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April 15, 1983

Director of Nuclear Reactor Regulation
United States Nuclear Regulatory Commission
Attn: Mr. Steven A. Varga, Chief
Operating Reactors Branch No. 1
Division of Licensing
Washington, DC 2055

Reference: Beaver Valley Power Station, Unit No. 1
Docket No. 50-334, License No. DPR-66
NUREG-0737 Request for Additional Information
on the Post Accident Sampling System (Item II.B.3)

Gentlemen:

Attached is our response to your request, dated March 7, 1983, for additional information on our Post Accident Sampling System (PASS). Your draft safety evaluation report (SER) has been reviewed by members of my staff and it has been identified that some of the information presented in this draft SER was not included in our submittal of August 31, 1982 which provided information to the staff for their post-implementation review of our PASS. Your letter of March 7 stated that our PASS meets eight of the eleven criteria in Item II.B.3. The attachment to this letter provides the additional information being requested of the remaining three criteria. Our review has revealed that six of the remaining eight criteria contained information different from that provided in our August 31 submittal and we have included in the attachment corrections to the draft SER.

Should you have any questions regarding this submittal, please contact members of my staff for prompt resolution.

Sincerely,

J. J. Carey
Vice President, Nuclear

Attachment

cc: Mr. W. M. Troskoski, Resident Inspector
U. S. Nuclear Regulatory Commission
Beaver Valley Power Station
Shippingport, PA 15077

U. S. Nuclear Regulatory Commission
c/o Document Management Branch
Washington, DC 20555

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DUQUESNE LIGHT COMPANY
Beaver Valley Power Station, Unit No. 1

Post Accident Sampling System
Response to NRC letter dated March 7, 1983

Attachment

Criterion (1)

The draft SER states: "The PASS electrical power supply is not load shed upon loss of offsite power. However, a backup diesel generator supply is available".

The information provided in our August 31 response stated:

> With regard to having provisions for sampling during a loss of offsite power, this provision is not a design requirement and as such was not considered in the design of the PASS. Additionally, the station laboratory counting room originally was not designed to have an alternate backup power source. Sample collection and analysis will not be possible in the event of a loss of off-site power. However, the ERF will have a back-up power supply in the form of a diesel generator. As such the laboratory and counting room in the ERF would be operable in the event of a loss of off-site power.

Criterion (2)

The draft SER states: "The PASS is capable of analyzing, by remotely controlled in-line monitors, noble gases, iodines and cesiums, nonvolatile isotopes, boron, chloride, pH, and dissolved gases in the primary coolant. Hydrogen and gamma spectrum in the containment atmosphere can also be analyzed by in-line monitors"

The PASS does not have in-line monitors capable of analyzing noble gases, iodines and cesiums, non-volatile isotopes, hydrogen concentration or gamma spectrum in the containment atmosphere. The hydrogen concentration in the containment atmosphere is determined utilyzing equipment installed as a result of NUREG-0737 item II.F.1.6 as stated in our August 31 submittal. The remaining above analyses are performed in the chemistry laboratory on a sample which may be obtained from the PASS. Our submittal of August 31 stated that isotopic analysis of grab samples is performed, in either the chemistry laboratory in the plant or the emergency response facility, utilizing a Germanium detector connected to a computer based multichannel analyzer. Additionally, installation of the boron and chloride analyzers has not been completed, however, this has been identified in your confirmatory Order dated March 14, 1983. Some difficulties have been experienced in attempting to complete this installation, but it remains our intent to place these in-line analyzers in service at our first opportunity.

- Request for Additional Information

Provide a core damage estimate procedure

- Response

Our submittal of August 31 stated we had prepared procedures to relate specific nuclides to core damage and that the Rogovin Report was used as a reference in their development. The adequacy of this procedure is currently being re-evaluated based on utility inquiries and research to determine what level of detail is needed in the procedure to determine varying degrees of core damage. We are participating in the Westinghouse Owner's Group (WOG) procedures subcommittee, which has been coordinating activities with members of the NRC staff, for the development of an acceptable approach for assessing core damage. Recent correspondence from the owner's group to the NRC, OG-95, has documented to the NRC how the WOG is going to continue working with the NRC staff to resolve the procedure needs for NUREG-0737 item II.B.3. We expect to develop improved plant specific procedures as a result of this owner's group activity.

Criterion (3)

The draft SER states: "The PASS provides the ability to obtain samples from each reactor coolant hot leg, each reactor coolant cold leg, the RHR system, the containment sump, and the containment atmosphere without using an isolated auxiliary system."

