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June 15, 1984

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Ms. E. G. Adensam, Chief
Licensing Branch No. 4

Re: Catawba Nuclear Station
Docket Nos. 50-413 and 50-414

Dear Mr. Denton:

Section 9.3.2.2 of the Catawba Safety Evaluation Report addresses License Condition 17, Post-Accident Sampling System. Responses to this item were submitted on February 7, 1984 and May 11, 1984.

As a result of further review of this system, certain changes were identified in the response to Question 281.9. A revised response is attached.

The Post-Accident Sample Panel for Catawba Unit 1 has been installed and will be tested during the start-up testing program. Results of this testing will be submitted in the Start-up Report which will be submitted pursuant to Technical Specification 6.9.1.3.

Very truly yours,

Hal B Tucker

Hal B. Tucker

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Attachment

cc: Mr. James P. O'Reilly, Regional Administrator
U. S. Nuclear Regulatory Commission
Region II
101 Marietta Street, NW, Suite 2900
Atlanta, Georgia 30323

NRC Resident Inspector
Catawba Nuclear Station

Mr. Robert Guild, Esq.
Attorney-at-Law
P. O. Box 12097
Charleston, South Carolina 29412

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cc: Palmetto Alliance
2135½ Devine Street
Columbia, South Carolina 29205

Mr. Jesse L. Riley
Carolina Environmental Study Group
854 Henley Place
Charlotte, North Carolina 28207

Response:

The isolation valves used for containment isolation of the process sampling lines are electric motor operated and therefore fail "as is." These valves are used in groups for each penetration with the isolation valves inside containment supplied by one train of safety related power while the valve outside containment receives power from the other train of safety related power. Both interior and exterior valves receive an appropriate automatic signal to close. Isolation of these lines is thus assured even with assumption of a single failure. This meets the intent of GDC60 in Appendix A to 10CFR50.

281.9 (1.9, II.B.3) Provide information that satisfies the attached proposed license conditions for post-accident sampling. (Attachment 281-1).

Response:

The Catawba Post Accident Liquid Sampling System is identical to the system reviewed and approved for the McGuire Nuclear Station (NUREG-0422) and meets the requirements of NUREG-0737, II.B.2 as discussed in the following response to Attachment 281-1:

1.0 Compliance With NUREG-0737

1.1 Each unit has a reactor coolant and a containment air sampling system. The basics of both systems are the same and both systems are remote controlled. A small sample is taken and diluted. A small portion of the diluted sample is saved, while the excess is flushed to a radwaste system. Total sampling time is approximately 1.5 hours.

1.2 a) Isotopic analysis is run at the station counting room using a portion of gas stripped from the liquid sample and diluted with inert gas and a portion of diluted liquid sample. The size of the samples and the dilution allows them to be handled and counted with the available equipment.

b) Hydrogen levels in the containment atmosphere can be determined by the hydrogen monitor located in the Auxiliary Building.

c) Dissolved gases are stripped from 150 ml pressurized sample and diluted to 1000 ml in the Post Accident Sampling Panel. The gas sample is then analyzed with a gas chromato-graph. Other gases as well as the H_2 can be determined. Results of tests performed on this function are described in the report transmitted by letter of June 28, 1982 from W. O. Parker, Jr. to H. R. Denton.

Chloride analysis can be performed on a diluted liquid sample by ion-chromatography. Currently a radiochemistry laboratory is being developed at the Physical Sciences Building to handle these analyses.

Boron is run on the diluted liquid sample by the carminic acid method.

d) In line monitoring capability as part of the sampling panel is used to determine pH and conductivity on the undiluted sample.

1.3 Reactor coolant and containment atmosphere sampling during post-accident conditions do not require an isolated auxiliary system to be placed in operation in order to use the sampling system.

1.4 Reactor coolant samples are depressurized in the sampling panel. Any gases released plus gases stripped from the sample are collected and diluted to a known volume. The diluted gas sample is then analyzed on a gas chromatograph where H_2 and O_2 are determined.

1.5 Capability of performing chloride analysis by ion-chromatography is available at the Power Chemistry Laboratory in the Physical Sciences Building of the Training and Technology facility located in Huntersville, N.C. A sample can be transported to this location and analyzed within 24 hours.

1.6 Radiation exposures are kept low through the use of distance and dilution of the sample. The sample panels are remotely controlled taking advantage of distance and the shielding of the walls. Liquid samples can be diluted 3000:1 and air samples can be diluted 10,000:1.

1.7 Boron analysis is performed on the diluted sample collected by the sampling panel. The amount of dilution is chosen to minimize radiation exposure. For the postulated 10 Ci/g extreme in the sample drawn, a 1:1000 dilution would provide protection below the 75 rem exposure to the analyst. With the limit of the carminic acid Boron Method of 0.1 ± .023 ppm, the minimum detectable concentration in the liquid sample would be 100 ± 23 ppm @ 1:1000 dilution.

1.8 Not applicable.

1.9 a) The post-accident sampling panels provide the capability to promptly obtain a liquid sample and a gas sample under reactor accident conditions as described in Regulatory Guides 1.3 or 1.4 and has the capability to dilute samples within the shield for measurement in order to reduce personnel exposure. The size of the samples and the dilution allows station personnel to analyze any liquid or gas sample with the available counting room equipment.

b) The health physics and chemistry laboratory facilities located in the Auxiliary Building provide the capability for prompt radioactivity spectrum analyses of noble gases, radioiodines, radiocesium, and non-volatile radionuclides. Highly radioactive samples are prepared at a sample preparation laboratory provided with sample shielding and a ventilation system to control airborne radioactivity. No difficulties are expected performing these analyses.

1.10 The report on Functional Testing of the Post Accident Liquid Sampling Panel (transmitted by letter of June 28, 1982 from W. O. Parker, Jr. to H. R. Denton) performed in the laboratory provides data on the accuracy, range, and sensitivity attainable by an operator. These are adequate to provide pertinent data for the radiological and chemical status of the systems sampled. Data on the accuracy, range and sensitivity attainable on the installed system will be collected during startup testing and will be documented in the Startup Report (Technical Specification 6.9).

1.11 All internal components of the air and liquid system and the sample lines are purged before the diluted samples are retrieved. The small line size in conjunction with an orifice will restrict reactor coolant flow in the event of a rupture. The size, length of line and number of bends have been kept to a minimum. Each air panel is vented to the stack vent.

2.0 Using distance and dilution, the exposure levels are kept low. The air sample is diluted 10,000:1 and the liquid samples are diluted 3,000:1. During sampling, the panels are controlled remotely.

3.0 Regulatory Guide 1.97 Revision 2 is under evaluation and a discussion of conformance will be provided in FSAR Section 1.8.

4.0 To comply with the requirements of NUREG-0737 Item II.B.3, Part 4 the Post Accident Sampling Panels (samplers) are powered from 240/120 VAC auxiliary control power system. This assures that all components associated with post accident sampling are capable of being operated within 30 minutes of an accident in which there is core degradation, and loss of offsite power assumed. Detailed description of the 240/120 VAC auxiliary power system is presented in FSAR Section 8.3.2.1.1.2.