Sargent & Lundy LLC

Don K. Schopfer
Senior Vice President
312-269-6078

May 14, 1998
Project No. 9583-100

Docket No. 50-423

Northeast Nuclear Energy Company
Millstone Nuclear Power Station, Unit No. 3
Independent Corrective Action Verification Program

United States Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

I have enclosed the following discrepancy reports (DRs) identified during our review activities for the ICAVP. These DRs are being distributed in accordance with the Communications Protocol, PI-MP3-01.

I have enclosed the following thirty-six (36) DRs for which the NU resolutions have been reviewed and accepted by S&L.

DR No. DR-MP3-0097	DR No. DR-MP3-0553
DR No. DR-MP3-0242	DR No. DR-MP3-0584
DR No. DR-MP3-0244	DR No. DR-MP3-0588
DR No. DR-MP3-0245	DR No. DR-MP3-0632
DR No. DR-MP3-0287	DR No. DR-MP3-0648
DR No. DR-MP3-0294	DR No. DR-MP3-0695
DR No. DR-MP3-0359	DR No. DR-MP3-0826
DR No. DR-MP3-0367	DR No. DR-MP3-0832
DR No. DR-MP3-0368	DR No. DR-MP3-0871
DR No. DR-MP3-0377	DR No. DR-MP3-0925
DR No. DR-MP3-0489	DR No. DR-MP3-0983
DR No. DR-MP3-0503	DR No. DR-MP3-1015
DR No. DR-MP3-0549	DR No. DR-MP3-1018

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DR No. DR-MP3-1051	DR No. DR-MP3-1083
DR No. DR-MP3-1068	DR No. DR-MP3-1084
DR No. DR-MP3-1076	DR No. DR-MP3-1085
DR No. DR-MP3-1081	DR No. DR-MP3-1087
DR No. DR-MP3-1082	DR No. DR-MP3-1094

I have also enclosed one (1) DR for which the NU resolution has been reviewed but not accepted. S&L comments on this resolution has been provided.

DR No. DR-MP3-0667

Please direct any questions to me at (312) 269-6078.

Yours very truly,

D. K. Schopfer
SeniorVice President and
ICAVP Manager

DKS:spr
Enclosures
Copies:
E. Imbro (1/1) Deputy Director, ICAVP Oversight
T. Concannon (1/1) Nuclear Energy Advisory Council
J. Fougere (1/1) NU
m:\icavp\corr\98\nr0514-a.doc

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0097

Review Group: System
Review Element: System Design
Discipline: Piping Design
Discrepancy Type: Calculation
System/Process: QSS
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 9/11/97

Discrepancy: Calculation NP(F)-X7926 - Pipe Supports and valve accelerations not evaluated for current loads

Description: In the process of reviewing Calculation 12179-NP(F)-X7926 Rev. 2, including Calculation Change Notice (CCN) No.'s 1 through 6 we noted the following discrepancies:

(i) CCN #6, dated 9/13/96 revised the piping stress analysis to incorporate containment displacement effects associated with various accident scenarios, as defined by Calculation No. 12179-NS(B)-168, Rev. 1, 'Containment Displacement Profiles'. The NUPIPE piping model has been reanalyzed to address the containment displacement effects. Consequently pipe support loads are revised based on the new analysis. However, no support summary has been provided in the calculation, and there is no indication that the revised support loads have been transmitted to Pipe Support Engineering for evaluation.

(ii) CCN #6, dated 9/13/96 references Stress Data Package SDP-QSS Rev. 0, dated 1-14-83. However, CCN #3, dated 9/17/85 already evaluated the impact of revisions 1 through 3 of the Stress Data Package. CCN#6 does not reflect the appropriate revision of the stress data package.The latest revision of the Data Package is Rev. 6.

(iii) CCN #1, dated 7/16/85 states that 'valve accelerations due to time history forces exceeded allowables of 3.0 g's for valves 3QSS*V7 and 3QSS*V3. The calcuation recomputes reduced acceleration values, however, the reduced acceleration levels reported in CCN #1 still exceed the allowable of 3.0 g's. There is no justification provided for accepting these higher acceleration values.

		Valid	Invalid	Review Needed	Date
Initiator:	Jain, R. C.	☒	☐	☐	8/29/97
VT Lead:	Neri, Anthony A	☒	☐	☐	9/2/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	9/8/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	9/8/97

Date:

INVALID:

Date: 5/12/98

RESOLUTION: First Response

ID: M3-IRF-00483

Disposition:
NU has concluded that Discrepancy Report DR-MP3-0097, Items (ii) and (iii) have identified conditions not previously discovered by NU which require correction. Condition Report (CR) M3-97-3247 was written to provide the necessary corrective actions to resolve these issues. The calculation will be revised to properly address the identified conditions. NU has also concluded that Item (i) does not represent a discrepant condition.
CCN Number 6 to Calculation 12179-NP(F)-X7926 Rev. 2 was prepared in accordance with the QSS, RSS and SI stress reconciliation program established in 1996 to address the increased containment ambient temperature affects on those systems. That program was based on a phased approach to calculations. Phase 1 calculations were used as a preliminary design input to allow review and disposition of potential modifications for equipment and pipe support commodities in parallel with the stress analysis calculation preparation. Phase II calculations were prepared as interim documents, usually CCN's, which would document the final design, including the independent review, but which would not include all of the information typically provided in a calculation of record, information which enhances the auditability of the document. Phase III calculations are in process of being prepared and will satisfy the Design Control Manual requirement to be comprehended without an assisted review. The subject CCN 6 is a Phase II calculation which is scheduled to be updated to a Phase III status approximately November 1997. Support load summaries were therefore not included in CCN 6; rather they were provided to the appropriate engineering parties via controlled transmittals. Load summaries will, however, be included in the Phase III calculation. Refer to NU letter CES-96-218 (attached) for details of the phased approach for calculation preparation. Significance level criteria do not apply to item i as this is not a discrepant condition.

As stated in Item ii, Calculation X7926 CCN 6 has an incorrect reference to the QSS-SDP. When the change was issued, QSS-SDP Rev. 4 was the latest issued revision for the Stress Data Package (SDP). Revisions 5 and 6 of the SDP calculation were issued after CCN 6 to the stress calculation, as part of the review and update process for all SDPs, and as stated in pages 3 and 5 of the SDP calculation. This formal process was performed on all QA Category 1 SDPs as a function of the Configuration Management Program (CMP) to re-institute the SDPs as the controlled input for QA Category I stress calculations. As explained in the SDP calculations, before start of the CMP, SDPs were frozen in 1986 and were not kept current. Since the current SDPs were revised as a backfit, the reference to the SDP provided in the associated stress calculations is outdated. This was understood as part of the backfit program and is explained in the current revisions to the SDPs. Therefore, this discrepancy is limited to the referenced calculation, and do not represent a programmatic weakness
With respect to Item iii, the process used for determining acceptable valve accelerations is documented in the project criteria document NETM-49, 'Procedure for

Verification/Resolution of Equipment Nozzle Loads and Valve Accelerations,' which includes instructions for resolving valve accelerations which exceed the 3.0 g threshold requirement. Resolution of valve acceleration acceptability issues was documented in the Valve Acceleration Index controlled by the Mechanical Equipment Group. There was no requirement to update the stress calculation if the valve accelerations were determined to be acceptable. In this case, however, the technical justification contained a mathematics error which invalidates the conclusions. Therefore the discrepancy is valid due to an error in calculating combined accelerations, and not due to a programmatic deficiency.

Conclusion:
NU has concluded that Discrepancy Report DR-MP3-0097, Items (ii) and (iii) have identified conditions not previously discovered by NU which require correction. Condition Report (CR) M3-97-3247 was written to provide the necessary corrective actions to resolve these issues. The calculation will be revised to properly address the identified conditions. NU has also concluded that Item (i) does not represent a discrepant condition.

Follow Up to First Response

ID: M3-IRF-01125

Disposition:
This IRF is a follow-up to IRF-MP3-0483. Condition Report (CR) M3-97-3247 corrective action plan has been approved to ensure that calculation 12179-NS(B)-168 will be revised to correct the deficient conditions. The justifications for the 3QSS*V3 and V7 valve accelerations will be updated to provide the basis for acceptance. The calculation will be revised to reference the appropriate revision of the Stress Data Package. The disposition of item (i) remains as stated in IRF-MP3-0483.

Conclusion:
This IRF is a follow-up to IRF-MP3-0483. Condition Report (CR) M3-97-3247 corrective action plan has been approved to ensure that calculation 12179-NS(B)-168 will be revised to correct the deficient condition. The justifications for the 3QSS*V3 and V7 valve accelerations will be updated to provide the basis for acceptance. The calculation will be revised to reference the appropriate revision of the Stress Data Package. The disposition of item (i) remains as stated in IRF-MP3-0483.

Second Response

ID: M3-IRF-02278

Disposition:
NU has concluded that the issues reported in DR-MP3-0097 have identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. This supplement to IRFs-

MP3-0483 and 1125 responds to the issues stated in S&L's request for follow-up.

IRF-MP3-1125 incorrectly referenced calculation 12179-NS(B)-168 rather than calculation 12179-NP(F)-7926. The correct calculation number was entered in CR M3-97-3247. That the calculation was incorrectly identified as a pipe support calculation, rather than a pipe stress calculation, is of no consequence to the processing or disposition of the CR.

NU concurs that the worst case is the Operating Basis Earthquake (OBE) rather than the Safe Shutdown Earthquake (SSE), but the objective of a Reportability Determination is to assess the operability of the component during an accident condition. Since this is a function review, rather than a design basis review, this assessment required the use of SSE.

The Seismic Qualification Report is a vendor package that is not routinely revised to account for minor changes or errors. As stated in the approved corrective action plan for CR M3-97-3247, the justification for the valve accelerations in calculation 12179-NP(F)-X7926 must be updated to provide the basis for their acceptance. Therefore the traceable path to show acceleration acceptability will be accomplished by these corrective actions.

Conclusion:
NU has concluded that the issues reported in DR-MP3-0097 have identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. This is a supplement to IRFs-MP3-0483 and 1125. IRF-MP3-1125 incorrectly referenced calculation 12179-NS(B)-168 rather than calculation 12179-NP(F)-7926. CR M3-97-3247 also incorrectly identified calculation 12179- NP(F)-7926 as a pipe support calculation, rather than a pipe stress calculation, but this is of no consequence. NU concurs that the worst case is the OBE rather than the SSE, but the objective of a Reportability Determination is to assess the ability of the component to function during an accident condition, which requires use of the SSE values. The Seismic Qualification Report is a vendor package that is not routinely revised to account for minor changes or errors. As stated in the approved corrective action plan for CR M3-97-3247, the justification for the valve accelerations in calculation 12179-NP(F)-X7926 must be updated to provide the basis for their acceptance. Therefore the traceable path to show acceleration acceptability will be accomplished by these corrective actions.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Olson, P.R.	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/12/98				

SL Comments: First Response

ID: M3-IRF-00483 and follow up M3-IRF-01125

Note: The Following discrepancies required corrective action on the response provided in Response ID: M3-IRF-01125.

1. NU response in M3-IRF-01125 incorrectly identifies calculation 12179-NS(B)-168.
The correct calculation number is 12179-NP(F)-7926 Rev. 2,CCN-6. CR-M3-97-3247 does identify the correct calculation but labels this a pipe support calculation. The subject calculation is a pipe stress calculation.

2. Reportability Evaluation CR No. M3-97-3247 page 1 of 1
SRSS 0f the seismic plus time history accelerations in each of the 3 directions yields 3.85, 2.63, 3.22 (worst case is OBE not SSE) g's in the X, Y and Z directions respectively. SRSS of these 3 components yields a vector accleration of 5.66 (not 5.39) g's versus 5.19 g's allowable. Seismic qualification report D0057-1,3,4 and 5 shows enough margin for valve stresses But the operaror has been qualified only for a 3g acceleration (Seismic qualification envelope B-0037).
We concur with NU that there is no programatic requirement for updating the stress calculation provided that the acceleration levels were determined to be acceptable. However, no tracable path for the resolution is provided in the Seismic Qualification Report, or in the stress calculation.

Second Response

ID: M3-IRF-02278

The corrective action outlined in CR M3-97-3247 to update the affected calculation is acceptable.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0242

Review Group: Configuration
Review Element: System Installation
Discipline: Electrical Design
Discrepancy Type: Drawing
System/Process: SWP
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 10/30/97

Discrepancy: Differences in Support Drawings and TSO2 Data

Description: 1. Drawing EE-34DT Rev. 7 (C-4) shows tray support A306-26 for Tray 3T114O. TSO2 does not list this support, but lists a A307-26.

2. Several tray supports do not have mark numbers -- which provide for the unique identification of a support based on a standard support type and the specific location -- shown on the support location drawings (EE-34-DX Rev. 8 and EE-34DY Rev. 8). Therefore, it is not possible to reconcile these supports with TSO2. Example: for tray 3TX214N, three type "A105" supports are shown – TSO2 lists the A105 supports as -47, -53, 41. (typical situation with 34DY).

3. F-E-20188 adds conduits to tray support A104 however, the drawing was not listed as impacted and no mention of the additional conduit loads (no other conduits are supported from this support) for the tray support was made on any the drawing.

4. Trays 3TX703N and 3TX706N are vertical risers located in the Fuel Building. These trays are shown on Support Detail Drawing EE-34 HM, Rev. 3. The supports are direct attachment angles to embedded strut. The tray is installed in accordance with the detail of the drawing. TSO2 does not list any supports for these tray risers.

		Valid	Invalid	Review Needed	Date
Initiator:	Sarver, T. L.	☒	☐	☐	10/15/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/15/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/20/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	10/27/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: NU has concluded that Discrepancy Report, DR-MP3-0242, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0495 has been written to develop and track resolution of this item per RP-4.

SECOND RESPONSE:

NU has concluded that the new issue reported in Discrepancy Report, DR-MP3-0242 does not represent a discrepant condition. NU has concluded that these issues are deferrable based on section 1.3.2.e of U3 PI 20. The corrective actions in Bin CR M3-98-0217 will correct these issues post startup. NU considers the overall classification of the DR to be significance level 4.

The original discrepancy description is;

1. Drawing EE-34DT Rev. 7 (C-4) shows tray support A306-26 for Tray 3T114O. TSO2 does not list this support, but lists a A307-26.
2. Several tray supports do not have mark numbers -- which provide for the unique identification of a support based on a standard support type and the specific location -- shown on the support location drawings (EE-34-DX Rev. 8 and EE-34DY Rev. 8). Therefore, it is not possible to reconcile these supports with TSO2. Example: for tray 3TX214N, three type "A105" supports are shown – TSO2 lists the A105 supports as -47, -53, 41. (typical situation with 34DY).
3. F-E-20188 adds conduits to tray support A104 however, the drawing was not listed as impacted and no mention of the additional conduit loads (no other conduits are supported from this support) for the tray support was made on any the drawing.
4. Trays 3TX703N and 3TX706N are vertical risers located in the Fuel Building. These trays are shown on Support Detail Drawing EE-34 HM, Rev. 3. The supports are direct attachment angles to embedded strut. The tray is installed in accordance with the detail of the drawing. TSO2 does not list any supports for these tray risers.

Further investigation has determined that the supports are adequate and that the remaining issues are labeling, TS02 and minor drawing updating as follows;

Item1; TS02 will be corrected to show that the support for tray 3TC1140 (corrected from 3T1140) is A306-26.

