SAFETY EVALUATION BY
THE OFFICE OF NUCLEAR REACTOR REGULATION
RELATED TO OPERATION OF
JOSEPH FARLEY NUCLEAR POWER PLANT - UNITS 1 & 2
ALABAMA POWER COMPANY
DOCKET NOS. 50-348/364

Post-Accident Sampling System (NUREG-0737, II.B.3)

Introduction

In our draft safety evaluation, we concluded that the post-accident sampling system (PASS) met nine of the eleven criteria of Item II.B.3 of NUREG-0737. The two criteria which were not fully resolved are:

Criterion (2) Provide a core damage estimate procedure to include radionuclide concentrations and other physical parameters as indicators of core damage.

Criterion (10) Provide the frequency for demonstrating operability of procedures and instrumentation in the post-accident water chemistry and radiation environment, and retraining of operators on semi-annual basis.

Evaluation

By letters dated February 17, July 11 and August 31, 1984, the licensee provided additional information on the PASS.

Criterion (2):

The licensee shall establish an onsite radiological and chemical analysis capability to provide, within the three-hour time frame established above, quantification of the following:

a) Certain radionuclides in the reactor coolant and containment atmosphere that may be indicators of the degree of core damage (e.g., noble gases, iodines and cesiums, and non-volatile isotopes);

b) hydrogen levels in the containment atmosphere;

c) dissolved gases (e.g., H_2), chloride (time allotted for analysis subject to discussion below), and boron concentration of liquids;

d) Alternatively, have in-line monitoring capabilities to perform all or part of the above analyses.

The PASS provides grab samples for pH, conductivity, chloride, and dissolved oxygen and hydrogen in the reactor coolant, and in-line monitoring of hydrogen in the containment atmosphere. The PASS also provides the capability to collect diluted or undiluted liquid and gaseous grab samples that can be transported to the radio-chemical laboratory for hydrogen, pH, conductivity, boron, chloride, and radionuclide analysis.

The licensee provides an interim guideline to estimate the extent of core damage based on radionuclide concentrations and taking into consideration other physical parameters such as core temperature data, sample location, and containment or primary coolant system hydrogen concentrations. Additionally, the licensee is committed to implement an improved procedure based on Westinghouse generic methodology to estimate core damage by August 31, 1984 We determined that these provisions meet Crtierion (2) and the proposed guideline for estimating core damage is acceptable on an interim basis.

Criterion (10):

Accuracy, range, and sensitivity shall be adequate to provide pertinent data to the operator in order to describe radiological and chemical status of the reactor coolant systems.

The accuracy, ranage, and sensitivity of the PASS instruments and analytical procedures are consistent with the recommendations of Regulatory Guide 1.97, Rev. 2, and the clarifications of NUREG-0737, Item II.B.3, Post-Accident Sampling Capability, transmitted to the licensee on July 22, 1982. Therefore,

they are adequate for describing the radiological and chemical status of the reactor coolant. The analytical methods and instrumentation were selected for their ability to operate in the post-accident sampling environment. By letter dated July 11, 1984, the licensee committed to provide operator training for use of the PASS every six months. We find that these provisions meet Criterion (10) and are, therefore, acceptable.

Conclusion

On the basis of our evaluation, we now conclude that the proposed post-accident sampling system meets ten of the eleven criteria in Item II.B.3 of NUREG-0737. The proposed guideline for estimating the degree of core damage is acceptable on an interim basis. By December 31, 1984, the licensee should provide the final procedure for estimating core damage.

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