

Maine Yankee

RELIABLE ELECTRICITY SINCE 1972

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September 30, 1996

MN-96-120

JRH-96-185

UNITED STATES NUCLEAR REGULATORY COMMISSION

Attention: Document Control Desk

Washington, DC 20555

Reference: (a) License No. DPR-36 (Docket No. 50-309)
(b) Licensee Event Report 96-026, EQ of Cables/Connectors Inside Containment, MN-96-121, August 22, 1996

Subject: Submergence of Environmentally Qualified Post Accident Indication

Gentlemen:

In response to an Independent Safety Assessment (ISA) information request concerning prior work on three containment isolation valves, a containment walkdown was performed by the Plant Engineering Department I&C Section Head to verify the maintenance had been accomplished. One of the three valves, DR-A-6, was identified as still being in question concerning the configuration of valve position indication in relation to containment flood level. All Environmentally Qualified (EQ) equipment in the containment was assumed to be above the maximum containment flood elevation of +1.7 feet or 3.7 feet above the floor elevation.

The Plant Engineering Department conducted an examination of all EQ equipment located below the +20 foot level in the containment to verify that the equipment was indeed above the flood line. That walkdown identified 29 components, in addition to DR-A-6 indication, not qualified for submergence that would be below the flood line. At the time of the discovery, the reactor was shutdown and decay heat was being removed by the Residual Heat Removal (RHR) system.

All of the components identified are Regulatory Guide 1.97 components required for post accident indication. They fall into three general categories; Rosemont 1154 level transmitters used for monitoring steam generator level and reactor vessel level (Primary Inventory Trending System), containment isolation valve indication, and post accident sampling valve indication.

Maine Yankee applied the guidance of Generic Letters 88-07 and 91-18 to determine the operability of the items in question. None of the items provide a function which is defined in the Technical Specification and that was at risk because of submergence. The cable and connector configuration for two channels of narrow range steam generator level instrumentation were modified to assure the original E.Q. requirements of R.G. 1.97 for post accident indication were met. Wide range level transmitters were also modified for each Steam Generator and the reactor level transmitter configuration was modified to assure qualification.

The post accident sampling valve PS-A-15 will maintain its ability to draw samples, but may not have remote valve position indication. The preferred sample point, the discharge of the Safety Injection Pumps, would not utilize PS-A-15. The other containment isolation valves also will remain operable although shut indication may be lost after submergence which would occur about ten minutes after Safety Injection Actuation. Each of the containment isolation valves has a redundant counterpart outside containment with indication that is not challenged by submergence.

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Except for PS-A-1, the other valves have no post accident function requiring a position change.

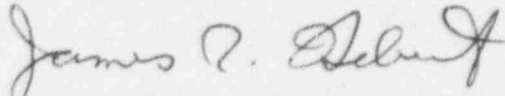
Concurrent with the equipment walkdowns conducted by Plant Engineering, Corporate Engineering reverified the total water volume assumed in the submergence level calculation.

During the period of August 12, 1996 to August 16, 1996, Mr. Leonard Cheung of the Region I office conducted an on-site inspection of the instrumentation, documentation, and status of each of the components identified.

Attachment A discusses each component and the resolution of each problem or the justification for deferral of action until the next scheduled refueling outage in 1997.

A root cause evaluation is presently ongoing to determine why the components in question were not identified in the walkdowns performed in response to the requirements of Generic Letter 79-01B. We anticipate this will remain an open item in the Residents' inspection report until the root cause is completed and the remaining equipment is qualified for submergence, modified, or relocated during the next refueling outage.

Very truly yours,



James R. Hebert, Manager
Licensing & Engineering Support Department

JRH/mwf

Attachment

c: Mr. Hubert Miller
Mr. J. T. Yerokun
Mr. Daniel H. Dorman
Mr. Patrick J. Dostie
Mr. Uldis Vanags

DR-A-6

Containment isolation valve, requires the SOV to meet E.Q. requirements and valve position limit switch to meet REG Guide 1.97 requirements. Both the limit switch and its associated cable will be submerged. In this configuration they can not maintain their EQ qualification. Once submerged the valve position indication maybe lost and a ground maybe received on Vital Bus 1A. The limit switch has no effect on the operation of the valve.

Valve operation will not be effected. The valve will receive its CI signal and deenergize the SOV allowing the valve actuator spring to close the valve and hold the valve closed. Confirmation that the valve is in its safeguards position will be received before the valve limit switch and cable is submerged. **Valve operability and Containment Isolation Function is retained. DR-A-6 function is backed up by the outside containment isolation valve SL-A-53.**

LT-1213A,B,C,&D

These four Rosemount 1154 DP Transmitters provide narrow range level indication for #1 steam generator. They are all safety class 1E and are used for RPS Low Steam Generator Level trip signals. These transmitters are included in the E.Q. Program because they are inputs to the RPS. However, they are not required to provide any long term RPS function consistant with an accident scenario that results in flooding ten to twenty minutes after spray actuation. They have also been EQ qualified for REG Guide 1.97. REG Guide 1.97 requires redundant steam generator level indication that also has real-time recording capability. Therefore, at this time Maine Yankee only intends to verify operation for two narrow range level instrument. Channels A and C were selected because they are powered from different safety class trains and because they both have real-time recording capability. Channel A feeds a Main Control Board recorder and channel C feeds the plant computer, as well as SPDS. Channels B & D will not be considered operational post LOCA. Channels B & D have been marked on the Main Control Board to prevent confusion by the operators.