Item 2; DCN DM3-S-0195-93 is posted as a CCD against and adds the support numbers to drawing EE-34DY. NU has concluded that this issue does not represent a discrepant condition. A DCN will be required to add the support numbers to drawing EE-34DX.

Item 3; the problem description of E&DCR F-E-20188 requests the approval of the conduit attachment to the tray support. The problem solution approves the attachment including the additional weight of the conduit and adds a lateral brace to increase the adequacy of the support because of the additional load. The E&DCR refers to calculation 12179-SEO-BE-52.595 and is posted as a CCD to add the supports to the support detail drawing EE-34GP, drawings do not indicate loads. NU has concluded that this issue does not represent a discrepant condition.

Item 4; the original discrepancy did not question the tray loads. These non Q trays are installed per the details of drawing EE-34HM thus the adequacy. A DCN will be issued that assigns unique support numbers on drawing EE-34EV for the supports for trays 3TX703N and 3TX706N and in TS02.

U3 PI 20 section 1.3.2 e defines the type of discrepancies which will be completed during the next refueling outage or later. Attachment 11 defines the type of issues which will be completed

prior to startup. The intent of attachment 11 is to correct issues prior to startup that would inhibit operations from aligning the plant systems for safe operations in accordance with the design basis.
NU concludes that the assignment of priority 4 is correct and in accordance with U3 PI 20 section 1.3.2 e.Significance level criteria does not apply to the new issue as this is not a discrepant condition.CR M3-98-0495 was closed to Bin CR M3-98-0217. The corrective actions in Bin CR M3-98-0217 will correct these issues post startup.
NU considers the overall classification of the DR to be significance level 4.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Klaic, N	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: Adequacy of the tray supports needs to be verified for the addittional conduit and tray riser loads prior to start-up.

SECOND RESPONSE:

S & L concurs with NU's disposition based on the review of the provided referenced documents.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0244

Review Group: Configuration
Review Element: System Installation
Discipline: Electrical Design
Discrepancy Type: Installation Requirements
System/Process: SWP
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 10/18/97

Discrepancy: Conduit not supported in accordance with standards

Description: Conduit 3CC491PB2 is connected to Panel (wall mounted junction box) 3HVK*PNLCHL1B. The first support on this conduit from the junction box is approximately four feet from the box. This length exceeds the allowable 3 feet as established by Drawing BE-52XR Rev 5 note 18.

		Valid	Invalid	Review Needed	Date
Initiator:	Sarver, T. L.	☒	☐	☐	9/30/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/1/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/13/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	10/14/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: NU has concluded that the issue reported in Discrepancy Report, DR-MP3-0244, has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI 20 deferral criteria.
The first support on conduit 3CC491PB2 is more than 3 feet from 3HVK*PNLCHL1B, which deviates from the standard practice of conduit support at Millstone Unit 3. There is no seismic qualification concerns as a result of this deviation since the additional conduit reaction to the panel is insignificant and the support spacing on the conduit is well within the allowable spans. Design documentation will be updated to reflect this deviation from the standard installation details. CR M3-98-2092 was closed to CR M3-98-0137. The corrective actions for this issue are included in CR M3-98-0137 which will be completed post startup. There is no affect on License or Design Basis.

Previously Identified by NU? ○ Yes ◉ No **Non Discrepant Condition?** ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No **Resolution Unresolved?** ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Klaic, N	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	

Date: 5/13/98

SL Comments: S & L concurs with NU's disposition that the impact of the single o

verspan is minor when the magnitude of the reaction and other adjacent spans. Therefore, this is not deemed to be a re-start issue.

Review Group: Configuration
Review Element: System Installation
Discipline: Electrical Design
Discrepancy Type: Installation Implementation
System/Process: QSS
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 1/18/98

Discrepancy: Tray Supports not in accordance with design documents

Description: The following tray support anomalies were identified during the preparation of walkdown packages and subsequent field observations.

1. F-E-15019 added a 16 inch extension to the vertical legs of tray support C016A-141 and a dummy horizontal at 15 feet 8 inches on these two extensions. Also added were two sections of PS-204 strut at elevation 15 ft. 8 in. and at 18 ft. 4 in. between C016A-141 and C168A-140. These were identified as PS-203 in the FE, but PS-204 was found to be installed. The PS-204 members are identified as conduit support CB-1122. The FE is not listed as affecting drawing EE-34KW, although it directly does, and no other change document could be located that implemented this modification.

2. F-E-16954 shows a four inch conduit (3CX420NA) attached to a new horizontal member at elevation 19 ft. 9 in. between supports C058D-070 and C058-055 (Reference drawing EE-34LA, Rev. 5). This is identified on the FE as support CB-1713. There is no specific member called out on support CB-1713 and no conduit designated 3CX420NA is in this location. There is a conduit 3CL400NC attached to a vertical member installed between two horizontals of the tray support which is identified as CB-4519. The described support does not exist in the field and no open change documents reviewed made such modifications.

3. N-CS-01395 was written to add "W" bracing between supports C058D-070 and C058-055 and west to support C058A-99 (Reference drawing EE-34LA, Rev. 5). In all cases where the bracing was to be installed, the installed bracing is not in accordance with the design for "W" bracing as shown on drawing EE-34JB; but is a single piece of angle iron. No open change documents listed as affecting this document that were available for review made such modifications.

4. F-E-39292 shows the addition of conduit support CB-4654 to tray support C068A-124, and that conduit 3CX402BD or 3CK901NE4 is attached. No conduit is attached to the support and conduit 3CX402BD can not be identified in this area. This FE also shows conduit support CB-4655 for conduit 3CX402BD; this conduit was not found attached to this support.

5. F-E-40033 provided for the welding of two pieces of PS-201 onto tray support C068A-133 to be used as conduit support CB-4762. The current configuration of the installed support differs from that identified in the FE.

6. N-CS-1395 was written to address the addition of "W" bracing described on F-E-43555 to supports C068A-133 and C077B-134. This bracing is correctly installed on half of the shelves, but on the remainder only a single piece of angle iron has been installed which is not consistent with the design detail for the required bracing. This N-CS is not listed in GRITS as affecting drawing EE-34LC despite the fact that these supports are shown on that drawing and it is expected that this is where the bracing will ultimately be shown. No open document could be identified that addresses this deviation.

7. Conduit 3CK124PB2 is attached to the embedded strut between the seventh and eighth shelves of tray support C077B-134 (Reference drawing EE-34LC, Rev. 4). This type of installation to an embed is customarily (has been done in numerous similar cases previously reviewed) identified and analyzed as part of an FE. No change documents could be identified for this attachment.

8. F-E-43110 was written to add "W" bracing between supports C105A-264 and C105B-280 (reference drawing EE-34LF, Rev. 5) at the sixth and eleventh levels of the C105A support. Based on the field observation the FE is not correct in that the bracing should be at the seventh and twelfth levels.

9. A section of PS-201 was added between C119-177 and C119-178 (Reference Drawing EE-34LG, Rev. 4) for lighting fixtures. These is also a lighting outlet on the bottom member of support C119-177. No open change control documentation reviewed addresses this addition to the supports.

10. F-E-15019 has a direct impact on support C168A-140 which is shown on dwg EE-34LJ, Rev. 7. The FE was to extend the east vertical leg of the support by welding an addition(16 inch piece of strut)onto the existing member. Field observation revealed the east vertical member was not extended by welding but was installed as a longer piece. Further the FE which impact the design of this support shown on the referenced drawing was not posted as an open document on the drawing.

11. Drawing EE-34EF Rev. 9, Section view AA (located @ J-6) refers to drawing EE-34 JU. Drawing cannot be retrieved. Listed as "New" from 1988. Cannot verify bracing for support R294-020.

		Valid	Invalid	Review Needed	Date
Initiator:	Sarver, T. L.	☒	☐	☐	1/6/98
VT Lead:	Neri, Anthony A	☒	☐	☐	1/6/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	1/12/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	1/14/98

Date:

INVALID:

Date: 5/12/98

RESOLUTION:

RESOLUTION:

NU has concluded that the issues reported in Discrepancy Report, DR-MP3-0245, have identified CONFIRMED SIGNIFICANCE LEVEL 4 conditions which require correction. Items 1 & 10 meet the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 Disposition Continuation: criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI-20 deferral criteria.Item # 1. BIN CR M3-98-0137 will generate an administrative DCN to reference the applicable affected documents EE-34KW and EE-34LJ and against Conduit Support Log CB-1122 by supplementing E&DCR F-E-15019 for the details. Also, the DCN will clarify the as-installed condition regarding the PS-204 installed in lieu of PS-203. This Item is an administrative paper change only to correctly list Affected Documents. The PS-204 member is equivalent to PS-203 with respect to Design Properties and therefore acceptable. The initiation of a DCN is deferrable as these conditions do not affect Nuclear Safety, Licensing Design Basis, Employee Concerns or the safe operation of the Plant.Item # 10. BIN CR M3-98-0137 will generate an administrative DCN in order to reference the applicable affected document EE-34LJ and against Cable Tray Support C168A-140 by supplementing E&DCR F-E-15019 for the extension details. However, the DCN will also clarify the as-installed condition regarding the vertical leg on the East side of C168A-140 which is a continuous member in lieu of an added section with a splice plate. This Item is an administrative paper change only to correctly list Affected Documents. The as-installed configuration is structurally adequate since it is a continuous vertical member. The initiation of a DCN is deferrable as these conditions do not affect Nuclear Safety, Licensing Design Basis, Employee Concerns or the safe operation of the Plant.CR M3-98-2092 was closed to BIN CR M3-98-0137. The corrective actions for CR M3-98-0137 will be completed post startup. There is no affect on License or Design Basis.NU has concluded that items 2, 3, 4, 5, 6, 7, 8, 9, & 11, do not represent discrepant conditions.Item # 2. E&DCR F-E-16954 clearly indicates on the cover page that Conduit Support Log CB-1713 was actually deleted. This is consistent with TSO2, which also does not list this support. CSL CB-4519 lists E&DCR F-E-29591 which issued the support details for conduit 3CX420NA at this location and field observation indicates it is installed as shown on the CSL. The conduit that is attached to CB-4519 was walked down and found to be labeled 3CX420NA, which is correct per the CSL and TSO2.Item # 3. E&DCR N-CS-01395 provided the level where the installation of horizontal "W" bracing is required for various Cable Tray Supports. The E&DCR referenced drawing EE-34JB, Det "W" for the cross bracing. A search in GRITS against EE-34JB reveals E&DCR N-CS-01424 which allows the substitution of a single angle member for the two flat bar cross bracing.Item # 4. Conduit 3CX402BD has been voided and no longer exists and is not listed in TSO2. CSL's CB-4654 and CB-4655 no longer show this conduit attached. Conduit 3CK901NE4 is attached to the horizontal member of Tray Support C068A at El. 9'-0". The horizontal member (Item K) shown on CSL CB-4654 was installed for Conduit 3CX402BD and was left in place after the

conduit
was deleted. Also, CSL CB-4655, lists F-E-41285 which supplements F-E-39292 for CB-4655 and this E&DCR also does not show 3CX402BD. TSO2 and the two CSL's, CB-4654 and CB-4655 are in agreement.
Item # 5. CSL CB-4762 lists E&DCR N-CS-02592 which modifies the support to show the attachment of a junction box and alters the configuration shown on F-E-40033. Also, a search of GRITS against drawing 25212-34011-CB4672 reveals the latest revision to CSL CB-4672 is Rev. 3 and that DCN DM3-S-0270-92 had been incorporated. Revision 3 is consistent with the As-installed condition observed in the field.Item # 6. A search of GRITS against drawing EE-34LC for outstanding Change Documents reveals that E&DCR N-CS-01395 is properly posted and the E&DCR also lists EE-34LC as an Affected Document. Therefore the documentation is correct. Further, E&DCR N-CS-01395 provided the level where the installation of horizontal "W" bracing is required for various Cable Tray Supports. The E&DCR referenced drawing EE-34JB, Det "W" for the cross bracing. A search in GRITS against EE-34JB reveals that E&DCR N-CS-01424 allows the substitution of a single angle member for the two flat bar cross bracing.Item # 7. Conduit 3CK124PB2 is installed per CSL CB-1593 and attached to the embedded strut per the concrete attachment detail shown BE-52CN. This standard support does not require Engineering approval and therefore no "F-E" type E&DCR was required. Therefore, this is not a discrepant condition and no further action is required.Item # 8. The levels for installation of the "W" bracing for C105A and C105B as given in the E&DCR F-E-43110 are optional. The options are the 6th & 11th levels for C105A or the 7th & 12th level for C105B. Due to an existing conduit and support, the bracing could not be installed at either support at level 6. The optional level 7 was utilized (i.e. installed at the 7th and 12th levels as described in this Item).Item # 9. The D.C. outlet box was added per DCN DM3-07-0673-97 along with the emergency light fixture. This DCN also updated the Cable and Raceway Program for Tray Support DN-C119-177 to account for the additional weight.Item # 11. A search in GRITS against drawing EE-34EF reveals E&DCR F-E-42385 which provided the details for the bracing of Tray Support R294-020 and the other supports in this area. This E&DCR has been incorporated onto EE-34EF, but there was not adequate space to include the elevation view and connection details on that drawing. At that time a new drawing, EE-34JU was under development and referenced on EE-34EF for the location of Section "A-A". Until EE-34JU is issued, the applicable information can be traced to the Change Documents against the drawing that it is referenced from, in this case EE-34EF. Therefore, the information necessary for verification of the bracing of Tray Support R294-020 is retrievable on E&DCR F-E-42385.

~~Initiator:~~	~~Date, If~~				
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/13/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	5/14/98
		☐	☐	☐	

Date: 5/12/98

SL Comments: S & L has reviewed the reference documentation provided by NU and based on the results of that review, concurs with the conclusion that the only discrepant items are items 1 & 10.

Review Group: System
Review Element: System Design
Discipline: I & C Design
Discrepancy Type: Calculation
System/Process: SWP
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 11/17/97

Discrepancy: Calculation 3-ENG-106 data discrepancy.

Description: The purpose of calculation 3-ENG-106, Rev. 1, is to calculate instrument channel uncertainty for the 3SWP*FIS36A and B flow switches, providing start permissives to the control building air conditioning condensers, signaling that there is sufficient service water flow through the condensers.

Page 6, item 7, "Seismic Effect (SE) states that the start/trip switches are Seismic Category I and qualified for safety application per ITT Barton Seismic Analysis Report R3-580A-9. However, the reason for this qualification is to ensure physical integrity and circuit integrity only. Per P&IDs EM-133D & 151D switches 3SWP*FIS36A & B are used to provide permissive signals to the control building air conditioning chiller condensers to indicate that there is sufficient service water flow. Hence, they perform a safety function. In which case SE component should be considered, as recommended by Attachment 4 of NUSCo procedure NEAM 41 titled - Setpoint Calculations. Per section 2.3 of this attachment the effect of vibration (seismic effect) should be included in determination of the actual setpoint.

