GPU Nuclear

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April 2, 1984

Mr. Thomas T. Martin, Director
Division of Engineering and Technical Programs
U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

Dear Mr. Martin:

Subject: Oyster Creek Nuclear Generating Station
Docket No. 50-219
IE Inspection 50-219/83-24

In accordance with 10 CFR 2.201, Attachment 1 to this letter responds to the Notice of Violation contained in IE Inspection 50-219/83-24 which was conducted on October 12 and 17-21, 1983. In addition to the response to the violation, for which a two week extension was granted, it was requested by your letter to review and describe the existing mechanisms currently utilized to ensure responses made to the NRC are accurate. To be fully responsive to this request, we feel it would be appropriate to respond to this concern by separate correspondence at a later date.

If you should have any questions or comments, please contact me or Mr. Michael Laggart, BWR Licensing Manager at (201)299-2341.

Very truly yours,

Peter B. Fiedler
Vice President and Director
Oyster Creek

PBF:ML:dam
Attachment

cc: Dr. Thomas E. Murley, Administrator
Region I
U.S. Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, PA 19406

NRC Resident Inspector
Oyster Creek Nuclear Generating Station
Forked River, NJ 08731

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ATTACHMENT 1

NOTICE OF VIOLATION

Violation

10 CFR Part 50, Appendix B Criterion III states in part, "Measures shall be established to assure that applicable .... design basis ... are correctly translated into specifications, drawings, procedures and instructions" and Criterion XVII states in part, "Sufficient records shall be maintained to furnish evidence of activities affecting quality."

Contrary to the above, as of October 27, 1983, sufficient records of design process activities affecting quality were not maintained to furnish evidence to show that the following NUREG 0737 design basis items had been correctly translated into specifications, drawings, procedures and instructions:

1) "The accuracy and response time specification of the containment pressure monitor(s) shall be provided and justified to be adequate for their intended function."

2) "The accuracy requirements of the containment water level monitors shall be provided and justified to be adequate for their intended function."

3) "The accuracy and placement of the containment hydrogen monitors shall be provided and justified to be adequate for their intended function."

Response

We agree in part with the Violation as stated above in that a formalized justification for each item was not prepared and documented. NRC correspondence of January 6, 1983 requested additional detailed information of the subject NUREG 0737 items. The accuracy and response time specification of containment pressure monitor; the accuracy requirements of the containment water level monitors; and the accuracy and placement of containment hydrogen monitors were provided to the NRC via correspondence dated May 6, 1983 and June 30, 1983. We believe justification for their intended functions was implicit in our submittal. (NRC acceptance of the specification was documented in correspondence dated September 29, 1983 which resolved these NUREG 0737 items. The violation resulted from differences between the inspector and GPUN personnel as to the degree of documentation believed necessary.) We have, therefore, formally documented our justification that instrumentation provided was adequate for the intended function. Each item is separately presented below: ?

CONTAINMENT PRESSURE MONITORING

It is important for the operator to have accurate indications for containment pressure for several reasons:

- To detect changing containment pressure during normal operations and allow him to take actions to restore the pressure to be within an acceptable band,
- To provide accurate indications of containment pressure after an accident to allow the operator to monitor the pressure or to take actions to preserve containment integrity.

The absolute error in the wide range containment pressure indicator in the control room is 1.5 psi for the 0-260 psia span. The response time for the indicators is 0.5 seconds. The function of this instrument is to adequately monitor the containment pressure when the pressure exceeds the range of the other indicators. During the design basis LOCA, the containment pressure rises rapidly in the first few seconds at a rate of about 7.5 psi/sec and then decays at a rate ranging from 0.25 psi/sec to 0.005 psi/sec after containment spray has actuated. The accuracy of 1.5 psi is adequate for the operator to monitor the pressure response during the rapidly changing portion of the transient. When the containment pressure decays, the operator would be able to monitor the pressure response on the narrower range instruments in the control room. The response time gives the operator a slightly lagged pressure trend for the first few seconds of the transient. However, it is adequate to follow the trend during the pressure decay. This response time and accuracy is adequate for the operator to monitor the containment pressure during and after the design basis LOCA. Under normal operations, the containment pressure remains nearly constant. If the containment pressure begins to rise for a non-accident condition, such as a loss of drywell cooling, the containment pressure rises at a rate of approximately 0.75 psi/hr. The narrow range instruments are adequate for pressure monitoring and defining operator action points during normal operating conditions.

CONTAINMENT WATER LEVEL MONITORING

The operator needs to have accurate indications for the containment water level for the following reasons:

- To detect any change in torus water level during normal operations and allow him to restore level to within an acceptable band,
- To assure that the steam suppression capability of the torus is not degraded or lost in a post accident condition due to decreased level,
- To guard against potentially hazardous structural loads on the torus in a post accident condition due to increased water level.

The absolute error in the wide range torus water level indication in the control room is 3.75 inches for the 12-204 inch span. During normal operations, the torus water level is nearly constant. The existing narrow range indicators in panel 11F and 11XR allow the operator to be certain that the torus level is within the normal operations limits. In the first seconds of the DBA LOCA, the torus level changes at a rate of roughly 0.8 inches/sec and then reduces to a near zero change after 15 minutes. The total utilized torus level range is roughly 1 foot during the transient. The accuracy of the wide range instrument would allow the operator to monitor the level during the transient. In less severe events such as a stuck open EMRV, the level increase in the torus is not very significant and occurs at a rate less than 0.05 inches/min. In these events, the narrow range indicators would be used to monitor level.

CONTAINMENT H2 MONITORING

The operator needs an accurate indication of the H_2 concentration in the containment for the following reasons:

- To monitor H_2 concentration in the drywell and detect any increase during normal operations,
- To monitor H_2 concentration in the drywell after an accident and allow him to take actions to maintain H_2 and O_2 concentrations below the limits which would result in a deflagration which could cause a loss of some important equipment or a loss of containment integrity.

The absolute errors in the containment H_2 monitoring indicators in the control room are 0.5% and 1.5% for the narrow and wide spans of 0 - 10% and 0 - 30% respectively. The most probable means of accumulating H_2 in the drywell is as a result of a LOCA induced metal-water reaction which caused some fuel failure. Another method of accumulating H_2 in the drywell is by post accident radiolytic reaction. However, this reaction occurs very slowly over several days or weeks after shutdown.

During normal operations, the H_2 concentration does not change. The accuracy of the narrow range instrument is adequate for detecting any increase in H_2 long before a potentially explosive mixture is created in the containment. In the event that H_2 was generated from a LOCA within the design basis of the plant and accumulated in the containment, the total H_2 accumulated in the drywell would not exceed the deflagration limit of 4%. The operator would have adequate indication of this increase based on the accuracy of the narrow range instrument. The response time of the instrument of roughly 30 seconds is comparable to the diffusion time of H_2 in the containment.

The H_2 monitor is located at the top of the drywell. Since H_2 is a very light gas, it would concentrate at the top of the drywell and thus give the operator a somewhat conservative indication of H_2 concentration in the drywell. In addition, since O_2 is heavier than the N_2 used for inerting, it would tend to settle in a lower portion of the containment and would not readily mix with the H_2.

In addition, no credit is taken for any steam in the containment change. This would act to reduce the H_2 concentration and decrease the change for a H_2 burn. The accurancy of the indication is sufficient for the operator to monitor the H_2 concentration and to allow him to take actions based on this indication.