampling are as follows: 1) the preferred alternate sampling method is to obtain charcoal and particulate samples of the main vent exhaust, as directed by existing chemistry procedures, when the main vent radiation monitor is on-scale; 2) otherwise, the alternate sampling method is to take grab samples at off-site locations in accordance with Emergency Response Plan Implementation Procedure (ERPIP) 4.4.1 and ERPIP 4.1.6.

The WRNGM iodine and particulate sampling functions were determined to be unavailable on November 3, 1989. At the time the Unit 2 reactor was defueled, with the reactor vessel partially drained, the vessel head detensioned, and the Reactor Coolant System (RCS) at atmospheric pressure and ambient temperature.

Unit 1 was in cold shutdown with the RCS partially filled, and at ambient pressure and temperature. Both units have remained shutdown, in approximately these same conditions, since the September 1989 Non-Conformance Report (NCR) which documented this condition was issued.

The NCR that initiated investigation of the WRNGM sample line heat trace deficiencies was written following discovery that the sample line insulation for the Unit 2 WRNGM had deteriorated in its unsheltered, outdoor environment. An unresolved deficiency tag was hanging from the Unit 1 monitor and referenced a 1987 Maintenance Order (M.O.) which had been written due to the inability of the heat trace to maintain sample line temperature. Investigation results indicate that the sample line heat trace and insulation deficiencies had been identified as early as November 11, 1987.

During an evaluation of the sample line heat trace and insulation deficiencies performed in December 1987, the deficiencies were not recognized with respect to their impact on availability of T.S. required equipment by the System Engineer and Shift Supervisor who were involved. As a result, there was a lack of recognition that continued plant operation without WRNGM Particulate and Iodine Sampling would result in a Technical Specification Special Report.

Following the November 3, 1989 determination that unavailability of WRNGM Particulate and Iodine sampling capabilities impacted Technical Specification required equipment the Shift Supervisor was immediately notified. Administrative

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Technical Specification 6.15 does not have Limiting Conditions of Operations or Action Statements associated with it. But in our Amendment request, submitted on September 9, 1985 (Reference a), that transferred the Particulate and Iodine sampling requirements from Section 3/4 to Section 6, we committed to retaining controls similar to those found in Section 3/4. Although the sampling is not required in Modes 5 or 6 and entry to Modes 1-4 without the equipment is not prohibited, a Special Report describing the situation is being submitted since the previous Section 3/4 Technical Specification required a Special Report.

II. CAUSE

The condition described in this report was caused by design inadequacies that resulted in environmentally induced degradation of the sample line insulation, and sample line heat trace that was undersized for maintaining the required sample line temperature. The WRNGM sample line heat tracing and insulation deficiencies could allow condensation accumulation in the sample lines invalidating WRNGM iodine and particulate readings.

III. ANALYSIS

The WRNGM particulate and iodine sampling capabilities are provided to satisfy the dose calculation and assessment criteria of NUREG 0737, Table II.F.1-2. The WRNGM particulate and iodine sampling function are only needed during post-accident conditions, and are not used during normal operations.

During normal operations, main vent stack effluent sampling of radioactive particulates and iodines is performed by equipment associated with the main vent radiation monitor. Availability of the main vent radiation monitor and its associated iodine filter were not affected by the WRNGM sample line heat trace and insulation deficiencies because the WRNGM and the main vent radiation monitor have separate sample lines. The WRNGM noble gas monitoring function was also unaffected by the WRNGM sample line heat trace and insulation deficiencies since availability of the WRNGM noble gas monitor is not dependent upon sample line temperature.

Since there has never been an actual accident condition at Calvert Cliffs, use of the WRNGM particulate and iodine sampling capabilities has never been required and the condition described in this report has not adversely affected operational safety or endangered the safety of the public or plant personnel. However, if an accident condition had existed during previous operations while the WRNGM sample line heat trace and insulation deficiencies existed, measurement of Iodine and Particulate activity levels in the main vent stack effluent would have been performed through the use of the existing, alternate sampling methods. The alternate methods are initiated during accident conditions regardless of the WRNGM status.

IV. CORRECTIVE ACTIONS

As corrective actions, appropriate personnel have been notified of the WRNGM sample line heat trace deficiencies to ensure the alternate Particulate and Iodine sampling methods are used until the WRNGM Particulate and Iodine samples are available for use. Additionally, the WRNGM sample line heat trace and insulation design inadequacies are being corrected. Implementation of a WRNGM sample line heat trace and insulation design change for Unit 1 is being conducted under a Facilities Change Request and is expected to be complete by April 31, 1990. Deficiencies on Unit 2 will be corrected after the work on Unit 1 is complete.

Additionally, certain procedures will be revised as a result of this event. The procedure used for placing radiation monitors in service will be changed to remind operators of the requirement for alternate sampling if the WRNGM Iodine and Particulate monitors become inoperable. The procedures used for Special Reports will be revised to include the WRNGM Particulate and Iodine monitors.

ADDITIONAL INFORMATION

Reference (b) describes a condition in which the Main Vent Wide Range Noble Gas Monitor was declared inoperable. The monitor was inoperable due to a failure of the low range detector channel sample pump. In reference (b), although not required by the Technical Specifications, we committed to fixing the pump before allowing Unit 1 to enter Mode 4. The pump has been rebuilt and the monthly Surveillance Test Procedure used to prove its operability is current. As stated above in the Analysis section, the Main Vent WRNGM was not affected by the lack of adequate insulation or heat tracing during the event described by this Special Report.

Technical Specification 3.0.3 and 3.0.4 are not applicable to the Iodine and Particulate samplers lines and therefore does not restrict entry into Modes when these samplers are inoperable.