		Valid	Invalid	Review Needed	Date
Initiator:	Hindia, R.	☒	☐	☐	11/6/97
VT Lead:	Neri, Anthony A	☒	☐	☐	11/6/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	11/7/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	11/13/97

Date:

INVALID:

Date: 5/12/98

RESOLUTION: RESPONSE # 1

Disposition:

NU has concluded that Discrepancy Report, DR-MP3-0287, does not represent a discrepant condition. This Discrepancy Report identified the following issue. Calculation 3-ENG-106, Rev. 1, "Setpoint Determination for 3SWP*FIS36A,B; 3SWP-FIS37A,B; and 3SWP-FIS118A,B" states the purpose of the calculation is to calculate instrument channel uncertainty for safety related 3SWP*FIS36A & B flow switches however Seismic Effect (SE) are not included in the uncertainty determination for these components.

Per P&IDs EM-133D & 151D and the setpoint calculation the function of 3SWP*FIS36A&B is to provide a start permissive to

the control building air conditioning condenser, A or B respectively when adequate service water flow exists.
The low flow trip setpoint has varied from 300 gpm to 200 gpm (363 gpm and 288 gpm including the instrument uncertainty from prior calculations SP-3SWP-17 and 3-ENG-106 Revision 00). In 3-ENG-106, Revision 01, Attachment A1, Carrier Building System and Services evaluated the condenser water low flow setpoint and acknowledged that this low flow trip setpoint will not adversely affect the reliability of the chillers if the chillers refrigerant compressor head pressure is monitored and does not exceed the compressor head pressure specification.
Compressor head pressure is monitored by 3HVK*PS52A, B, High Condenser Pressure Cutout, which is designated as Category I and required for proper operation of the chiller per Material, Equipment, And Parts List Program (MEPL) MP3-CD-1032. Instrument setpoint calculation SP-3HVK-8 establishes this setpoint in accordance with Carrier recommendations. .
Furthermore, per MEPL evaluation MP3-CD-1071 the flow indicating switch automatic trip function is not safety-related and that the switch provides circuit continuity in the chiller circuit. Therefore, because this instrument does not perform a safety function seismic effects need not be included in its setpoint and Calculation 3-ENG-106 Revision 01, Section 6.7, Seismic Effect, stated that the seismic uncertainty from the ITT Barton Seismic Analysis Report R3-580A-9 would not to be included in the total probable error (uncertainty) determination.
Note: The requirements of NEAM 41 identified in DR MP3-0287 are no longer used for determining instrument uncertainties / setpoints. SP-ST-EE-286, "Standard Specification for Guidelines for Calculating Instrument Uncertainties" provides criteria for uncertainty calculations.

Conclusion:

NU has concluded that Discrepancy Report, DR-MP3-0287, does not represent a discrepant condition. The safety function for 3SWP*FIS36A,B has been evaluated by the Material, Equipment, And Parts List (MEPL) Program that classifies a components safety related function or augmented quality. It has been determined by MEPL MP3-CD-1071 that the automatic trip function of 3SWP*FIS36A,B is not safety related therefore, the seismic effect errors are not included in the switch actuation uncertainty calculation.

Significance Level criteria do not apply as this is not considered a discrepant condition.

RESPONSE #2

Disposition:

NU has concluded that the issue reported in Discrepancy Report, DR-MP3-0287, has identified conditions not previously discovered by NU which require correction.
Subsequent investigation into this DR has revealed that the chiller low flow trip setpoint is 253.6 gpm per Calculation Change

Notice (CCN) 01 dated November 26, 1997, to calculation 3-ENG-106 "Setpoint Determination for 3SWP*FIS36A, B, 3SWP37A, B, 3SWP-FIS118A, B," not 288.8 gpm as stated in the DR. This CCN referenced calculations 90-069-1065 M3 "MP3 - Service Water System - NRC Generic Letter 89-13, Item No. IV, Design Basis Summary Report" CCN 06 dated October 23, 1997, and 97-002 "Minimum Required Service Water Flow to 3HCQ*ACUS1A/B and 3HVQ*ACUS2A/B and 3HVK*CHL 1A/B" as the basis for revising the instrument process setpoint. The referenced calculations established the minimum flowrate required for HVK heat exchanger performance and not the minimum Service Water Flow available during the various accidents. Calculation 97-041 "MP3 Service Water System: Determination of Minimum Available Flows During Accident Scenarios and Investigation of SW Heat Exchanger Return Lines for Potential Cavitation or Choked Flow" establishes the minimum available flowrate for the various accidents as being approximately 350 gpm. This flowrate and process limit of 200 gpm should be used in the instrument setpoint calculation 3-ENG-106 to evaluate the margin between the low flow trip setpoint and the minimum flowrate available.

In addition, Barton has provided a revised qualification report R3-580A-29 "Design Qualification Test Plan for ITT Barton Models 580A, 581A, 583A Switches for Class 1E Service in Nuclear Power Plants" that replaces Seismic Analysis report R3-580A-9. This revised report identifies the maximum seismic event, residual effect on the switch setpoint as being ± 5 % of full scale.

Condition Report (CR) M3-98-1884 dated April 9, 1998, was written to document and provide the necessary corrective actions to resolve the calculation discrepancies. The Corrective Action Plan for M3-98-1884 has been approved and implemented by issuance of CCN 02 dated April 9, 1998, to calculation 3-ENG-106. This CCN revised the calculation by using the revised qualification report R3-580A-29 seismic residual value of 5 % and the minimum available flowrate value from calculation 97-041. Applying the total probable error (TPE) of 5.92 inches of WC to the present low flowrate trip setpoint of 15.69 inches (253.6 gpm) results in a minimum trip point of 9.77 inches (200 gpm) and a maximum trip point of 21.61 inches (297.6 gpm). Whereas, the minimum Service Water flowrate available is 29.91 inches (350 gpm) per calculation 97-041 this equates to 8.3 inches (8.3 % of full scale) margin between the trip setpoint and the minimum operating conditions. This margin exceeds the maximum post seismic event, residual effect of ± 5 % of full scale by three percent. The present low flow trip setpoint is acceptable and does not change the conclusions of the calculation. Therefore, NU considers this to be a Significance Level 4 issue.

Conclusion:

NU has concluded that the issue reported in Discrepancy Report, DR-MP3-0287, has identified conditions not previously discovered by NU that require correction. Condition Report M3-

98-1884 has been written with its corrective action plan approved and implemented that revised calculation 3-ENG-106 to resolve the calculation discrepancies.

Subsequent investigation into this DR has revealed that the chiller low flow trip setpoint is 253.6 gpm not 288.8 gpm as stated in the DR. It was also, determined that the minimum available flowrate of 297 gpm used in calculation 3-ENG-106 was in error, since the flowrate value used was based on the heat exchanger performance requirements and not on the minimum Service Water flowrate (350 gpm) available during the various accidents. Additionally, Barton has provided a revised qualification report that determines the post seismic event residual effect as having a maximum uncertainty value of ± 5 % of full scale.

Using the minimum Service Water flowrate (350 gpm) available during the various accidents provides a margin between the trip setpoint and the minimum operating conditions of 8.3 inches or 8.3 % of full scale. This margin exceeds the maximum post seismic event, residual effect of ± 5 % of full scale by three percent. Therefore, the present flow trip setpoint is acceptable and does not change the conclusions of the calculation. Based upon this NU considers this to be a Significance Level 4 issue.

ADDENDUM TO RESPONSE # 2

Disposition:

NU has concluded that the issue reported in Discrepancy Report, DR-MP3-0287, has identified conditions not previously discovered by NU which require correction.

MEPL Determination MP3-CD-1071 in section 5.23 states "Flow indicating switches 3SWP*FIS36A/B sense the flow downstream of the control room air conditioner chillers (3HVK*CHL1A) and provide an interlock with the air conditioners. On a sensed low flow condition, these flow indicating switches will function to secure the control room air conditioners to prevent damage to the compressor. Although this automatic trip function is not safety-related, the flow indicating switch provides circuit continuity in the chiller circuit. For this reason 3SWP*FIS36A/B should be Category I."

Although, the MEPL determination had determination has reached the proper conclusion, that the switches are classified as QA Category I, and that the trip function is only for equipment protection, the determination infers that the safety-related functionality is passive by stating that the safety-related function is only to maintain circuit continuity. It had inadvertently omitted that these switches provide a start permissive to the chillers when the Service Water flow is restored during a LOP event which is an active function. Additionally, calculation 3-ENG-106, Revision No. 01, Change No. 02, used this passive functionality statement as the basis for performing an evaluation on the

seismic effect instead of including it in the square-root-sum-of-square equation within the instrument uncertainty calculation.

Condition Report (CR) M3-98-1884 dated April 9, 1998, has been revised to document and provide the necessary corrective actions to resolve the MEPL and calculation discrepancies. The corrective actions have been approved for post startup implementation. MEPL Determination MP3-CD-1071 and 3-ENG-106 will be revised to indicate the proper switch functionality and to include the seismic effect term in the uncertainty calculation. Calculation 3-ENG-106 conclusion remains valid since, the 8.3% margin that exists between the trip setpoint and the minimum operating conditions remains unaffected by this omission. This margin exceeds the maximum post seismic event, residual effect of + 5% of full scale by three percent. Therefore, the present flow trip setpoint is acceptable since, the omission did not change the conclusions of the calculation. NU considers these changes to be minor in nature that do not impact the design or licensing basis of any system. Based upon this NU considers overall subject of this DR to be a Significance Level 4 issue.

Conclusion:

NU has concluded that the issue reported in Discrepancy Report, DR-MP3-0287, has identified conditions not previously discovered by NU discovered by NU that required correction. Condition Report M3-98-1884 has been revised with its corrective action plan approved to revise MEPL Determination MP3-CD-1071 and calculation 3-ENG-106 to indicate the proper ~~safety-related functionality for flow switches 3SWP*FIS36A/B.~~

Calculation 3-ENG-106 conclusion remains valid since, the 8.3% margin that exist between the trip setpoint and the minimum operating conditions remains unaffected by this omission. This margin exceeds the maximum post seismic event, residual effect of + 5% of full scale by three percent. Therefore, the present flow trip setpoint is acceptable since, the omission did not change the conclusions of the calculation. NU considers these changes to be minor in nature that do not impact the design or licensing basis of any system. The corrective actions have been approved for post startup implementation. Based upon this NU considers overall subject of this DR to be a Significance Level 4 issue.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Hindia, R.	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/12/98				

SL Comments: RESPONSE # 1

Per logic diagrams LSK-22-12C, Rev. 11 & LSK-22-12E, Rev. 9 switch 3SWP*FIS36A(B) stops chiller compressor for 3HVK*CHL1A(B) if the flow detected is below normal flow. This is in agreement with NU drawing no. 25212-29061, Sh. 15, Rev. E (vendor drawing no. 12179-2176-430-061-015). Per Carrier letter dated May 27, 1988 "Condenser water flow affects the chillers refrigerant compressor head pressure. If head pressure is monitored and does not exceed the refrigerant head pressure specifications, for the chiller in question, the flow rate of condenser water will not adversely affect the reliability of the chiller". This letter is a part of attachment A1. This indicates the effect of the quantitative value of the SW flow is insignificant. However, per NU drawing no. 25212-29061, Sh. 15, Rev. E the switches in question are a part of start-stop circuit for the compressor. Hence, functionally the switches should be considered safety related.

Per page 7 of CCN No 6, dated 10-23-97, to calculation 90-069-1065M3, the minimum flow required for 3HVK*CHL1A(B) is 297 GPM. Per section 13 of calculation 3-ENG-106, the low flow trip setpoint is 288.8 GPM. This trip setpoint is based on a Total Probable Error (TPE) of +/- 5.92 inches WC and a calculated dP of 9.77 inches WC.

Since the minimum flow requirements and the actual trip setpoint values are close to each other (namely 297 GPM vs. 288.8 GPM), impact of the drift due seismic effect component should be evaluated to verify proper operation of the chiller compressor after a seismic event. From the calculation the drift applied around the analytical limit of 200 GPM would allow the switches 3SWP*FIS36A and B to function over a range of 126 to 254 GPM. Therefore the instrument uncertainty component around the actual setpoint of 288.8 GPM may trip the chiller compressor when the required minimum flow of 297 GPM exists. This could result in a condition where both trains of the Control Room cooling is rendered inoperable.

In-light of the above discussion it is possible that a seismic event could introduced an error to the loop uncertainty that is not analyzed by calculation 3-ENG-106 this could be detrimental to the chiller performance.

Please note that the significance level of the DR has been upgraded to level 3 based on the results from the most recent revision of calculation 90-069-1065M3. Other setpoints calculated in the setpoint calculation 3-ENG-106 also need to be re-reviewed in this light.

RESPONSE # 2

Based on the writeup in response # 2 and addendum to response # 2 all the concerns identified in the DR have been addressed by CR change forms attached with NU's response. The significance

level of the DR has been revised to Level 4.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0294

Review Group: System
Review Element: System Design
Discipline: Piping Design
Discrepancy Type: Calculation
System/Process: SWP
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 10/10/97

Discrepancy: Lack of documentation for qualification of tie rods

Description: In the process of reviewing the following documents,

(i) Pipe Stress Calculation 12179-NP(B)-X1900 Rev. 3 CCN's 1 to 3
(ii) Pipe Stress Calculation 12179-NP(B)-X53900, Rev. 5
(iii) Pipe Stress Calculation 12179-NP(B)-X53901, Rev. 6, CCN's 1 to 3

we noted the following discrepancy:

Background:

According to (i): Expansion Joint Data Sheet for Joint Mark No. 3SWP*E1B, at Nodes 501 - 511, shows the tie rod load for the worst case Thermal condition to be 191,716 lbs. The actual tie rod load should be 19,716 lbs, which is the load at NP 511, the attachment point between the expansion joint and Strainer 3SWP*STR1B (Inlet). Tie Rod loads for all other load cases correspond to the load at the Strainer inlet NP 511.

Discrepancy:

The thermal condition load for expansion joint (3SWP*E1B) tie rods is numerically incorrect.
Tie rod loads are documented in pipe stress calculations, but no documentation is provided for the qualification of tie rods for these loads. This is a generic discrepancy applicable to all the cases reviewed where expansion joints with tie rods are used, see for example (i to iii).

		Valid	Invalid	Review Needed	Date
Initiator:	Prakash, A.	☒	☐	☐	9/23/97
VT Lead:	Neri, Anthony A	☒	☐	☐	9/24/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/1/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	10/2/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: First Response
ID: M3-IRF-00841

Disposition:

NU has concluded that Discrepancy Report, DR-MP3-0294, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI 20 deferral criteria. Condition Report M3-98-2026 will be closed out to Bin CR M3-98-0138. The issues identified in DR-MP3-0294 are addressed as follows:

The qualification of all MP3 Tie Rods is found in the attached "Millstone Unit No. 3 Expansion Joint Modeling and Qualification Report" supplied by Stone & Webster and Senior Flexonics. This report is tied to EWR No. M396061. The remaining issue is the correction of the typographical error associated with the tie rod load for the worst case thermal condition for EJ 3SWP*EJ1B. The load is listed at 191,716 lbs and it should be 19,716 lbs. This is a typo error only. This has no impact on the calculation as the typo error was not carried through any calculation.

Bin CR M3-98-0138 corrective actions will correct calculation 12179-NP(B)-X1900 post startup.