The EGS Patel connector provides the EQ seal between the transmitter and the field cable. The EGS Patel connector has not been qualified for submergence but its pigtail cable has been qualified in other application. Maine Yankee has not qualified the transmitters for submergence, but has access to a qualification test report that has qualified the transmitters for full submergence up to two weeks. In the Maine Yankee configuration the transmitters do not experience full submergence, in the worst case one transmitter could have the bottom half inch covered. This does not challenge any critical seal or component on the transmitter.

Channels A and C have been modified by relocating the EGS Patel connector above the flood line and the transmitters will be considered operational by using the available test report and engineering judgement. **RPS trip function for all four transmitters is maintained because this function will be accomplished prior to submergence. R.G. 1.97 function for two channels of indication in control room is retained by the modification of Level Transmitters LT-1213A & C.**

LT-1214

This is a Rosemount 1154 DP transmitter used to provide wide range level indication of the #1 steam generator. This transmitter is Safety Class 1E, EQ qualified and a REG Guide 1.97 instrument to support Emergency Operating Procedures indication. Only its EGS Patel pigtail is submerged.

Maine Yankee modified the pigtail to ensure the EGS Patel Pigtail is above the submergence level. This re-establishes the qualification. **The function and qualification of this instrument is preserved.**

LT-1223A,B,C, &D

These four Rosemount 1154 DP Transmitters provide narrow range level indication for #2 steam generator. They are all safety class 1E and are used for RPS steam generator trip signals. These transmitters are included in the E.Q. program because they are inputs to the RPS. However, they are not required to provide any long term RPS function consistent with an accident scenario that results in flooding ten to twenty minutes after spray actuation. They have also been EQ qualified for the REG Guide 1.97. REG Guide 1.97 requires redundant steam generator level indication that also has real-time recording capability. Therefore, at this time Maine Yankee only intends to verify operation of two narrow range level instrument. Channels A and C were selected because they are powered for different safety class trains and because they both have real-time recording capability. Channel A feeds a Main Control Board recorder and channel C feeds the plant computer, as well, as SPDS. Channels B & D will not be considered operational post accident and have been marked on the Main Control Board to prevent confusion..

The EGS Patel connector provides the EQ seal between the transmitter and the field cable. The EGS Patel connector has not been qualified for submergence but its pigtail cable has been qualified in other application. Maine Yankee has not qualified the transmitters for submergence, but has access to a qualification test report that has qualified the transmitters for full submergence up to two weeks. In the Maine Yankee configuration the transmitters do not experience full submergence, in the worst case one transmitter could have the bottom half inch covered. This does not challenge any seal or component on the transmitter.

Channels A and C will be modified by relocating the EGS Patel connector above the flood line and the transmitters will be qualified by using the available test report and engineering judgement. **As with LT-1213A & C discussed previously the required function is preserved.**

LT-1224

This a Rosemount 1154 DP transmitter used to provide wide range level indication of the #2 steam generator. This transmitter is Safety Class 1E, EQ qualified and a REG Guide 1.97 instrument for Emergency Operating Procedure use.. Only its EGS Patel pigtail is submerged.

Maine Yankee modified the pigtail to ensure the EGS Patel Pigtail is above the submergence level. This re-establishes the qualification. **The function and qualification of this instrument is preserved.**

LT-1233A,B,C, &D

These four Rosemount 1154 DP Transmitters provide narrow range level indication for #3 steam generator. They are all safety class 1E and are used for RPS steam generator trip signals. These transmitters are included in the E.Q. Program because they are inputs to the RPS. However, they are not required to provide any long term RPS function consistent with an accident scenario that results in flooding ten to twenty minutes after spray actuation. They have also been EQ qualified for the REG Guide 1.97. REG Guide 1.97 requires redundant steam generator level indication that also has real-time recording capability. Therefore, at this time Maine Yankee only intends to demonstrate operability of two narrow range level instrument. Channels A and C were selected because they are powered for different safety class trains and because they both have real-time recording capability. Channel A feeds a Main Control Board recorder and channel C feeds the plant computer, as well, as SPDS. Channels B & D will not be considered operable post LOCA, and have been marked on the Main Control Board.

The EGS Patel connector provides the EQ seal between the transmitter and the field cable. The EGS Patel connector has not been qualified for submergence but its pigtail cable has been qualified in other application. Maine Yankee has not qualified the transmitters for submergence, but has access to a qualification test report that has qualified the transmitters for full submergence up to two weeks. In the Maine Yankee configuration the transmitters do not experience full submergence, in the worst case one transmitter could have the bottom half inch covered. This does not challenge any seal or component on the transmitter.

