

DCL 016

August 22, 1984

Dockets Nos.: 50-313  
and 50-368

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Mr. John M. Griffin, Senior Vice President  
of Energy Supply  
Arkansas Power & Light Company  
P. O. Box 551  
Little Rock, Arkansas 72203

Dear Mr. Griffin:

SUBJECT: NUREG-0737, ITEM II.B.3, POSTACCIDENT SAMPLING SYSTEM

By letter dated July 14, 1983, we provided a Draft Safety Evaluation (SE) on the subject for Arkansas Nuclear One, Units Nos. 1 & 2 (ANO-1&2). This draft SE concluded that you meet the criteria (1), (3), (4), (5), (6), (7), (8), and (9) of NUREG-0737, II.B.3. We have completed our review of your submittals of additional information of October 31, 1983, December 27, 1983, May 11, 1984, and June 27, 1984 and now conclude that you meet all the eleven criteria of NUREG-0737, Item II.B.3 and that the proposed guidelines for estimating core damage is acceptable on an interim basis. Our associated Safety Evaluation is enclosed.

By letter of January 24, 1984 you indicated that you will complete the final procedure for estimating core damage by January 31, 1985. We request that you provide the final procedure for our review by February 28, 1985.

On the basis of the above we conclude that the NUREG-0737, Item II.B.3 actions for ANO-1&2 are complete. The core damage estimate procedure will be handled as a separate issue.

The reporting and/or recordkeeping requirements of this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

*JS*

John F. Stolz, Chief  
Operating Reactors Branch No. 4  
Division of Licensing

*JS*

James R. Miller, Chief  
Operating Reactors Branch No. 3  
Division of Licensing

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Enclosure:  
Safety Evaluation

cc w/enclosure:  
See next page

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GVissing;ef  
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ORB#2:DL  
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ORB#2:DL  
PKreutzer  
08/11/84

ORB#2:DL  
JRMiller  
08/20/84

ORB#4:DL  
JFStolz  
08/16/84

Arkansas Power & Light Company

cc:

Mr. John Marshall  
Manager, Licensing  
Arkansas Power & Light Company  
P. O. Box 551  
Little Rock, Arkansas 72203

U.S. Environmental Protection Agency  
Region VI Office  
ATTN: Reg. Radiation Representative  
1201 Elm Street  
Dallas, Texas 75270

Mr. James M. Levine  
General Manager  
Arkansas Nuclear One  
P. O. Box 608  
Russellville, Arkansas 72801

Mr. Frank Wilson  
Director, Division of Environmental  
Health Protection  
Arkansas Department of Health  
4815 West Markam Street  
Little Rock, Arkansas 72201

Mr. Robert B. Borsum  
Babcock and Wilcox  
Nuclear Power Generation Division  
Suite 220  
7910 Woodmont Avenue  
Bethesda, Maryland 20014

Nicholas S. Reynolds  
Bishop, Liberman, Cook,  
Purcell & Reynolds  
1200 Seventeenth Street, N.W.  
Suite 700  
Washington, DC 20036

Mr. Charles B. Brinkman  
Manager - Washington Nuclear Operations  
C-E Power Systems  
7910 Woodmont Avenue  
Bethesda, Maryland 20014

Regional Administrator (2)  
Nuclear Regulatory Commission  
Region IV  
Office of Executive Director for Operations  
611 Ryan Plaza Drive, Suite 1000  
Arlington, Texas 76011

Mr. William D. Johnson  
U.S. NRC  
P. O. Box 2090  
Russellville, Arkansas 72801



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
WASHINGTON, D. C. 20555

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

CONCERNING

NUREG-0737 ITEM II.B.3, POSTACCIDENT SAMPLING SYSTEM

FOR

ARKANSAS NUCLEAR ONE, UNIT NOS. 1 & 2

ARKANSAS POWER & LIGHT COMPANY

DOCKET NOS. 50-313 AND 50-368

1.0 Introduction

In our Draft Safety Evaluation, which was provided the Arkansas Power & Light Company (the licensee) by letter dated July 14, 1983, we concluded that the postaccident sampling system (PASS) for Arkansas Nuclear One, Unit Nos. 1 & 2 (ANO-1&2), met criteria (1), (3), (4), (5), (6), (7), (8), and (9) of NUREG-0737, Item II.B.3, PASS. We also concluded that the licensee partially met criteria (2), (10), and (11) and identified the information for each criterion which was needed to determine that the PASS met these criteria.