Conclusion:
NU has concluded that Discrepancy Report, DR-MP3-0294, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of ~~U3 PI 20 deferral criteria. Condition Report M3-98-2026 will be~~ closed out to Bin CR M3-98-0138. The issues identified in DR-MP3-0294 are addressed as follows:The qualification of all MP3 Tie Rods is found in the attached "Millstone Unit No. 3 Expansion Joint Modeling and Qualification Report" supplied by Stone & Webster and Senior Flexonics. This report is tied to EWR No. M396061. The remaining issue is the correction of the typographical error associated with the tie rod load for the worst case thermal condition for EJ 3SWP*EJ1B. The load is listed at 191,716 lbs and it should be 19,716 lbs. This is a typo error only. This has no impact on the calculation as the typo error was not carried through any calculation. Bin CR M3-98-0138 corrective actions will correct calculation 12179-NP(B)-X1900 post startup.

Attachments:
1. Condition Report M3-98-2026
2. Millstone Unit No. 3 Expansion Joint Modeling and Qualification Report

Second Response
ID: M3-IRF-02345

Disposition:
NU has concluded that issue (i) reported in DR-MP3-0294 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. Correction of this issue will be performed in accordance with the corrective actions outlined in CR M3-98-2026. Condition Report M3-98-2026 will be closed out to Bin CR M3-98-0138. NU has concluded that the new issue reported in DR-MP3-0294 has identified a PREVIOUSLY DISCOVERED condition. Pursuant to a formal teleconference with S&L on 07 May 1998, the following information is provided to address the issue of discovery and incorporation of the recommendations detailed in a letter from Stone & Webster to NU, dated July 14, 1997, on the subject of "Expansion Joint Modeling and Qualification":

Discovery: CR M3-97-0836 was generated on 3/18/97 to address potentially generic deficencies in expansion joint modeling and qualification. As a result of this CR, the letter referenced in issue (ii) was generated.

Incorporation: The incorporation of the comprehensive review of MP3 expansion joints modeling and qualification into the MP3 program has been performed in calculation 97-ENG-01551C3 Rev 0. This calculation is currently in the final review process within S&W and will be transmitted to NU upon completion.

Note: The corrective actions associated with CR M3-97-0836 are scheduled for completion before MP3 Startup.

Conclusion:
~~NU has concluded that issue (i) reported in DR-MP3-0294 has~~ identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. Correction of this issue will be performed in accordance with the corrective actions outlined in CR M3-98-2026. Condition Report M3-98-2026 will be closed out to Bin CR M3-98-0138.NU has concluded that the new issue reported in DR-MP3-0294 (See Background Section above) has identified a PREVIOUSLY DISCOVERED condition. Pursuant to formal teleconference with S&L on 07 May 1998, the following information is provided to address the issue of discovery and incorporation of the recommendations detailed in a letter from Stone & Webster to NU, dated July 14, 1997, on the subject of "Expansion Joint Modeling and Qualification":Discovery: CR M3-97-0836 (See Attached) was generated on 3/18/97 to address potentially generic deficencies in expansion joint modeling and qualification. As a result of this CR, the letter referenced in issue (ii) was generated.

Incorporation: The incorporation of the comprehensive review of MP3 expansion joints modeling and qualification into the MP3 program has been performed in calculation 97-ENG-01551C3 Rev 0. This calculation is currently in the final review process within S&W and will be transmitted to NU upon completion.

Note: The corrective actions associated with CR M3-97-0836

are scheduled for completion before MP3 Startup.

Attachments:
Condition Report M3-97-0836

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Prakash, A.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: First Response:

The DR addressed two issues:
(i) typographical error in tie-rod loads for EJ 3SWP*EJ1B
(ii) generic issue of lack of documentation for tie rod qualification.

Issue (i) has been addressed thru Bin CR M3-98-0138. This is acceptable.

Issue (ii), is addressed by reference to "Millstone Unit No. 3 Expansion Joint Modeling and Qualification Report" supplied by Stone & Webster and Senior Flexonics. This report was supposed to be attached with the response. What is actually attached to the response is a letter from Stone & Webster to NU, dated July 14, 1997, on the subject of "Expansion Joint Modelling and Qualification", and a Millstone Unit 3 Tied Expansion Joint Database.

This letter transmits a database for tied expansion joints, and provides recommendations for future tied expansion joint computer modelling and qualification, and describes the methods used historically by S&W to model and qualify tied expansion joints. It does not provide the qualification of all MP3 Tie Rods as stated in NU's response. Therefore, NU's response to issue (ii) is unacceptable.

Second Response:

We concur with NU that the unresolved issue (ii) - lack of documentation for tie rod qualification - is a PREVIOUSLY IDENTIFIED CONDITION. Discovery of the condition is documented in CR M3-97-0836, and the associated corrective actions are scheduled for completion before MP3 Startup.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0359

Review Group: Configuration
Review Element: System Installation
Discipline: Electrical Design
Discrepancy Type: Installation Implementation
System/Process: SWP
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 10/30/97

Discrepancy: Installation not inaccordance with design documents

Description: The following discrepant condition was identified during walkdowns:

1. Conduit 3CX000PB (1" diameter – steel) is supported by support ES-2000 as shown on Conduit Support Log 12179-FSK-ES-2000 Rev. 2. This is a direct attachment support type DC to concrete. Per Standard Support Detail Drawing BE-52CA, Rev. 4, the maximum allowable span to the next support is 5 feet. Contrary to this requirement, one of the as installed spans to the next support is 5'-6".

The following material condition items were noted;these are not configuration issues:

1.Several of the lower members of the cable tray supports in Manholes 3EMH-13A and 13B show significant signs of rust due to standing water which has also immersed the lower cable tray as demonstrated by the dis-coloration of the cable with in the tray .

2. Electrical Installation Specification E-350 Rev. 9, Section 3.1.5.6 indicates that ducts (conduit embedded in ductbanks) shall remain plugged until cable is pulled and spare ducts and sleeves shall be left plugged. Contrary to the above three conduit sleeves in each manhole 3EMH-13A and 13B, elevations 20' and 21' as shown Drawing EE-32L Rev. 7 (H-10) are not plugged/sealed.

		Valid	Invalid	Review Needed	Date
Initiator:	Sarver, T. L.	☒	☐	☐	10/17/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/17/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/20/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	10/27/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: NU has concluded that the issues reported in Discrepancy Report, DR-MP3-0359 has identified a CONFIRMED SIGNIFICANT LEVEL 4 condition which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI-20 deferral criteria. The conduit length discrepancy is expected to be within the

maximum allowable span length permitted per calculation 12179-SEO-SE-52.98, Rev. 1. This calculation justifies unsupported conduit lengths longer than designed based on the type and location of the installation. The material condition items will be corrected. These discrepancies identified in M3-DRT-00359 do not have effect plant configuration, operation or personnel safety.The corrective actions in Bin CR M3-98-2239 will address the issues of the DR post startup. The following corrective actions will be performed:
1. formally document the conduit over-span,
2. remove the rust, verify integrity, and protect tray supports from future rusting,
3. and plug open conduits as required. NU believes that the assignment of priority 4 is correct and in accordance with U3 PI 20 section 1.3.2 e.These discrepancies do not meet the criteria as defined in attachment 11 of U3 PI 20 and therefore their corrective actions are deferrable to post startup.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Klaic, N	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/14/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: S & L concurs with NU's disposition based on the review of the provided referenced documents.

Review Group: System
Review Element: System Design
Discipline: Electrical Design
Discrepancy Type: Component Data
System/Process: QSS
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 11/2/97

Discrepancy: Design Input Discrepancies Involving Motor Operated Valves 3QSS*MOV34A and 3QSS*MOV34B

Description: A. Motor Operator Replacements for Valves 3QSS*MOV34A and 3QSS*MOV34B

Motor operated valves 3QSS*MOV34A and 3QSS*MOV34B were changed from the original purchase specification from 0.13 to 0.33 horsepower. Neither Specification 2362.200-164 Add. 1 nor Production Maintenance Management System (PMMS) have been revised to reflect the changes in horsepower, motor torque, full load current, and locked rotor current to valves 3QSS*MOV34A and 3QSS*MOV34B. These documents should be revised. The affected voltage and thermal overload sizing Calculation 89-094-120E3 (Rev. 0, CCN 4) has evaluated both horsepower values, therefore the results of the calculation are not affected.

B. Reliance Motor Curves for Valves 3QSS*MOV34A and 3QSS*MOV34B

1. Full load current can be obtained from the Reliance motor curve sheet (included in the motor operated valve calculations) in three places: the table, the header, and the curve itself. The values from these three places are usually different. In most cases, the motor operated valve Calculation 89-094-120E3 (Rev. 0, CCN 4) states that the full load current is obtained from a walkdown reading of the nameplate, therefore the full load current data shown in the Reliance motor curve sheet is not used. However, for valves 3QSS*MOV34A and 3QSS*MOV34B, the thermal overload heater analysis section of the calculation states that the full load current value was obtained from the Reliance motor curve sheet, but no indication is made to whether the table, the header, or the curve itself was used to obtain this value. The different full load current values are:

Reliance Motor Curve - curve = 0.73 amperes
Reliance Motor Curve - header = 1.0 amperes
Reliance Motor Curve - table = 0.7 amperes
Value used in the thermal overload relay sizing section of the calculation = 0.73 amperes.

The use of 0.7 amperes has no affect on the calculation. The use of 1.0 amperes reduces the actuation time of the thermal overload relay but the results of the calculation are not changed, namely that the thermal overload relay actuates prior to reaching

the motor's capability but after the valve actuator motor duty cycle.

Calculation 89-094-120E3 uses different full load current values (0.73 or 1.0 amperes) in the AC Motor Evaluation Checklist, Limitorque EEQ Walkdown Checklist, motor overload test record, and molded case circuit breaker test record sheets. In addition, the full load current values are different between the calculation, vendor Drawings 2362.200-164 -043 (Rev. C) and 2362.200-164-043A (Rev. B) (0.95 amperes) and Plant Design Data System (PDDS) (1.0 amperes). These documents should be revised to reflect the actual full load current.

2. For motor operated valves 3QSS*MOV34A and 3QSS*MOV34B, the Reliance motor curve in Calculation 89-094-120E3 (Rev. 0, CCN 4) indicates a locked rotor current value of 5.5 in the header of the curve but a locked rotor current value of 5.25 in the table of the curve. The calculation doesn't address which value is used or why it is used. In addition, Calculation 89-094-120E3 does not match the values shown in vendor Drawings 2362.200-164-043 (Rev. C) and 2362.200-164-043A (Rev. B) (5.0 amperes) and PDDS (5.8 amperes). The actual value of the locked rotor current should be used in these documents.

Calculation 89-094-120E3 used the value of 5.5 amperes in the thermal overload relay sizing and in the overload sections of the calculation. This provides more conservative results than using 5.25 amperes.

C. Motor Ampacities of Valves 3QSS*MOV34A and 3QSS*MOV34B

For motor operated valves 3QSS*MOV34A and 3QSS*MOV34B, Production Maintenance Management System (PMMS) has three ampacity categories and values for two ampacity attributes:

AFL = 0.39
ALR = 2.6
Amps = 0.13

Comparing the values in PMMS with other documents, "AFL" and "ALR" represent full load and locked rotor current, respectively. It appears that "Amps" represents the old horsepower of 0.13. "Amps" should be revised to reflect the actual motor attribute and value.

D. Stroke Time for Valves 3QSS*MOV34A and 3QSS*MOV34B

Motor operated valves 3QSS*MOV34A and 3QSS*MOV34B have stroke times which are not consistent between Calculation NM-027 Rev. 2 and either Specification 2362 200-164 Add. 1 or Calculation 89-094-120E3 (Rev. 0, CCN 4). Calculation 89-094-

120E3 is used to size the motor thermal overloads and confirm adequate voltage exists at the motor's terminals. The stroke time in Calculation NM-027 is 40 seconds for these valves. The stroke time in Calculation 89-094-120E3 is 30 seconds and the stroke time in Specification 2362.200-164 Add. 1 is 30 seconds (maximum). The 40 second stroke time does not affect the results of the calculation (i.e., the thermal overload relay will not actuate within the duty cycle of the valve actuator motor).

In the thermal overload analysis section of Calculation 89-094-120E3, it references Calculation NM-027 as the input source for stroke time. Calculation 89-094-120E3 references Revision 1 of Calculation NM-027, but the latest revision of NM-027 is Revision 2. The latest revision of NM-027 should be referenced.

		Valid	Invalid	Review Needed	Date
Initiator:	Kendall, D. J.	☒	☐	☐	10/15/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/27/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/28/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	10/30/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: Disposition:

NU has concluded that part of Items A and D of Discrepancy Report, DR-MP3-0367, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI 20 deferral criteria.

Specification 2362.200-164 and calculation NM-027 will be corrected to reflect the correct horsepower, motor torque, full load current, locked rotor current and stroke time.
CR M3-98-2091 was closed to Bin CR M3-98-0217. The corrective actions of Bin CR M3-98-0217 will correct these issues post startup.
There is no affect on License or Design Basis.

NU has concluded that Items B and C and part of Items A and D of Discrepancy Report, DR-MP3-0367 has identified a condition previously discovered by NU which requires correction.

Item A:
All MOV modifications are being performed as part of DCR M3-97004. DCR M3-97004 was initiated by EWA M3-95338. As part of the DCR closure process, PMMS will be updated to reflect correct values.

Item B :
Calculation 89-094-120E3 has been superseded by MOV

Electrical Calculation, MOV8910-01542E3, Revision 0. Calculation MOV8910-01542E3 was initiated by DCR M3-97004. The values used for the new calculation are obtained through nameplate (walkdown) data or the motor curves, but the nameplate data takes precedence. The motor curve values are only used if nameplate data is unavailable. 3QSS*MOV34A/B calculations have been performed using nameplate values. The nameplate FLC for 3QSS*MOV34A/B is 1.0 amps. The nameplate LRC for 3QSS*MOV34A/B is 5.5 amps.

The new MOV calculation uses the Reliance motor curves from the superseded calculation. There are differences between header, table and curve values, but per MOV-PI-4, "AC and DC Motor Terminal Voltage Evaluation", and MOV-PI-6, "Thermal Overload Sizing Evaluation", through reference to IEEE Std 1290-1996, the values taken from the vendor curves are always taken from the table.

All MOV modifications are being performed as part of DCR DM3-97004. DCR M3-97004 was initiated by EWA M3-95338. As part of the DCR closure process, PDDS will be updated to reflect correct values.

Discrepancy Report, DR-MP3-0543, has previously identified discrepancies in drawing 2362.200-164-043 Rev. C, and they are being corrected per CR M3-98-0965 (see M3-IRF-00925).

Item C:
All MOV modifications are being performed as part of DCR DM3-97004. DCR M3-97004 was initiated by EWA M3-95338. As part of the DCR closure process, PMMS will be updated to reflect correct values.

Item D:
Calculation 89-094-120E3 has been superseded by MOV8910-01542E3 Rev.0, and the new calculation makes no reference to calculation NM-027. Calculation MOV8910-01542E3 was initiated by DCR M3-97004.

NU has concluded that the issue reported in part of Item B of Discrepancy Report, DR-MP3-0367, does not represent a discrepant condition.

Item B:
Drawing 2362.200-164-43A does not exist in the drawing system database. It appears that the drawing of intent was 2362.200-164-43 Rev A, but this drawing has been superseded by Revision C.

Conclusion:
NU has concluded that part of Items A and D of Discrepancy Report, DR-MP3-0367, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and

found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI 20 deferral criteria. Specification 2362.200-164 and calculation NM-027 will be corrected to reflect the correct horsepower, motor torque, full load current, locked rotor current and stroke time. The corrective actions of Bin CR M3-98-0217 will correct these issues post startup.
There is no affect on License or Design Basis.

