PSNH

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SBN-481
T.F. B7.1.2

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

Attention: Mr. George W. Knighton, Chief
Licensing Branch No. 3
Division of Licensing

References: (a) Construction Permits CPPR-135 and CPPR-136, Docket Nos. 50-443 and 50-444
(b) PSNH Letter, dated April 8, 1982, "Response to 460 Series RAIs; (Effluent Treatment Systems Branch)," J. DeVincentis to F. J. Miraglia

Subject: Open Item Response; (SRP 11.3, RAI 460.27, Meteorological and Effluent Treatment Systems Branch)

Dear Sir:

We have enclosed a revised response to NRC Request for Additional Information 460.27 regarding hydrogen control in the Radioactive Gaseous Waste System cubicles.

The original response to RAI 460.27 was submitted in Reference (b). The enclosed response will be incorporated in OL Application Amendment 49.

Very truly yours,

YANKEE ATOMIC ELECTRIC COMPANY

David T. Maidrand for

J. DeVincentis
Project Manager

ALL/fsf

cc: Atomic Safety and Licensing Board Service List

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460.27 Section 11.3.2.2 states that some cubicles of the RGWS will be continuously monitored for H_2 and that in the event of high H_2 concentration:

a) The affected components of the process stream will be isolated and/or the affected component purged with N_2;

b) The affected cubicle will be ventilated to reduce the H_2 concentration; and

c) Unnecessary personnel will be evacuated from the area.

It appears that the ventilation to reduce H_2 concentration could result in the addition of air in the ventilation systems in the ambient carbon delay bed and the hydrogen surge tank area, thus resulting in a potentially explosive mixture. Another potential source of O_2 could be the air conditioning units. Provide an analysis to show that the addition of air in these cubicles of the RGWS would not result in a deflagration or an explosive.

RESPONSE: Exhaust ventilation air associated with cubicles within the Waste Processing Building, servicing the Radioactive Gas Waste System (RGWS) components, is greater than the air supplied. Potential leakage from the RGWS components will be vented along with normal building exhaust air to the atmosphere via Unit 1 plant vent. In addition, the RGWS operates at a slight positive pressure. These design features preclude the possibility of introducing ventilation air into the RGWS in the event of a leak. In addition, detection of abnormal levels of hydrogen within cubicles servicing the RGWS will call for the isolation of the affected components of the RGWS and/or the affected component being purged with nitrogen. Normal building ventilation flow will be maintained in the event of abnormal levels of hydrogen within compartments servicing the RGWS. Abnormal levels of hydrogen within the hydrogen surge tank cubicle will automatically activate an additional purge system of 20,000 SCFM. These normal or additional ventilation air flows will dilute and reduce any hydrogen concentrations in the affected compartments. This dilution decreases the possibility of hydrogen deflagration or an explosion.

The RGWS itself has redundant oxygen detection at the inlet of the chillers. An alarm of the trace oxygen analyzers will call for an isolation of the RGWS and identification and repair of the source of oxygen introduction.

The above procedures and equipment design are all designed to preclude the possibility of deflagration or an explosion. However, the RGWS has been designed to withstand an internal hydrogen explosion.

An analysis of the potential radiological consequences of accidental releases from the RGWS is presented in FSAR Chapter 15, Section 15.7.1.

Based on the above, the addition of air into cubicles housing the RGWS components will not result in an increase of the potential of hydrogen deflagration or an explosion.