The information which was needed to resolve our concerns are:

- for Criterion (2) Provide a core damage estimate procedure to include radionuclide concentrations and other physical parameters as indicators of core damage.
- for Criterion (10) Provide the frequency for demonstrating operability of procedures and instrumentation in the postaccident water chemistry and radiation environment. Commit to retraining of operators on a semi-annual basis.
- for Criterion (11) Provide information regarding heat tracing of containment sample lines.

By letters dated October 31, 1983, December 27, 1983, May 11, 1984, and June 27, 1984, the licensee provided the needed additional information.

2.0 Evaluation

Following each of the criteria, which are stated below, our evaluation and determination are provided.

2.1 Criterion (2)

The licensee shall establish an onsite radiological and chemical analysis capability to provide, within the three-hour time frame established by Criterion (1), quantification to 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 in Criterion (5)), and boron concentration of the liquids; and
- d) alternatively, have in-line monitoring capabilities to perform all or part of the above analyses.

#### 2.1.1 Evaluation for Criterion (2)

The PASS provides in-line monitoring for pH, boron, chloride, dissolved oxygen and hydrogen. The PASS also provides the capability to collect undiluted liquid and gaseous grab samples that can be transported to the radio-chemical laboratory for hydrogen, pH, boron, dissolved oxygen, chloride, and radionuclide analyses.

The licensee provided 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 provide a final procedure to estimate core damage by January 1985. We determined that these provisions meet Criterion (2) and the proposed guideline for estimating core damage is acceptable on an interim basis.

#### 2.2 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.

##### 2.2.1 Evaluation for Criterion (10)

A quality control program exists that assures that accuracy, range and sensitivity of the PASS instruments are adequate to provide pertinent data to the operator in order to describe radiological and chemical status of the reactor coolant system. The PASS has the analytical ranges and accuracies that are consistent with the recommendation of Regulatory Guide 1.97, Rev. 3, and the clarification of NUREG-0737, Item II.B.3, PASS, transmitted to the licensee on July 1, 1982. The analytical methods and instrumentation were selected for their ability to operate in the postaccident sampling environment. Equipment used in postaccident sampling and analyses will be calibrated or tested at least every six months. Retraining of operators for postaccident sampling is scheduled at a frequency of once every six months. We find that these meet Criterion (10) and are, therefore, acceptable.

### 2.3 Criterion (11)

In the design of the post-accident sampling and analysis capability, consideration should be given to the following items:

- a) Provisions for purging sample lines, for reducing plateout in sample lines, for minimizing sample loss or distortion, for preventing blockage of sample lines by loose material in the RCS or containment, for appropriate disposal of the samples, and for flow restrictions to limit reactor coolant loss for a rupture of the sample line. The postaccident reactor coolant and containment atmosphere samples should be representative of the reactor coolant in the core area and the containment atmosphere following a transient or accident. The sample lines should be as short as possible to minimize the volume of fluid to be taken from containment. The residues of sample collection should be returned to containment or to the closed system.
- b) The ventilation exhaust from the sampling station should be filtered with charcoal adsorbers and high-efficiency particulate air (HEPA) filters.

#### 2.3.1 Evaluation for Criterion (11)

The licensee has addressed (1) provisions for purging to ensure samples are representative, (2) size of sample line to limit reactor coolant loss from a rupture of the sample line, and (3) provisions for filtering ventilation exhaust from the PASS through charcoal adsorbers and HEPA filters. Heat tracing of the containment atmosphere sample line is provided to aid in obtaining representative samples.

We determined that these provisions meet Criterion (11) and are, therefore, acceptable.

### 3. Conclusion

On the basis of our evaluation, we now conclude that the proposed postaccident sampling system for ANO-1&2 meets all of the eleven criteria of NUREG-0737, Item II.B.3, and therefore, is acceptable for ANO-1&2. The proposed guideline for estimating the degree of core damage is acceptable on an interim basis. We will request that the licensee provide the final procedure for estimating the degree of core damage for our review by February 28, 1985 (approximately 30 days following the time which the licensee has indicated the final procedure will be completed).

On the basis of the above we conclude that the NUREG-0737, Item II.B.3, actions for ANO-1&2 are complete. The core damage estimate procedure will be handled as a separate issue.

Dated:

Principal Contributors: J. Wing,  
G. Vissing