NU has concluded that Items B and C and part of Items A and D of Discrepancy Report, DR-MP3-0367 has identified a condition previously discovered by NU which requires correction. The following items were prediscovered by the initiation of EWA M3-95338 in response to GL89-10. M3-97004 addresses these issues as a result.

Item A:
All MOV modifications are being performed as part of DCR M3-97004. As part of the DCR closure process, PMMS will be updated to reflect correct values.

Item B :
Calculation 89-094-120E3 has been superseded by MOV Electrical Calculation, MOV8910-01542E3, Revision 0. Calculation MOV8910-01542E3 was initiated by DCR M3-97004. The nameplate FLC for 3QSS*MOV34A/B is 1.0 amps. The nameplate LRC for 3QSS*MOV34A/B is 5.5 amps. These values are used in the new calculation.

The new MOV calculation uses the Reliance motor curves from the superseded calculation. There are differences between header, table and curve values, but through reference to IEEE Std 1290-1996, the values taken from the vendor curves are always taken from the table.

All MOV modifications are being performed as part of DCR DM3-97004. As part of the DCR closure process, PDDS will be updated to reflect correct values.

Discrepancy Report, DR-MP3-0543, has previously identified discrepancies in drawing 2362.200-164-043 Rev. C, and they are being corrected per CR M3-98-0965.

Item C:
All MOV modifications are being performed as part of DCR DM3-97004. As part of the DCR closure process, PMMS will be updated to reflect correct values.

Item D:
Calculation 89-094-120E3 has been superseded by MOV8910-01542E3 Rev.0, and the new calculation makes no reference to calculation NM-027.

NU has concluded that the issue reported in part of Item B of Discrepancy Report, DR-MP3-0367, does not represent a discrepant condition.

Item B:
Drawing 2362.200-164-43A does not exist in the drawing system database. It appears that the drawing of intent was 2362.200-164-43 Rev A, but this drawing has been superseded by Revision C.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Kendall, D. J.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: Discrepancies concerning Vendor Drawing 2362.200-164-043, Specification 2362.200-164, and Calculation NM-027 listed in Items A and D:
NU agrees that these are previously undiscovered discrepancies and will revise these documents.

Vendor Drawing 2362.200-164-043A listed in Items B.1 & B.2:
Sargent & Lundy concurs with NU that this drawing, which was transmitted on an aperture card by NU to Sargent & Lundy, is not valid as it is an outdated version (i.e., Revision B) of valid Vendor Drawing 2362.200-164-043.

Discrepancies concerning PMMS, PDDS, and Calculation 89-094-120E3 listed in Items A, B.1, B.2, and C:
NU's response states that the discrepancies identified on the calculation in question (89-094-120E3), PDDS, and PMMS were previously discovered by NU (reference EWA M3-95338 and Calculation MOV8910-01542E3 which supersedes Calculation 89-094-120E3). Sargent & Lundy concurs that Calculation MOV8910-01542E3 adequately addresses the discrepancies listed in this DR, however, this calculation was prepared on January 9, 1998, which is after the cutoff date of May 27, 1997, for Wave 1 systems, therefore, these are still discrepant conditions . EWA M3-95338 was written prior to the cutoff date, however, it does not address the specific discrepancies listed in this DR but only makes a general statement that the motor operated valve modifications need to be performed during RF06.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0368

Review Group: System
Review Element: System Design
Discipline: Electrical Design
Discrepancy Type: Component Data
System/Process: RSS
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 11/2/97

Discrepancy: Motor Curve Discrepancies of RSS Motor Operated Valves

Description: 1. For motor operated valves 3RSS*MOV23A, 3RSS*MOV23B, 3RSS*MOV23C, and 3RSS*MOV23D, the Reliance motor curve in the Calculation 89-094-120E3 (Rev. 0, CCN 4) shows a locked rotor current value of 3.5 amperes in the header of the curve and 3.15 amperes in the table of the curve. The value of 3.15 amperes is used in the calculations. The locked rotor current shown in Calculation 89-094-120E3 does not match the values shown in vendor Drawings 2362.200-164-043 (Rev. C) and 2362.200-164-043A (Rev. B) (5.0 amperes), Specification 2362.200-164 Add. 1 (2.6 amperes), and PDDS (2.6 amperes). These documents should be revised to reflect the actual motor data.

2. For each motor operated valve, the header on the Reliance motor curve refers to the insulation as "B" which does not agree with the purchase specifications which require an insulation rating of radiation resistant Class H.

3. In Calculation 89-094-120E3 (Rev. 0, CCN 4), the locked rotor current for valves 3RSS*MOV20A, 3RSS*MOV20B, 3RSS*MOV20C, and 3RSS*MOV20D varies between 5.25 amperes as shown in the table on the Reliance motor curve M2734 (dated 7/25/77) and 5.5 amperes which is shown on the undervoltage analysis, thermal overload heater analysis, AC motor evaluation checklist, and thermal overload relay checklist of the calculation. However, Calculation 89-094-120E3 only uses the 5.5 ampere value throughout its analyses (i.e., is consistent). This value results in a more conservative but acceptable voltage drop than when using 5.25 amperes. The use of either value meets the requirement that the thermal overload relay actuate before reaching the motor capability.

4. In Calculation 89-094-120E3 (Rev. 0, CCN 4) for valves 3RSS*MOV20A, 3RSS*MOV20B, 3RSS*MOV20C, and 3RSS*MOV20D, the Reliance motor curve shows a horsepower rating of 33 and the Limitorque EEQ Walkdown Checklist, motor overload test record, and molded case circuit breaker test record sheets of Calculation 89-094-120E3 show a horsepower of 0.125 which does not match the value of 0.33 horsepower used in the undervoltage and thermal overload heater analysis of the calculation. These documents should be revised to reflect the actual motor horsepower.

5. Full load current can be obtained from the Reliance motor curve sheet (included in the motor operated valve calculations) in three places: the table, the header, and the curve itself. The values from these three places are usually different. In most

cases, the motor operated valve calculation states that the full load current is obtained from a walkdown reading of the nameplate, therefore the full load current data shown in the Reliance motor curve sheet is not used. However, for valves 3RSS*MOV38A, 3RSS*MOV38B, 3RSS*MV8838A, and 3RSS*MV8838B the calculations state that the full load current value was obtained from the Reliance motor curve sheet, but no indication is made to whether the table, the header, or the curve itself was used to obtain this value. The different full load current values are shown below for these valves:

Valves 3RSS*MOV38A and 3RSS*MOV38B:
Reliance Motor Curve - curve = 2.1 amperes
Reliance Motor Curve - header = 2.3 amperes
Reliance Motor Curve - table = 2.1 amperes
Value used in Calculation 89-094-117E3 (Rev. 0, CCN 2) = 2.1 amperes
(If 2.3 amperes is used in the calculation, the thermal overload relay actuation time decreases but it still meets the requirement to actuate after the 40 second valve actuator motor duty time but before the motor capacity which is 793 seconds.)

Valves 3RSS*MV8838A and 3RSS*MV8838B:
Reliance Motor Curve - curve = 4.5 amperes
Reliance Motor Curve - header = 5.2 amperes
Reliance Motor Curve - table = 4.7 amperes
Value used in Calculation 89-094-112E3 (Rev. 0, CCN 2) = 4.5 amperes
(If 4.7 or 5.2 amperes is used in the calculation, the results are unchanged.)

The valves listed below show differences between the Reliance motor curve header, table, and curve full load current values, but the full load current value used in Calculations 89-094-332E3 (Rev. 0, CCN 2) and Calculation 89-094-120E3 (Rev. 0, CCN 4) was obtained from the nameplate (i.e., the Reliance motor curve full load current data was not used in the calculations).

Valves 3RSS*MV8837A and 3RSS*MV8837B:
Reliance Motor Curve - curve = 4.5 amperes
Reliance Motor Curve - header = 5.2 amperes
Reliance Motor Curve - table = 4.7 amperes
Value used in Calculation 89-094-332E3 = 4.5 amperes
(If 4.7 or 5.2 amperes is used in the calculation, the results are unchanged.)

Valves 3RSS*MOV20A, 3RSS*MOV20B, 3RSS*MOV20C, & 3RSS*MOV20D:
Reliance Motor Curve - curve = 0.75 amperes
Reliance Motor Curve - header = 0.75 amperes
Reliance Motor Curve - table = 0.7 amperes
Value used in Calculation 89-094-120E3 = 0.75 amperes
(If 0.7 amperes is used in the calculation, the results are unchanged.)

Valves 3RSS*MOV23A, 3RSS*MOV23B, 3RSS*MOV23C, and 3RSS*MOV23D:
Reliance Motor Curve - curve = 0.6 amperes
Reliance Motor Curve - header = 0.6 amperes
Reliance Motor Curve - table = 0.55 amperes
Value used in Calculation 89-094-120E3 = 0.39 amperes
(If 0.6 or 0.55 amperes is used in the calculation, the thermal overload relay actuation time decreases but it still meets the requirement to actuate after the 60 second valve actuator motor duty time but before the motor capacity which is over 1800 seconds.)

For valves 3RSS*MOV20A, 3RSS*MOV20B, 3RSS*MOV20C, and 3RSS*MOV20D, Calculation 89-094-120E3 (Rev. 0, CCN 4) uses different full load current values (0.39 and 39) in the thermal overload heater analysis, AC Motor Evaluation Checklist, Limitorque EEQ Walkdown Checklist, motor overload test record, and molded case circuit breaker test record sheets than shown on the Reliance motor curve. In addition, the full load current values are different between the calculation , vendor Drawings 2362.200-164-043 (Rev. C) and 2362.200-164-043A (Rev. B) (0.95 amperes) and PMMS (0.39 amperes). These documents should be revised to reflect the actual motor data.

		Valid	Invalid	Review Needed	Date
Initiator:	Kendall, D. J.	☒	☐	☐	10/17/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/27/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/28/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	10/30/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: Disposition:

NU has concluded that part of item 1 of Discrepancy Report, DR-MP3-0368, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI 20 deferral criteria.

Specification 2362.200-164 Add. 1, lists the LRC for 3RSS*MOV23A-D as 2.6 amps. CR M3-98-2026 has been closed to Bin CR M3-98-0138 which will correct the specification discrepancy post startup.
There is no affect on License or Design Basis.

NU has concluded that part of items 1 and 5 and all of items 3 and 4 of Discrepancy Report, DR-MP3-0368, has identified a condition previoulsy discovered by NU which requires correction.

Several items are redundant throughout and should be noted beforehand.
First, all calculations within this Discrepancy Report have been superseded by MOV Electrical Calculation, MOV8910-01542E3, Revision 0. Second, the values used for the new calculation are obtained through nameplate (walkdown) data or the motor curves, but the nameplate data takes precedence. The new MOV calculation uses the Reliance motor curves from the superseded calculation. There are differences between header, table and curve values, but per MOV-PI-4, "AC and DC Motor Terminal Voltage Evaluation", and MOV-PI-6, "Thermal Overload Sizing Evaluation", through reference to IEEE Std 1290-1996, the values taken from the vendor curves are always taken from the table. The motor curve table values are only used if nameplate data is unavailable. Third, DCR M3-97004 was written to cover all changes required for the implementation of the GL89-10 (MOV) program. Any changes listed as awaiting closeout are for this DCR. DCR M3-97004 was initiated by EWA M3-95338 (attached).

Item 1:
The motor curve locked rotor current, LRC, for 3RSS*MOV23A-D is 3.15 amps. The inconsistency within the drawing is a previously identified discrepancy, DR-MP3-0543. CR M3-98-0965 was written to correct drawing 2362.200-164-43 discrepancies. PDDS will be corrected per DCR procedure upon close-out.

Item 3:
The nameplate locked rotor current, LRC, for 3RSS*MOV20A-D is 5.5 amps. This value is used in all phases of the new calculation. The calculation was initiated by DCR M3-97004.

Item 4:
The nameplate rating for 3RSS*MOV20A-D is .33 Hp. This value is used in all phases of the new calculation. The calculation was initiated by DCR M3-97004.

Item 5:
The nameplate ratings for 3RSS*MOV38A/B are 2.3 amps FLC and 12.0 amps LRC. The values of full and locked rotor current for 3RSS*MV8838A are 4.0 amps FLC (curve) and 25.5 amps LRC (nameplate). The values of full and locked rotor current for 3RSS*MV8838B are 4.0 amps FLC (nameplate) and 25.3 amps LRC (curve). The FLC for 3RSS*MV8837A/B is 4.0 amps and the LRC is 25.3 amps. The nameplate FLC value for 3RSS*MOV20A-D is .75 amps. The nameplate FLC value for 3RSS*MOV23A-D is .39 amps. All values are used consistently throughout the new calculation.
The last section of item #5 is inconsistent with data presented earlier. It appears as though the valves of intention should be 3RSS*MOV23A-D. Another section of item 5 had listed the FLC for 3RSS*MOV20A-D from calculation 89-094-120E3 to be .75 amps and 3RSS*MOV23A-D as .39 amps. The nameplate FLC value for 3RSS*MOV23A-D is .39 amps. Therefore, PMMS is correct, but the drawings should be revised. The inconsistency

within the drawing is a previously identified discrepancy, DR-MP3-0543. CR M3-98-0965 was written to correct drawing 2362.200-164-43 discrepancies. If the valves of intention are 3RSS*MOV20A-D, the nameplate FLC value is .75 amps. The vendor drawing will be corrected per CR M3-98-0965, and PMMS will be updated during the closure of the DCR M3-97004.

NU has concluded that the issue reported in part of items 1 and 5 and all of item 2 of Discrepancy Report, DR-MP3-0368, does not represent a discrepant condition.

Item 1 and Item 5:
Discrepancies were noted on drawing 2362.200-164-043A. This drawing could not be located and does not exist within the drawing system database. It appears that the drawing of intent was 2362.200-164-43 Rev A, but this drawing has been superseded by Revision C.

Item 2:
Only ~18% of all motor operated valves have an insulation rating of Class B. All other valves have an insulation rating of Class H. To compensate for the motor operators with a Class B rating, all calculations are performed with a 78 °C cutoff. Thus, all calculations are conservative. As the motor operators require replacement, they are replaced with Class H operators. All RSS valves are insulation class H.

Conclusion:

NU has concluded that part of item 1 of Discrepancy Report, DR-MP3-0368, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI 20 deferral criteria. Specification 2362.200-164 Add. 1, lists the LRC for 3RSS*MOV23A-D as 2.6 amps. CR M3-98-2026 has been closed to Bin CR M3-98-0138 which will correct the specification discrepancy post startup.
There is no affect on License or Design Basis.

NU has concluded that part of items 1 and 5 and all of items 3 and 4 of Discrepancy Report, DR-MP3-0368, has identified a condition previoulsy discovered by NU which requires correction.