Channels A and C will be modified by relocating the EGS Patel connector above the flood line and the transmitters will be qualified by using the available test report and engineering judgement. **As with LT- 1213 A&C discussed previously the required function is preserved.**

LT-1234

This is a Rosemount 1154 DP transmitter used to provide wide range level indication of the #3 steam generator. This transmitter is Safety Class 1E, EQ qualified and a REG Guide 1.97 instrument for Emergency Operating Procedure use.. Only its EGS Patel pigtail is submerged.

Maine Yankee modified the pigtail to ensure the EGS Pate Pigtail is above the submergence level. This re-establishes of the qualification. **The function and qualification of this instrument is preserved.**

PCC-A-252, PCC-A-268, PCC-A-300, PD-A-122,

All four valves are air operated containment isolation valves, that require their SOV and valve position limit switch to be EQ qualified to meet REG Guide 1.97 requirements. On all four valves limit switch pigtails will be submerged post accident. Once submerged the valve position indication maybe lost and a ground maybe received on Vital Bus 1A.

Valve operation will not be effected. The valve will receive its CI signal and close. Confirmation that the valve is in its safeguards position will be received before the valve limit switch and cable is submerged. PCC-A-252 is backed up with its redundant companion containment isolation valve outside containment PCC-A-254. Similarly PCC-A-268 is backed up by PCC-A-270; PCC-A-300 is backed up by PCC-A-302; and PD-A-122 is backed up by PD-A-124. **Valve function is assured and Containment isolation function is preserved.**

PDT-3001 and PDT-3002

While these installations could be qualified as-is, submerged instrument cables were relocated to enhance the installation. **The qualification of these transmitters is preserved.**

PS-A-1, PS-A-2, AND PS-A-3

These three valves had previously been CI valves, their present function is for post accident sampling but are not considered required by Regulatory Guide 1.97. These valves remain in the EQ program by Maine Yankee's choice. Both the limit switch and its associated cable will be submerged on PS-A-1 and PS-A-2. Only the connector pigtail is submerged on PS-A-3. In this configuration they can not maintain their EQ qualification. Once submerged the valve position indication maybe lost.

Valve operation will not be effected. **These valves are not required by R.G. 1.97 to have indication post accident.**

PS-A-15

Containment isolation valve, that requires its SOV and valve position limit switch be EQ qualified to meet REG Guide 1.97 requirements. Both the limit switch and its associated cable, and the SOV cable will be submerged. In this configuration they can not maintain their EQ qualification. Once submerged the valve position indication maybe lost and a ground maybe received on Vital Bus 1A.

Valve operation will not be effected. The SOV cable has been documented as qualified for submergence. The valve will receive its CI signal and deenergize the SOV allowing the valve actuator spring to close the valve and hold the valve closed. Confirmation that the valve is in its safeguards position will be received before the valve limit switch and cable is submerged. Should this valve be required to reopen, its position would be determined by the ability of the Chemist to draw a sample. Its Containment Isolation function is backed up by the redundant PS-A-17 located outside containment. **Valve function is preserved and manual indication of flow at the sample panel would verify valve position.** Although this valve is identified for Post Accident Sampling, it is not the primary or preferred sampling point for a Post LOCA condition.

PS-A-20

Containment isolation valve that requires its SOV and valve position limit switch be EQ qualified to meet REG Guide 1.97 requirements. Both the limit switch and its associated cable will be submerged. In this configuration they can not maintain their EQ qualification. Once submerged the valve position indication maybe lost and a ground maybe received on Vital Bus 1A.

Valve operation will not be effected. The valve will receive its CI signal and deenergize the SOV allowing the valve actuator spring to close the valve and hold the valve closed. Confirmation that the valve is in its safeguards position will be received before the valve limit switch and cable is submerged. **Valve function is backed up by the redundant containment Isolation valve PS-A-23.**

PV-A-10

Containment isolation valve that requires its SOV and valve position limit switch be EQ qualified to meet REG Guide 1.97 requirements. The limit switch cable will be submerged. In this configuration they can not maintain their EQ qualification. Once submerged the valve position indication maybe lost and a ground maybe received on Vital Bus 1A.

Valve operation will not be effected. The valve will receive its CI signal and close. Confirmation that the valve is in its safeguards position will be received before the valve limit switch and cable is submerged. **Valve function is backed up by the redundant Containment Isolation valve PV-A-12 outside containment.**

SL-M-51

Containment isolation motor operated valve that requires its valve position limit switch be EQ qualified to meet REG Guide 1.97 requirements. Both the limit switch and its associated cable will be submerged. In this configuration they can not maintain their EQ qualification. Once submerged the valve position indication maybe lost.

Confirmation that the valve is in its safeguards position will be received before the valve limit switch and cable is submerged. Submergence will not effect the valve position. **Valve function is not affected. Containment Isolation function is backed up by the redundant Containment Isolation Valve SL-A-53 outside containment.**