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2.C.2.1
FVY 81-156

November 9, 1981

United States Nuclear Regulatory Commission
Washington, D. C. 20555

Attention: Operating Reactors Branch #2
Vernon L. Rooney, Project Manager
Division of Licensing

References:
a) License No. DPR-28 (Docket No. 50-271)
b) USNRC Letter, V. L. Rooney to R. L. Smith, dated September 22, 1981
c) VYNPC Letter, L. H. Heider to D. C. Eisenhut, FVY 81-9, dated January 13, 1981
d) USNRC Letter, T. A. Ippolito to R. L. Smith, dated September 30, 1981

Subject: Exceptions Taken to Post-TMI Actions Plan, Requirement II.F.1

Dear Sir:

Based on telephone discussions with the NRC staff on September 17, 1981 and further consideration of NRC positions as stated in Reference (b), Vermont Yankee proposes the following information as resolution to the outstanding items. For ease of presentation, the initial deviation, the NRC position and our proposed resolution is provided.

1. DEVIATION

Proposes to use instrument reading-out in terms of mR/hr and to use procedure to convert reading to either Xe-133 equivalent or actual noble gas concentration.

NRC POSITION

Acceptable, subject to preparation of suitable procedure for such conversion.

VY RESOLUTION

Procedures will be reviewed and revised as necessary to assure that the stated conversion is included.

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2. DEVIATION

Takes exception to using value of 10^2 uCi/cc for sampling and analysis of radioiodines and particulates in plant effluents.

2A) States integrated activity on sampler media would be 85 Ci of I-131 plus other noble gases for Vermont Yankee and up to 425 Ci of I-131 at Maine Yankee. Plant personnel would not be allowed to handle a sample of such high activity.

NRC POSITION

Per Table II.F.1-2, activity is stated to be 10^2 uCi/cc but not specifically I-131; licensee's figure of 85 Ci probably correct but should assume only 0.5 MeV. Because of some conservatism in these numbers for most accidents, it is not necessary to add in noble gases when calculating shielding and doses. Using silver zeolite as a radioiodine absorber would minimize retention of noble gases. Shielding, remote handling tools, shielded transport devices, plus training should be employed to enable plant personnel to handle samples (no one said it was going to be easy).

VY RESOLUTION

An additional particulate filter and a silver zeolite cartridge will be installed. These would be used only in the event of an accident. Currently, in spite of the potentially high dose rates, we can collect samples in the present configuration. We will consider quick disconnecting fittings and long handled tools to reduce the dose. We will assume that 10^2 uCi/cm^3 of gaseous radioiodines and particulates are collected with 90% efficiency for 30 minutes. Lead shielding will be added based on flow rates through the accident samplers such that no individual would receive more than 5 rem whole body and 75 rem to the extremities during the entire sample evolution. We have shielded transport devices presently on-site and would use them in this process. A procedure, based on gamma radiation measurements and distance factors, will be developed to allow for the analysis of hot samples.

2B) States concentration could only be produced at stack by purging containment fuel-melt LOCA to stack unfiltered. All other sources would be decades lower than 10^2 uCi/cc.

NRC POSITION

Our calculation for a fuel-melt LOCA as described would be 10^4 uCi/cc, which agrees with ANSI N320-1979. BNWL-1635 recommends a value of 10^3 uCi/cc. The value of 10^2 uCi/cc already contains a factor of 10^2 credit for filtration, less than TID release, and containment plate-out.

VY RESOLUTION

We will assume radioiodine concentrations of 10^2 uCi/cc as stated.

2C) In the event of halogen release, licensee states there exists more reliable and reasonable methods for a quantitative assessment of the release and gives the examples of direct measurement of the source and off-site sampling for I-131.

NRC POSITION

Direct measurement under accident circumstances, where gamma radiation levels from noble gas releases are from 3 to 6 orders of magnitude higher than iodine, are considered by the staff to be impracticable with state-of-the-art equipment. Off-site sampling, with delays in sample procurement and analysis, is not a viable alternative for the immediate need dictated by emergency planning considerations. The need is for quantitative evaluation of releases in terms of minutes, not days.

VY RESOLUTION

Refer to Item 2A.

2D) Licensee references EPRI presentation to Commission on 11/18/80 as justification for assuming low releases of halogens (Stratton-Malinauskas work).

NRC POSITION

A draft NRC report submitted to the Commission indicates that sufficient evidence has not been produced to justify lowering release rates for accident dose/design calculations for all types of accidents.

VY RESOLUTIONS

We reaffirm our belief that the realistic halogen component available for release from a LOCA would be low and we again reference the EPRI 11/18/80 presentation to the Commission as partial justification. We will, however, use the 10^2 uCi/cc figure appropriately for accident design calculations.

2E) Licensee's summary statement claims the plant has the capability to continuously sample plant effluents for post-accident release of radioactive iodines and particulates, with on-site lab facilities to measure or analyze the samples.

NRC POSITION

In view of the foregoing statement (1-4 above) by the licensee, it is suggested that this be verified to ascertain that the licensee meets the requirements of NUREG-0737, Section II.F.1-2. Assurance should be obtained that sampling and analysis methods are adequate for sampling iodines and particulates with concentrations up to 10^2 uCi/cc, as specified in NUREG-0737.

VY RESOLUTIONS

Upon implementation, VY will have the capability to continuously sample for post-accident radioactive iodines and particulates as specified in NUREG-0737, Section II.F.1-2.

Vermont Yankee believes that the resolutions provided above are responsive to the NRC comments positions contained in Reference (b) and meet the intent of the NUREG-0737 requirement. However, in light of the time it has taken Vermont Yankee and the NRC to resolve these outstanding issues, and because those resolutions will result in changes to our initial system designs and procedural revisions, we will be unable to meet the NUREG implementation date of 1/1/82. Pending no unforeseen delays in material availability and equipment delivery, we anticipate that we will be able to fully implement this item, as described in our resolutions provided above, by March 1982.

Should the NRC have any questions regarding the information contained in this letter, or require additional amplification, we request that we be contacted as soon as possible.

Very truly yours,

VERMONT YANKEE NUCLEAR POWER CORPORATION

L. H. Heider

L. H. Heider
Vice President