Item 1:
The motor curve locked rotor current, LRC, for 3RSS*MOV23A-D is 3.15 amps. This value is used in all phases of the new calculation.
The inconsistency within the drawing is a previously identified discrepancy, DR-MP3-0543. CR M3-98-0965 was written to correct drawing 2362.200-164-43 discrepancies.
PDDS will be corrected per DCR procedure upon close-out.
Item 3:
The nameplate locked rotor current, LRC, for 3RSS*MOV20A-D

is 5.5 amps. This value is used in all phases of the new calculation.
Item 4:
The nameplate rating for 3RSS*MOV20A-D is .33 Hp. This value is used in all phases of the new calculation.
Item 5:
The nameplate ratings for 3RSS*MOV38A/B are 2.3 amps FLC and 12.0 amps LRC. The values of full and locked rotor current for 3RSS*MV8838A are 4.0 amps FLC (curve) and 25.5 amps LRC (nameplate). The values of full and locked rotor current for 3RSS*MV8838B are 4.0 amps FLC (nameplate) and 25.3 amps LRC (curve). The FLC for 3RSS*MV8837A/B is 4.0 amps and the LRC is 25.3 amps. The nameplate FLC value for 3RSS*MOV20A-D is .75 amps. The nameplate FLC value for 3RSS*MOV23A-D is .39 amps. All values are used consistently throughout the new calculation.
The vendor drawing will still be corrected per CR M3-98-0965, and PMMS will be updated during the closure of the DCR M3-97004.

NU has concluded that the issue reported in part of items 1 and 5 and all of item 2 of Discrepancy Report, DR-MP3-0368, does not represent a discrepant condition.

Item 1 and Item 5:
Discrepancies were noted on drawing 2362.200-164-043A. This drawing could not be located and does not exist within the drawing system database.
Item 2:
Only ~18% of all motor operated valves have an insulation rating of Class B. All other valves have an insulation rating of Class H. All RSS valves are insulation class H.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Kendall, D. J.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: Discrepancies concerning Specification 2362.200-164 listed in Item 1:
NU agrees that this is a previously undiscovered discrepancy and will revise this document.

Item 2:
NU's response acknowledges that the Reliance curves are incorrect regarding insulation rating and confirms that the correct rating is Class H. Based on NU's explanation, and the fact that the Reliance curve information concerning insulation rating is not used in the calculations, Sargent & Lundy agrees that this issue is non-discrepant. However, NU's response does not state why the Reliance curves, which are included in Calculation MOV8910-

01542E3 (and were included in superseded Calculations 89-094-112E3, 89-094-117E3, 89-094-120E3, and 89-094-332E3) as legitimate design data, do not need to be corrected (or a note added to the calculation which addresses this error), and Sargent & Lundy recommends that NU address this in a future revision to Calculation MOV8910-01542E3 for clarification purposes.

Vendor Drawing 2362.200-164-043A listed in Items 1 & 5: Sargent & Lundy concurs with NU that this drawing, which was transmitted on an aperture card by NU to Sargent & Lundy, is not valid as it is an outdated version (i.e., Revision B) of valid Vendor Drawing 2362.200-164-043.

Discrepancies concerning Vendor Drawing 2362.200-164-043, PMMS, PDDS, and Calculations 89-094-112E3, 89-094-117E3, 89-094-120E3, and 89-094-332E3 listed in Items 1, 3, 4, and 5: NU's response states that the discrepancies identified on these documents were previously discovered by NU (reference EWA M3-95338 and Calculation MOV8910-01542E3 which supersedes Calculations 89-094-112E3, 89-094-117E3, 89-094-120E3, and 89-094-332E3). Sargent & Lundy concurs that Calculation MOV8910-01542E3 adequately addresses the discrepancies listed in this DR, however, this calculation was prepared on January 9, 1998, which is after the cutoff date of May 27, 1997, for Wave 1 systems, therefore, these are still discrepant conditions . EWA M3-95338 was written prior to the cutoff date, however, it does not address the specific discrepancies listed in this DR but only makes a general statement that the motor operated valve modifications need to be performed during RF06.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0377

Review Group: System
Review Element: System Design
Discipline: Electrical Design
Discrepancy Type: Component Data
System/Process: SWP
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 11/9/97

Discrepancy: Motor Curve Discrepancies of SWP Motor Operated Valves

Description:

1. Full load current can be obtained from the Reliance motor curve sheet (included in the motor operated valve calculations) in three places: the table, the header, and the curve itself. The values from these three places are usually different. The valves listed below show differences between the Reliance motor curve header, table, and curve full load current values, but the full load current value used in the calculations was obtained from the nameplate (i.e., the Reliance motor curve full load current data was not used in the calculations). These documents should be revised to reflect the latest motor data.

Valves 3SWP*MOV24A, 3SWP*MOV24B, 3SWP*MOV24C, 3SWP*MOV24D
Reliance Motor Curve - curve = 0.35 amperes
Reliance Motor Curve - header = 0.45 amperes
Reliance Motor Curve - table = 0.45 amperes
Value used in Calc. 89-094-121E3 (Rev. 0, CCN 2) = 0.45 amperes

Valves 3SWP*MOV50A, 3SWP*MOV50B, 3SWP*MOV102A, 3SWP*MOV102B, 3SWP*MOV102C, 3SWP*MOV102D
Reliance Motor Curve - curve = 2.4 amperes
Reliance Motor Curve - header = 2.8 amperes
Reliance Motor Curve - table = 2.55 amperes
Value used in Calcs. 89-094-121E3 and 89-094-122E3 (Rev. 0, CCN 4) = 2.8 amperes

Valves 3SWP*MOV54A, 3SWP*MOV54B, 3SWP*MOV54C, 3SWP*MOV54D, 3SWP*MOV57A, 3SWP*MOV57B, 3SWP*MOV57C, 3SWP*MOV57D, 3SWP*MOV71A, 3SWP*MOV71B
Reliance Motor Curve - curve = 0.7 amperes
Reliance Motor Curve - header = 0.75 amperes
Reliance Motor Curve - table = 0.7 amperes
Value used in Calcs. 89-094-121E3 and 89-094-122E3 = 0.95 amperes

Valve 3SWP*MOV115A
Reliance Motor Curve - curve = 0.6 amperes
Reliance Motor Curve - header = 0.6 amperes
Reliance Motor Curve - table = 0.55 amperes
Value used in Calc. 89-094-122E3 = 0.6 amperes

Valve 3SWP*MOV115B
Reliance Motor Curve - curve = 0.4 amperes
Reliance Motor Curve - header = 0.45 amperes

Reliance Motor Curve - table = 0.45 amperes
Value used in Calc. 89-094-122E3 = 0.45 amperes

Valves 3SWP*MOV130A, 3SWP*MOV130B
Reliance Motor Curve - curve = 0.6 amperes
Reliance Motor Curve - header = 0.55 amperes
Reliance Motor Curve - table = 0.54 amperes
Value used in Calc. 89-094-122E3 = 0.55 amperes

With the exception of motor operated valves 3SWP*MOV130A and 3SWP*MOV130B (which are retired in place), the thermal overload relay sizing calculations used full load currents equal to or larger than the maximum full load currents shown in the Reliance motor curves, therefore, substituting any other values from the Reliance motor curves would not affect the results of the calculation.

2. For motor operated valve 3SWP*MOV115A, the Reliance motor curve shows a locked rotor current value of 3.5 amperes in the header of the curve and a value of 3.15 amperes in the table of the curve. The value of 3.5 amperes is used in the calculations performed in Calculation 89-094-122E3 (Rev. 0, CCN 4), and this value provides more conservative results than the 3.15 ampere value.

Specification 2282.400-568 Add. 3 (Rev. 1), vendor Drawing 2282.400-568-96B, Plant Design Data System (PDDS), and Production Management Maintenance System (PMMS) reflect a value of 3.15 amperes.

These documents should be revised to reflect the actual motor locked rotor current.

3. For each motor operated valve, the header on the Reliance motor curve refers to the insulation as "B" which does not agree with the purchase specifications which require an insulation rating of radiation resistant Class H.

4. In Calculations 89-094-121E3 (Rev. 0, CCN 2) and Calculation 89-094-122E3 (Rev. 0, CCN 4), the locked rotor current of 5.25 amperes for valves 3SWP*MOV54A, 3SWP*MOV54B, 3SWP*MOV54C, 3SWP*MOV54D, 3SWP*MOV57A, 3SWP*MOV57B, 3SWP*MOV57C, 3SWP*MOV57D, 3SWP*MOV71A, and 3SWP*MOV71B does not match the value of 5 amperes shown in Specification 2362.200-164 Add. 1 (Rev. 2), vendor Drawings 2362.200-164-043 (Rev. C) and 2362.200-164-043A (Rev. B), and Plant Design Data System (PDDS). Calculations NL-038 (Rev. 2, CCN 6) and SP-M3-EE-342 (Rev. 1) also show 5 amperes for 3SWP*MOV54A, 3SWP*MOV54C, and 3SWP*MOV71A. Use of the larger locked rotor currents provides more conservative

results (i.e., substituting 5 amperes for the 5.25 amperes will not affect the results of the calculation).

The documents should be revised to reflect the actual motor data.

		Valid	Invalid	Review Needed	Date
Initiator:	Kendall, D. J.	☒	☐	☐	10/17/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/27/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/28/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	11/5/97

Date:

INVALID:

Date: 5/12/98

RESOLUTION: Disposition:
NU has concluded that part of items 2 and 4 Discrepancy Report, DR-MP3-0377, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI 20 deferral criteria.

Specification 2282.400-568 Add. 3 (Rev.1), vendor drawing 2282.400-568-96B, specification 2362.200-164 Add. 1 (Rev. 2), vendor drawing 2362.200-164-043 (Rev. C), calculation NL-038 and specification SP-M3-EE-342 are discrepant and will be corrected post startup.

CR M3-98-2091 was closed to Bin CR M3-98-0217. The corrective actions in Bin CR M3-98-0217 will correct these issues post startup. There is no affect on License or Design Basis.

NU has concluded that item 1 and parts of items 2 and 4 of Discrepancy Report, DR-MP3-0377, has identified a condition previously discovered by NU which requires correction.

EWA M3-95338 was written in response to GL89-10. DCR M3-97004 (MOV Program)was initiated by EWA M3-95338. As part of the MOV program, Electrical Calculation MOV8910-01542E3 was issued.

Calculations 89-094-121E3 and 89-094-122E3 have been superseded by MOV Electrical Calculation MOV8910-01542E3. The values used for the new calculation are obtained through nameplate (walkdown) data or the motor curves, but the nameplate data takes precedence. The motor curve values are only used if nameplate data is unavailable. The new MOV calculation uses the Reliance motor curves from the superseded calculations. In some cases, there are differences between the header, table, and curve values, but per MOV-PI-4, "AC and DC Motor Terminal Voltage Evaluation", and MOV-PI-6, "Thermal Overload Sizing Evaluation," through reference to IEEE Std

1290-1996, the values taken from the vendor curves are always taken from the table. Thus, consistent curve values, when required, are used.

Item 1:
The nameplate values are used in the new calculation.
Nameplate FLC for 3SWP*MOV24A-D is .45 amps.
Nameplate FLC for 3SWP*MOV50A/B is 2.8 amps, and nameplate FLC for 3SWP*102A-D is 4.0 amps.
Nameplate FLC for 3SWP*MOV54A-D, 3SWP*MOV57A-D, and 3SWP*MOV71A/B is .95 amps.
Nameplate FLC for 3SWP*MOV115A is .60 amps.
Nameplate FLC for 3SWP*MOV115B is .45 amps.
PDCR MP3-94-099 removed all electric service to motor operated valves 3SWP*MOV130A/B. As such, these valves were manually placed in the normal open position and removed from the GL89-10 program and all electrical calculations.

Item 2:
The nameplate data is used for the new calculation. Nameplate LRC for 3SWP*MOV115A is 3.5 amps.
DCR M3-97004 was written to cover all changes required for the implementation of the GL89-10 (MOV) program. DCR M3-97004 was initiated by EWA M3-95338, "Generic Motor Operated Valve Modifications" in response to GL89-10. As per DCR procedure, PMMS and PDDS will be changed to reflect the correct values before closeout.

Item 4:
The curve table values are used for the new calculation. Curve table LRC for 3SWP*MOV54A-D, 3SWP*MOV57A-D, and 3SWP*MOV71A/B is 5.25 amps.

DCR M3-97004 was written to cover all changes required for the implementation of the GL89-10 (MOV) program. DCR M3-97004 was initiated by EWA M3-95338, "Generic Motor Operated Valve Modifications" in response to GL89-10. As per DCR procedure, PMMS and PDDS will be changed to reflect the correct values before closeout.

NU has concluded that the issue reported in item 3 and part of item 4 of Discrepancy Report, DR-MP3-0377, does not represent a discrepant condition.

Item 3:
Only ~18% of all motor operated valves have an insulation rating of Class B. All other valves have an insulation rating of Class H. To compensate for the motor operators with a Class B rating, all calculations are performed with a 78 °C cutoff. Thus, all calculations are conservative. As the motor operators require replacement, they are replaced with Class H operators. Per Table 4.1.1 and 4.1.2 of MOV calculation MOV8910-01542E3, all SWP valves are insulation class H.

Item 4:
Drawing 2362.200-164-043A could not be located within the

drawing database. It appears that the drawing in question is 2362.200-164-043 Rev. A. This drawing was superseded by Rev. C, which is the other drawing listed.

Conclusion:
NU has concluded that part of items 2 and 4 of Discrepancy Report, DR-MP3-0377, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI 20 deferral criteria. Specification 2282.400-568 Add. 3 (Rev.1), vendor drawing 2282.400-568-96B, specification 2362.200-164 Add. 1 (Rev. 2), vendor drawing 2362.200-164-043 (Rev. C), calculation NL-038 and specification SP-M3-EE-342 are discrepant and will be corrected post startup. The corrective actions in Bin CR M3-98-0217 will correct these issues post startup. There is no affect on License or Design Basis.

NU has concluded that item 1 and parts of items 2 and 4 of Discrepancy Report, DR-MP3-0377, has identified a condition previously discovered by NU which requires correction.

EWA M3-95338 was written in response to GL89-10. DCR M3-97004 (MOV Program)was initiated by EWA M3-95338. As part of the MOV program, Electrical Calculation MOV8910-01542E3 was issued.

Item 1:
The nameplate values are used in the new calculation, MOV8910-01542E3.
Nameplate FLC for 3SWP*MOV24A-D is .45 amps.
Nameplate FLC for 3SWP*MOV50A/B is 2.8 amps, and nameplate FLC for 3SWP*102A-D is 4.0 amps.
Nameplate FLC for 3SWP*MOV54A-D, 3SWP*MOV57A-D, and 3SWP*MOV71A/B is .95 amps.
Nameplate FLC for 3SWP*MOV115A is .60 amps.
Nameplate FLC for 3SWP*MOV115B is .45 amps.
PDCR MP3-94-099 removed all electric service to motor operated valves 3SWP*MOV130A/B. As such, these valves were manually placed in the normal open position and removed from the GL89-10 program and all electrical calculations.

Item 2:
The nameplate data is used for the new calculation, MOV8910-01542E3. Nameplate LRC for 3SWP*MOV115A is 3.5 amps. DCR M3-97004 was written to cover all changes required for the implementation of the GL89-10 (MOV) program. DCR M3-97004 was initiated by EWA M3-95338, "Generic Motor Operated Valve Modifications" in response to GL89-10. As per DCR procedure, PMMS and PDDS will be changed to reflect the correct values before closeout.

Item 4:
The curve table values are used for the new calculation. Curve

table LRC for 3SWP*MOV54A-D, 3SWP*MOV57A-D, and 3SWP*MOV71A/B is 5.25 amps.

PMMS and PDDS will be changed to reflect the correct values before closeout of DCR M3-97004.

NU has concluded that the issue reported in item 3 and part of item 4 of Discrepancy Report, DR-MP3-0377, does not represent a discrepant condition.