Some clarification of our sampling ability is required. In our August 31 submittal, in response to criterion 11, we stated that the normal PASS sample point for the reactor coolant system is on the B loop hot leg between the reactor vessel and the reactor coolant isolation valve. We also stated that sample points from the other loops and the cold legs may be valved into service if radiation fields at the normal sample panel permit. Operating manual figures 12-1, 14-1 and 14-4 were provided to permit review of our sampling capability.

The design of the PASS is to obtain a sample from the B loop hot leg, the containment sump and the containment atmosphere. Other samples may be collected in the PASS if radiation levels permit entry to the previously existing sample panel for the purpose of manually valving in other sample points. By reviewing operating manual figure OM 14-1, it is possible to collect a sample in the PASS from any hot leg or from the residual heat removal system heat exchanger inlet or outlet by manually valving in that sample location at the existing sample panel. A cold leg sample cannot be collected in the PASS. Our submittal of August 31, which stated a sample from the cold legs could be collected, was based on collecting this sample at the existing sample panel, not in the PASS.

Criterion (4)

Your evaluation of our submittal as documented in the draft SER is correct.

Criterion (5)

The draft SER states: "An in-line ion chromatograph is provided which meets the 96-hour chloride limit for a fresh water plant."

Our submittal of August 31 states that the PASS is designed with an in-line chloride analyzer. Our design does not include an in-line ion chromatograph.

Criterion (6)

Your evaluation of our submittal as documented in the draft SER is correct.

Criterion (7)

The draft SER states: "Boron analysis of the reactor coolant will be performed by in-line ion chromatograph with a measurement capability from 0 ppm to 6,000 ppm under accident conditions. Prior to time when the in-line ion chromatograph is operational, boron can also be analyzed using diluted reactor coolant sample"

Our submittal of August 31 states that the PASS is designed with an in-line boron analyzer. Our design does not include an in-line ion chromatograph.

Criterion (8)

The draft SER states: "An in-line chemical analysis panel is provided for reactor coolant, pH, oxygen and hydrogen concentrations, as well as containment hydrogen concentrations".

As stated previously and in our August 31 submittal, the containment hydrogen concentration is determined utilizing a hydrogen analyzer installed in response to NUREG-0737 item II.F.1.6, Containment Hydrogen Monitor. The hydrogen analyzer designed for the PASS measures the amount of dissolved hydrogen after it has been stripped from a liquid sample. The collection and measuring of dissolved hydrogen is included in our August 31 submittal in response to item 2C.

Criterion (9)

The draft SER states: "The PASS can perform radioisotope analysis at the levels corresponding to the source term given in Regulatory Guide 1.4".

Our submittal of August 31 stated that a radioisotope analysis is performed in the chemistry laboratory in the station or in the ERF laboratory. The sample to be analyzed can be collected at the PASS.

Criterion (10)

- Request for additional information

  Provide information demonstrating applicability of procedures and instrumentation in the post accident water chemistry and radiation environment, and retraining of operators on semi-annual basis.

- Response

  Procedures will be written to demonstrate instrumentation accuracies. The standard test matrix will be prepared and each instrument in the PASS will be tested in the laboratory. This will demonstrate instrument operability in the post accident water chemistry. Additionally, each instrument will be tested to verify instrument range and sensitivity over four points of its operating range (low, high and intermediate) using laboratory standards. This will be accomplished during our third refueling outage, presently scheduled for June 1983. With regard to radiation environment, the instruments were purchased with a certification that they will function in a radiation field exceeding 10 E 4 RADS/gram of reactor coolant.

  We have reviewed the guidelines provided in attachment 2 of your letter, report on the evaluation of Sentry Equipment Corporation and General Electric Company analytical chemical procedures for post accident analysis, and have concluded that our test methods described above are consistent with that report.

  The draft SER states that the PASS operators should receive initial and refresher training in post accident sampling, analysis and transport every six months. We will provide this training to the PASS operators at this frequency.

  The following instruments will be calibrated or tested on a six month frequency to ensure their availability; boron, chloride, and pH analyzer. The dissolved hydrogen and dissolved oxygen analyzers will be calibrated on an 18 month frequency.

Criterion (11)

- Request for additional information

  Provide information on heat tracing of containment atmosphere sample line to limit iodine plateout.

- Response

To prevent the plate out of iodine, the containment atmosphere sample line is heat traced from the containment isolation valve to the PASS and on sample lines inside the PASS.

The heat tracing operates in the range of 150°F to 160°F. An alarm is provided to indicate failure of the heat tracing to operate.