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October 19, 1981
L1L 220

Office of Nuclear Reactor Regulation
Attn: J. F. Stolz, Chief
Division of Licensing
Operating Reactors Branch No. 4
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555



Dear Sir:

Three Mile Island Nuclear Station, Unit 1 (TMI-1)
Operating License No. DPR-50
Docket No. 50-289
Clarification of TSCR No. 34B
H₂/O₂ Monitoring System

Enclosed please find our response to your questions addressed in your letter of July 31, 1981 concerning the Waste Gas System at TMI-1. This information confirms and supplements our staffs' telephone conversation of July 9, 1981 on the subject system.

Additionally, the following information is provided for clarification of an item discussed in L1L 052 of March 27, 1981:

- o Grab Sample/Analysis - Although the Hays Gas Analyzer provides the capability of sampling at 10 different points as listed on page 2 of TSCR 34B, routinely it is selected to sample less than 10 points in the Waste Gas System. Additionally, a grab sample analysis of each point takes approximately 40 minutes. In order to sample 10 points and analyze those 10 points it would require 420 minutes.

Finally, it is our understanding that the semi-annual reports will continue to be done under the previous Technical Specification requirements through the quarter in which the Appendix I Technical Specifications (Amendment 72) are implemented. The annual environmental report will continue to be done under the previous Technical Specifications requirement through the year in which the Appendix I Technical Specifications are implemented.

Sincerely,

H. D. Bukill
Director, TMI-1

HDH:CWS:vjf
Enclosure

cc: R. Jacobs
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QUESTION:

1. Are procedures in effect which require keeping waste gas concentrations below 3% H₂ and 2% O₂ by volume at each of the sampling points?

RESPONSE:

Radwaste Panel D has an O₂ high alarm setpoint of 0.1% by volume and H₂ high alarm setpoint of 3% by volume as detected by the Hays Gas Analyzer. The Hays Gas Analyzer will sample only those points selected. In the event of an H₂ high alarm, Alarm Response Procedure Rad Waste Panel D requires the following action be taken:

Check Gas Analyzer to determine which tank caused alarm. If waste gas decay tank is alarming, isolate the tank in preparation for diluting with N₂ and/or venting. If any other tank is alarming, purge it with N₂ which forces the H₂ to the waste gas decay tank.

In the event of an O₂ high alarm Alarm Response Procedure on Rad Waste Panel D requires the following action be taken:

Check gas analyzer to determine which tank has high O₂ concentration. Verify that N₂ supply is adequate and pressure regulator is working properly.

Purge N₂ into tank with high O₂ concentration to reduce the O₂ concentration.

QUESTION:

2. Is the waste gas system pressure controlled automatically so it stays between 15.5 and 16.4 psia?

RESPONSE:

The pressure in the low pressure vent header of the waste gas system is automatically maintained between 15.9 psia and 16.4 psia by a waste gas compressor per the waste gas operating procedure. If the pressure in the low pressure vent header increases to 16.5 psia or greater, the standby compressor will pick up. The system is designed such that WDG-V54 (low pressure vent header nitrogen admission valve) opens to supply nitrogen to the header when header pressure decreases below 15.3 psia. WDG-V54 shuts when pressure increases above 15.5 psia. A Gaseous Waste Disposal System Functional Test, will be conducted prior to restart in order to verify that the system performs as designed. Based on test results, the setpoints may be changed.

QUESTION:

3. Is N₂ constantly on supply to:
 - a) Bleed tanks at NI-V-17
 - b) Header at NI-V-37
 - c) Waste gas delay tank
 - d) Compressors at NI-V-23 & V-24
 - e) Make-up tank at NI-V-22

- RESPONSE:
- a) No. NI-V-17 is normally shut as are the individual nitrogen purge valves for each reactor coolant bleed tank (WDG-V57, WDG-V58, and WDG-V59). These valves must be operated manually to supply nitrogen to the component.
 - b) Yes - Regulated on an as needed basis by WDG-V54.
 - c) No - WDG-V66 is normally shut. It must be operated manually to supply nitrogen to the waste gas delay tank.
 - d) Yes - Regulated on an as needed basis.
 - e) No - NI-V-22 is normally shut. It must be operated manually to supply nitrogen to the make-up tank.

QUESTION: 4. Is the sketch (Figure 1) of the waste gas system essentially correct?

RESPONSE: The latest revisions of the waste gas system drawings were confirmed during the telephone conversation. For those drawings held by the NRC which were not the latest revision, a copy of the latest revision was provided to the NRC. The sketch in Figure 1 of your letter dated July 31, 1981 is essentially correct.

QUESTION: 5. During normal operation, is the principle source of H_2 letdown to the RC bleed tanks? Is this bleed no greater than 4000 gal/day?

RESPONSE: The principle source of hydrogen in the vent header, during normal operation, can be attributed to reactor coolant system letdown to a reactor coolant bleed tank, except for periodic venting of the make-up tank to the vent header.

Based on our review of cycle 4 operation, letdown to a bleed tank did not exceed 4000 gal/day.

QUESTION: 6. When grab samples are necessary, will they be taken from the points where concentrations are most likely to be high, such as from CE-108 during degas?

RESPONSE: A procedure will be written to establish sample locations when grab samples are necessary for various modes of operation.