Item 3:
Only ~18% of all motor operated valves have an insulation rating of Class B. . Per Table 4.1.1 and 4.1.2 of MOV calculation MOV8910-01542E3, all SWP valves are insulation class H.

Item 4:Drawing 2362.200-164-043A could not be located within the drawing database. This drawing was superseded by Rev. C, which is the other drawing listed.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Kendall, D. J.	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/12/98				

SL Comments: Discrepancies concerning Vendor Drawings 2282.400-568-96B & 2362.200-164-043, Specifications 2282.400-568 & 2362.200-164, PDDS, PMMS, Calculation NL-038, and OPAL Database Spec. SP-M3-EE-342 listed in Items 2 & 4:
NU agrees that these are discrepancies and will revise these documents.

Calculation discrepancies listed in Items 1, 2, & 4:
NU's response states that the discrepancies identified on the calculations in question (89-094-121E3 and 89-094-122E3) were previously discovered by NU (reference EWA M3-95338 and Calculation MOV8910-01542E3 which supersedes Calculations 89-094-121E3 and 89-094-122E3). Sargent & Lundy concurs that Calculation MOV8910-01542E3 adequately addresses the discrepancies listed in this DR, however, this calculation was prepared on January 9, 1998, which is after the cutoff date of May 27, 1997, for Wave 1 systems, therefore, it is still a discrepant condition. EWA M3-95338 was written prior to the cutoff date, but it does not address the specific discrepancies listed in this DR but only makes a general statement that motor operated valve modifications need to be performed during RF06.

Vendor Drawing 2362.200-043A listed in Item 4:
Sargent & Lundy concurs with NU that this drawing, which was transmitted on an aperture card by NU to Sargent & Lundy, is not valid as it is an outdated version (i.e., Revision B) of valid Vendor Drawing 2362.200-164-043.

Item 3:
NU's response acknowledges that the Reliance curves are incorrect regarding insulation rating and confirms that the correct rating is Class H. Based on NU's explanation, and the fact that the Reliance curve information concerning insulation rating is not used in the calculations, Sargent & Lundy agrees that this issue is non-discrepant. However, NU's response does not state why the Reliance curves, which are included in Calculation MOV8910-01542E3 (and were included in superseded Calculations 89-094-121E3 and 89-094-122E3) as legitimate design data, do not need to be corrected (or a note added to the calculation which address this error), and Sargent & Lundy recommends that NU address this in a future revision to Calculation MOV8910-01542E3 for clarification purposes.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0489

Review Group: System
Review Element: System Design
Discipline: Mechanical Design
Discrepancy Type: Calculation
System/Process: QSS
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 11/13/97

Discrepancy: QSS Minimum Wall Calculation References

Description: The minimum wall calculations reference ASME Section III, 1971 through 1973 Summer Addenda as the design code for piping. Reference 3 in the calculations reference Section NB-3640 of this Code. Section NB of the Code is Class 1 piping requirements. The QSS lines are Class 2. Class 2 piping and components are designed under Section NC of the Code. The Section NC allowable stresses were used in the calculation. Because Section NC-3640 uses a similar equation for calculating the minimum wall as Section NB-3640, there is no affect on the conclusion. This is a documentation discrepancy.

The calculations all reference a flow diagram (FSK) for the design pressure and temperature. The FSK series drawings has been classified "For Information Only." A review of the piping diagram and the line list, which superseded the FSKs, indicates the pressure and temperature are correct in all cases except for Calculation MW(F)-45. The discrepancy for this calculation is addressed in DR-MP3-0164. Since the pressures and temperatures used in the calculation are correct, the conclusions are not affected. This is a documentation discrepancy.

The Minimum Wall Calculations are:

MW(B)-129, Rev. 0
MW(B)-142, Rev. 0
MW(F)-027, Rev. 0
MW(F)-045, Rev. 0
MW(F)-125, Rev. 1
MW(F)-174 , Rev. 1
MW(F)-321, Rev. 1

		Valid	Invalid	Review Needed	Date
Initiator:	Langel, D.	☒	☐	☐	10/31/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/31/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	11/6/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	11/7/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: Disposition:

NU has concluded that the issue reported in DR-MP3-00489 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. This response supersedes response M3-IRF-01693 in it's entirety. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per U3 PI-20 criteria and found to have no operability

or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0515 has been written to revise the referenced calculations to reference Section NC-3640 of the code.

Conclusion:

NU has concluded that the issue reported in DR-MP3-00489 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. This response supersedes response M3-IRF-01693 in it's entirety. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0515 has been written to revise the referenced calculations to reference Section NC-3640 of the code.

Previously Identified by NU?	○ Yes	◉ No	**Non Discrepant Condition?**	○ Yes	◉ No
Resolution Pending?	○ Yes	◉ No	**Resolution Unresolved?**	○ Yes	◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Langel, D.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:					

SL Comments:

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0503

Review Group: Configuration
Review Element: System Installation
Discipline: Electrical Design
Discrepancy Type: Installation Implementation
System/Process: SWP
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 10/30/97

Discrepancy: Supports not in agreement with design drawings.

Description: The following deviations from design drawings were noted:

1. Drawing DWG EE-34KA Rev. 3 for tray support Type C207 calls for Detail H which requires gusset plate at ceiling anchorage. Support C207-172 does not have this detail as an auxiliary beam is installed in its position.

2. Drawing EE-34KH Rev. 2 for support type C260 does not show horizontal W37 5/8"L member that is installed between the top and bottom internal 'X' bracing on support C260-263. Open Change Control Documents for this drawing did not authorized this deviation.

3. Three PS 204 members, which run to support C309-32, are installed on the upper 4 ft. section of the south vertical leg of support C309A-017 (reference drawing EE-34 KP Rev. 4). No design documents can be identified to authorize these members.

		Valid	Invalid	Review Needed	Date
Initiator:	Sarver, T. L.	☒	☐	☐	10/15/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/16/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/20/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	10/27/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: NU has concluded that Discrepancy Report, DR-MP3-0503, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0513 has been written to develop and track resolution of this item per RP-4.

SECOND RESPONSE:

NU has concluded that the issues reported in Discrepancy Report DR-MP3-0503 have identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which require correction. Items 1 and 2 of the discrepancy report meet the criteria specified in NRC letter B16901 and 170010.
Items 1 and 2 have been screened per attachment 11 of U3 PI 20 criteria and were found to have no operability or reportability

concerns and meet section 1.3.2.e of U3 PI 20 deferral criteria. Item 1 of the discrepancy report states that a stiffener plate for Tray Support C207-172 is not installed as per the details given on drawing EE-34KA. An extensive search was conducted to identify documentation that addresses the acceptability of this condition, without success. However, inspection at the location of the stiffener plate reveals a supplemental steel beam installed which precludes the stiffener installation. The intent of the stiffener has been satisfied by the framing member. Item 2 states the mid horizontal W37 Dummy member is not documented. However, review of documentation reveals the following: drawing EE-34KH for tray support 260 depicts a horizontal member between the top and bottom cross bracing. The horizontal member is also shown in Detail G on EE-34JA. The member size and type is not referenced on the drawings, but this is considered an administrative issue only. The support is installed as intended.

Bin CR M3-98-0513 corrective actions will address these two items post startup.

NU has concluded that the issue reported in item 3 of DR-MP3-0503 is a NON-DISCREPANT condition. The three horizontal PS 204 members installed between tray supports C309-32 and C309A-17 are detailed on E&DCR F-E-23925. Therefore, no further action is required.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Klaic, N	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/14/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: Adequacy of the supports type C207, C260 and C309 - 32 needs to be verified for the modified configurations prior to start-up.

SECOND RESPONSE:

S & L concurs with NU's disposition based on the review of the walkdown findings and reference document E & DCR F-E-23925.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0549

Review Group: Configuration
Review Element: System Installation
Discipline: Electrical Design
Discrepancy Type: Installation Implementation
System/Process: RSS
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 11/9/97

Discrepancy: Installed supports not in agreement with drawings

Description:

1. A 1" conduit and lighting fixture are attached to bottom horizontal member of Cable Tray Support A308A-31. This attachment is not shown on drawings or documented in CCDs.

2. Detail. 8-8 of Drawing EE-34DV Rev. 3 indicates no bracing is to be installed on the vertical legs of Cable Tray Support STRAY-43. Walkdown found shows four braces installed.

3. Local panel 3HVR*PNL4B is mounted below 3NME*AMPL2 on the same vertical leg of Cable Tray Support STRAY-43 (Ref. drawing EE-34DV Rev. 5). This attachment is not shown on the drawing, and open change documents covering this installation could not be found.

		Valid	Invalid	Review Needed	Date
Initiator:	Sarver, T. L.	☒	☐	☐	10/28/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/28/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/30/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	11/4/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: NU has concluded that the issues reported in DR-MP3-0549 have identified CONFIRMED SIGNIFICANCE LEVEL 4 conditions which require corrections. These discrepancies meet the criteria specified in NRC letter B16901 and 17010. They have been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets Section 1.3.2.e of U3 PI-20 deferral criteria.
Items 1, 2, & 3, represent drawing discrepancies, which are minor in nature and do not affect the qualification of the supports. A DCN will be issued to make necessary corrections and ensure documents will be updated to incorporated the changes noted in the field.CR M3-98-2092 was closed to CR M3-98-0137. The corrective actions for this issue are included in CR M3-98-0137 which will be completed post startup.NU considers these three items to be Significance Level 4 issues. There is no affect on License or Design Basis.

Previously Identified by NU? ○ Yes ◉ No **Non Discrepant Condition?** ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No **Resolution Unresolved?** ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Klaic, N	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A				

VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: S & L concurs with NU's disposition that the discrepancies are minor and are not considered to be a re-start issues.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0553

Review Group: Configuration
Review Element: System Design
Discipline: Electrical Design
Discrepancy Type: Drawing
System/Process: RSS
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 11/9/97

Discrepancy: Design Documents not in agreement

Description:

1. A 1-inch diameter conduit for lighting is attached to south vertical leg of tray support G109-013. This attachment is not shown on the detail drawing EE-34JF, Rev.3. No referenced open change control documents for this drawing address this item.

2. Configuration of cable trays routed N-S as seen in Sections 2-2, 20-20, 21-21 and 22-22 on drawings EE-34R Rev. 10, EE-34S Rev. 11 and F-E-14937 cannot be resolved in field. The F-E shows eight trays: EE-34R shows seven trays. There are seven trays installed, but configuration does not match any reviewed document.

3. Drawing EE-34AU Rev. 6, incorrectly identifies trays. Cable Tray 3TC774P is not clearly located on tnis drawing. It should be located at coordinates B-7 and shown in Section 4-4 - but a "P-L" tray is shown instead.

4. Drawing EE-34AM Rev. 5 does not correctly depict cable tray locations. The "X" cable tray is incorrectly shown routing north and east past Col. Line 49.4 while the "K" cable tray is incorrectly shown stopping at Col. Line 49.4. The correct cable tray plan is as shown on drawing EE-34EN.

5. Cable tray 3TC757O was extended east along Col. Line 49.4 by F-E-14714. The tray identification drawing EE-34BB Rev. 11, for "O-C2" trays was not corrected to show this change when Rev. 9 was performed incorporating the F-E.

6. Conduit Plan drawing EE-55B, Rev. 8 shows flow transmitter 3RSS*FT38A as non-safety related (drawings has FT erroneously identified as 3RSS-FT38A).

7. Conduits 3CC764PA3, 3CC763PA2 and PB7 are 1½" flexible conduits of approximately 4 feet long running between junction box 3JB*7515 and valve 3RSS*MV8838B. The Cable and Raceway Program indicates that these conduits are rigid.

8. The Cable and Raceway Program (TSO2) indicates that conduit 3CC763PC7 is supported by three supports. This 5-feet long conduit was observed to have only one support.

9. Conduit Support Log 12179-FSK-ES-0442, Rev. 2A shows conduit 3CK760NA in Section 1 of view looking west but does not appear in plan view. This causes the number of conduits shown in the two views of the same support to be different.

10. Conduit Support Log 12179-FSK-ES-5129, Rev. 2, lists conduit 3CC764PB1 and this conduit was observed in the field installed on this support. The Cable and Raceway Program (TSO2) does not list this conduit as supported by this support.

11. Conduit Support Log 12179-FSK-ES-1082, Rev. 1, lists conduit 3CX970PB1 and this conduit was observed in the field installed on this support. The Cable and Raceway Program (TSO2) does not list this conduit as supported by this support.

12. Conduit Support Log 12179-FSK-ES-1530, Rev. 1A, lists conduit 3CK765PF5 as supported on this support. The Cable and Raceway Program (TSO2) does not list this conduit as supported by this support.

13. Conduit Support Log 12179-FSK-ES-439 Rev. 3A lists conduit 3CK758PF as supported on this support. The Cable and Raceway Program (TSO2) does not list this conduit as supported by this support. TSO2 lists conduit 3CK758NA as supported by this support, however, the CSL does not include this conduit.

		Valid	Invalid	Review Needed	Date
Initiator:	Sarver, T. L.	☒	☐	☐	10/28/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/28/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/30/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	11/4/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: NU has concluded that Discrepancy Report, DR-MP3-0553, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-1063 has been written to develop and track resolution of this item per RP-4.

SECOND RESPONSE:

NU has concluded that the issue reported in DR-MP3-0553 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition that requires correction.
Items 1, 2 & 8 meets the criteria specified in NRC letter B16901 and 17010. They have been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e of U3 PI-20 deferral criteria based on the following discussion: Item 1: Design Engineering performed a walkdown of the general lighting conduit attached to the south leg of tray support C109-013. A search for outstanding Change Documents against Dwg. 25212-35006 reveals nothing to substantiate the as-installed condition. Drawing 25212-35006

does show that outlet box no. 19 may be attached " under structural steel or to cable tray support", but does not substantiate the installation of the conduit itself. Note that this conduit is also attached to the south leg of cable tray supports G-109-20 and G107-9. Based on the size and weight of the conduit and span of the existing supports, this installation does not adversely affect the structural adequacy of the cable tray supports. A DCN is required to correct the applicable documents to reflect the as-installed condition. (NOTE: this conduit is actually attached to 3 supports. G107-9, G109-13 & G109-20)Item 2: Design Engineering performed a walkdown and determined the installed tray configuration agrees with E & DCR F-E 14937, which is incorporated on Tray Arrangement Drawing EE-34Q, Rev 13. This E&DCR is not incorporated on drawings EE-34R & EE-34S. According to DCM Chapter 7, Rev 6 and as indicated in GRITS DATA base (drawing category code 3A), these drawings are not required to be updated to incorporate outstanding E&DCRs. Tray sections 2-2(EE-34R), sections 20-20, 21-21, & 22-22 (EE-34S) are correct when viewed with E&DCR F-E-14937 . Clarification is required on EE-34Q to relocate the location of the jog in section 1-1, and for the addition of the end points of tray L12 located in the center tray bank and L12 & X4 located in the West tray bank.

Previously Identified by NU? ○ Yes ◉ No **Non Discrepant Condition?** ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No **Resolution Unresolved?** ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Klaic, N	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/14/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/12/98				

SL Comments: Adequacy of tray supports needs to be verified for the additional loads (items 1 & 8) and configuration changes (item 2) .

SECOND RESPONSE:

Review Group: System
Review Element: System Design
Discipline: Mechanical Design
Discrepancy Type: Component Data
System/Process: HVX
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
(●) Yes
( ) No

Date FAXed to NU:

Date Published: 11/6/97

Discrepancy: SLCRS and ABVS Filter Unit Iodine Loading and Adsorbent Quantity

Description: During review of the Supplementary Leak Collection and Release System (SLCRS) filter units 3HVR*FLT3A/B and the Auxiliary Building Ventilation System (ABVS) exhaust filter units 3HVR*FLT1A/B component data a discrepancy regarding the iodine loading and charcoal adsorbent quantity was identified.

Per FSAR Table 1.8-1, Millstone complies with RG 1.52 Rev. 2 'Design, Testing, and Maintenance Criteria for Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants' regulatory position C.1.c.

Per FSAR Table 6.5-1, the Charging Pump, Component Cooling Pump, and Heat Exchanger Exhuast System is in compliance with RG 1.52, Rev. 2, position C.1.c.

Per FSAR Table 6.5-1, the Supplementary Leak Collection and Release System is in compliance with RG 1.52, Rev. 2, position C.1.c.

Per RG 1.52 Position C.1.c, The design of each adsorber section should be based on the concentration and relative abundance of the iodine species (elemental, particulate, and organic) which should be consistent with the assumptions found in RG 1.3, 1.4, and 1.25.

Per RG 1.52, Rev. 2, Position C.3.i, The adsorption unit should be designed for a maximum loading of 2.5 mg of total iodine (radioactive plus stable) per gram of activated carbon. FSAR Table 1.8-1 and Table 6.5-1 do not take exception to this requirement.

Calculations that determine the total iodine loading on the charcoal adsorber are not available per NU response in M3-IRF-00718. This information is needed to verify that the total quantity of charcoal in the filter units meets the 2.5 mg of total iodine per gram of activated carbon requirement of RG 1.52, Rev. 2, Position C.3.i

		Valid	Invalid	Review Needed	Date
Initiator:	Stout, M. D.	☒	☐	☐	10/28/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/28/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/30/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	10/31/97

Date:

INVALID:

Date: 5/12/98

RESOLUTION: NU has concluded that the Discrepancy Report, DR-MP3-0584, has identified a condition not previously discovered by NU which requires correction.

DR-MP3-0584 identified issues with the iodine loading and charcoal capacity of the SLCRS filter units 3HVR*FLT3A/B and the ABVS filter units 3HVR*FLT1A/B. The ABVS and SLCRS filter units are required to be designed in accordance with Reg. Guide 1.52, Rev. 2 as stated in FSAR sections 6.2.3, 6.5, and 9.4.3. The degree of compliance with Reg. Guide 1.52 is provided in FSAR Tables 1.8-1 and 6.5-1. Specification 2170.430-065, "Specification for Special Filter Assemblies," states the design requirements for the SLCRS/ABVS filter including RG 1.52, Rev. 2 requirements. Specification 2170.430-065 makes no exception to RG 1.52, Rev. 2 regarding iodine loading and charcoal quantity.

CR M3-98-0691 was initiated to provide corrective action plan for the issue identified in DR-MP3-0584. CR M3-98-0691 corrective action plan requires a new calculation to determine the total iodine loading and resultant charcoal capacity. In addition, the corrective action plan requires a new calculation to determine the resulting heat load due to radioactive induced heat. DR-MP3-0588 and DR-MP3-0724 identified issues with the filter unit water spray system with regard to requirements for charcoal adsorbent cooling. Following approval of the calculations the charcoal adsorbent capacity and cooling mechanisms will be evaluated for compliance with Regulatory Guide 1.52, Rev. 2, positions C.1.c, C.3.i and C.3.k requirements and applicable FSAR sections. Positions C.1.c and C.3.i address the design criteria for charcoal adsorber units including the requirements for iodine removal. Position C.3.k addresses the design criteria for charcoal adsorber heat load removal due to radioactive induced heat which is a function of total iodine loading. The corrective actions will be completed prior to startup.

NU considers the condition identified by DR-MP3-0584 to be a Significance Level 4 based on lack of calculations to provide justification of Reg. Guide 1.52, Rev. 2 requirements regarding iodine loading. Engineering Record Correspondence (ERC), 25212-ER-98-0129, "SLCRS and ABVS Filter Unit Iodine Loading and Adsorbent Quantity," Rev. 0, dated 4/10/98 provides an evaluation of the filter units while the formal calculations required by CR M3-98-0691 are being developed. ERC 25212-ER-98-0129 is conservatively based on a bounding 3-day iodine release assuming that sprays are ineffective in removing airborne iodine in containment atmosphere. ERC 25212-ER-98-0129 concludes that the post LOCA iodine loading on both filtration units is well below the maximum permissible loading of iodine per Regulatory Guide 1.52, Rev. 2, position C.3.i and the iodine removal capacity of the charcoal filter units

is sufficient. Therefore based on the bounding evaluation, the filter units meet their licensing and design basis including Regulatory Guide 1.52, Rev. 2 requirements regarding iodine loading and charcoal capacity.

Attachments:
CR M3-98-0691
ERC 25212-ER-98-0129, "SLCRS and ABVS Filter Unit Iodine Loading and Adsorbent Quantity," Rev. 0, dated 4/10/98.

Supplemental Response (M3-IRF-2347)

Per telephone conference between S&L and NU on 5/7/98, corrective action for Discrepancy Report, DR-MP3-0584 will be revised. This response supplements M3-IRF-00975

NU has concluded that the issue reported in DR-MP3-00584 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. Condition Report (CR) M3-97-0691 was written to provide a new calculation which determines the total iodine loading and resultant charcoal capacity, and to compare the results against the requirements of the applicable sections of Regulatory Guide 1.52 requirements. Contrary to that stated in M3-IRF-00975, these actions have been rescheduled to be completed post startup. The justification provided for the schedule change to "before RFO 6" states that Engineering Record of Correspondence (ERC) No. 25212-ER-98-0129 has addressed the concerns identified in DR-MP3-0584 relative to Regulatory Guide 1.52 compliance to position C.3.i. The ERC documented that the SLCRS and ABVS adsorption filtration units are designed for a maximum loading of 2.5 mg of Iodine per gram of activated carbon and therefore meet the requirements of the Regulatory Guide.

The ERC was independently reviewed and approved and is a Quality document. Formalizing the results of the ERC into a calculation will be performed post start-up, and is justified based on the results of the ERC and deferral criteria.

Attachments:
Revised assignment 98002864-02

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Stout, M. D.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/12/98				

SL Comments: References:
1. Engineering Record Correspondence 25212-ER-98-0129, Rev. 0.
2. Calc. MP3LOCA94-01048-R3, Rev. 3

The methodology described in Reference 1 to estimate the MP3 SLCRS and ABVS iodine loading using the calculational parameters described in Reference 1 has been reviewed and appears to be conservative. The approach of NOT using the spray as an iodine removal mechanism increases the amount iodine postulated to leak from containment being taken-up by the filters.

Based on the results in ERC 25212-ER-98-0129, Rev. 0 this is considered to be a level 4 discrepancy.

Comments on Supplemental Response

None

Review Group: System
Review Element: System Design
Discipline: Mechanical Design
Discrepancy Type: Component Data
System/Process: HVX
NRC Significance level: 3

DR RESOLUTION ACCEPTED

Potential Operability Issue
(●) Yes
( ) No

Date FAXed to NU:

Date Published: 11/6/97

Discrepancy: SLCRS and ABVS Filter Units Adsorbent Cooling

Description: During the review of the Supplementary Leak Collection and Release System (SLCRS) filter units 3HVR*FLT3A/3B and the Auxiliary Building Ventilation System (ABVS) exhaust filter units 3HVR*FLT1A/1B a discrepancy regarding adsorbent cooling was identified.

Per FSAR Table 1.8-1, Millstone complies with RG 1.52 Rev. 2 'Design, Testing, and Maintenance Criteria for Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light-Water-Cooled Nuclear Power Plants' regulatory position C.3.k with the following exception:

When conservative calculations show that the maximum decay heat generation from collected radioiodines is insufficient to raise the carbon bed temperature above 250°F with no system overflow, small capacity ESF atmosphere cleanup systems may be designed without an air bleed cooling mechanism. Exception is taken to the requirement of any cooling mechanism satisfying single-failure criteria because a backup mechanism is provided. In addition, exception is taken to provide humidity control for the decay heat removal system cooling air flow which uses room air of less than 70% relative humidity.

Per FSAR Table 6.5-1, the Charging Pump, Component Cooling Pump, and Heat Exchanger Exhaust System is in partial compliance with RG 1.52, Rev. 2, position C.3.k. Adsorbers provided with sprinkler system. See Section 1.8.

Per FSAR Table 6.5-1, the Supplementary Leak Collection and Release System is in partial compliance with RG 1.52, Rev. 2, position C.3.k. Adsorbers provided with sprinkler system. See Section 1.8.

Per RG 1.52 Position C.3.k, The design of the adsorber section should consider possible iodine desorption and adsorbent autoignition that may result from radioactivity-induced heat in the adsorbent and concomitant temperature rise. Acceptable designs include a low-flow air bleed system, cooling coils, water sprays for the adsorber section or other cooling mechanisms. Any cooling mechanism should satisfy the single-failure criterion.

Per FSAR Table 3.2-1, the ESF filter trains satisfies the requirements of ANSI N509 in effect at the time of equipment order.

Per ANSI N509-1976, Section 4.9 Adsorbent Radioactive Decay Heat Cooling, Where radioactive decay heating may be

significant, means shall be provided to remove this heat from the adsorbent beds to limit temperatures to values below which significant iodine desorption will not occur; maximum adsorber temperature shall not exceed 300 F. (NOTE: Consideration must be given to heat of adsorption in determining maximum adsorbent temperature). For this purpose a minimum circulatory air flow shall be available for all operational modes of the unit and shall be based on the maximum possible radioactivity loading on the adsorbent beds. Water spray or deluge systems are not acceptable for this purpose. The use of sprays is acceptable for fire protection (i.e., casualty loss) purposes.

The design air flow for filter units 3HVR*FLT1A/1b is 30,000 cfm per P&ID EM-148A-24 and the design air flow for filter units 3HVR*FLT3A/B is 9,500 cfm. At these air flows the filter units are not considered small capacity ESF atmosphere cleanup systems.

The exception to RG 1.52, Rev. 2, position C.3.k implies that there is a calculation that shows that the decay heat from collected radioiodines on the adsorber would not result in the bed temperature exceeding 250°F. UIR 2172 states that this calculation has not been found. The disposition of UIR states that a calculation is to be prepared for the control room filter units but does not address the SLCRS and ABVS filter units.

The use of a sprinkler system for adsorbent cooling per FSAR Table 6.5-1 does not meet the requirements of ANSI N509-1976 section 4.9 which states that water spray or deluge systems are not acceptable for this purpose.

		Valid	Invalid	Review Needed	Date
Initiator:	Stout, M. D.	☒	☐	☐	10/28/97
VT Lead:	Neri, Anthony A	☒	☐	☐	10/28/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	10/30/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	10/31/97

Date:

INVALID:

Date: 5/12/98

RESOLUTION: First Response (M3-IRF-0974)

NU has concluded that the issue reported in Discrepancy Report, DR-MP3-0588, does not represent a discrepant condition. Reg. Guide 1.52 revision 2 does not endorse ANSI N509-1976 position with regards to the use of water spray as an acceptable method of charcoal decay heat removal. Position C.3.k of R.G. 1.52 specifically classifies water spray cooling of the adsorber section as an acceptable method of decay heat removal. Since Regulatory Guides are higher order documents than ANSI Standards and represent acceptable methods for implementing the NRC's regulations in Appendix A to 10CFR50, a water spray decay heat removal system is considered in compliance with MP3 Licensing basis.

UIR 2172 is specifically referring to the Control Room filter units which do not have any decay heat removal mechanisms (i.e. water spray cooling of the adsorber section.) The "conservative calculations" will demonstrate that the decay heat removal systems are not required to prevent iodine desorption and adsorbent auto-ignition in accordance with Reg. Guide 1.52, revision 2.

FSAR Table 3.2-1 does not define the extent of compliance but rather is just a listing of applicable codes and standards. Extent of compliance is defined elsewhere in the FSAR (i.e. Tables 1.8-1, 1.9-1, 6.5-1).

Significance level criteria do not apply as this is not a discrepant condition.

Second Response (M3-IRF-1918)

NU has concluded that item 1 of Discrepancy Report DR-MP3-0588 has identified a condition not previously discovered by NU which requires correction

NU does not yet have a calculation that determines the need for mechanical cooling of the charcoal filters because of heat gain from decay of radioiodine. The attached ERC (Engineering Record Correspondence) 25212-ER-98-0103, prepared by SWEC, in conjunction with calculation 97-EBF-01955-M2, establishes the maximum heat generation rate in the MP3 safety related ventilation filters from deposition of radioactive iodines following a Loss-Of-Coolant Accident. This evaluation assumes that the maximum carbon temperature is 250 °F, which is 50 °F below the minimum desorption temperature of 300 °F,... and approximately 1/3 of the minimum code required carbon ignition temperature of 572 °F.

A formal calculation is in preparation, which will validate the assumption of a 250 °F maximum temperature. The calculation will be completed before mode 2. Meanwhile, the results of the referenced evaluation demonstrate that NU is in compliance with R. G. 1.52. Since the heat load from radiodecay in the MP3 filter units is below that which would lead to autoignition, there is no need for backup cooling. See also the attached review from the NU Radiological Assessment Branch.

Based on the information contained in 25212-ER-98-0103, and calculation 97-EBF-01955-M2, NU has concluded that the configuration of filter units 3HVR*FLT1A/B and 3HVR*FLT3A/B are in compliance with R. G. 1.52. The approved corrective action to CR-M3-98-0691 will develop a calculation to determine the heat load due to radioactive induced heat in the SLCRS and ABVS filter units. Corrective action is being tracked by AR 98002864-03.

NU considers items 2, 3, and 4 non-discrepant. Items 2 and 3 relate to use of fire protection water for adsorbent cooling, which

is not required, as demonstrated by the attached documents. Concerning item 4, the "normally closed" deluge valves (isolation valves) are located outside (and isolated from) the filter equipment rooms, as noted. They are, however, accessible to plant operators, who, in response to a Control Room fire alarm in a filter unit, must manually open the appropriate isolation valve to extinguish the fire.

System configuration conforms to MP3 licensing and design basis, therefore, NU considers this issue Significance Level 4.

Attachments:
Engineering Record Correspondence 25212-ER-98-0103
Radiological Assessment Branch Review of ERC-25212-ER-98-0103
Calculation 97-EBF-01955-M2, Rev.0

Supplemental Response (M3-IRF-2339)

Per telephone conference between S&L and NU on 4/6/98, corrective action for DR-MP3-0588 will be revised This response supplements M3-IRF-01918.

NU has concluded that the issue reported in DR-MP3-0588 has identified a CONFIRMED SIGNIFICANCE LEVEL 3 condition which requires correction.

As previously stated in M3-IRF-01918, Engineering Record Correspondence 25212-ER-98-0103 establishes that the SLCRS and ABVS filter units are in compliance with R.G. 1.52 because heat load from radiodecay in the charcoal filters is below that which would lead to autoignition, and, furthermore, corrective action for CR M3-98-0691, will provide a formal calculation to determine heat load due to radioactive induced heat in the SLCRS and ABVS filter units. This corrective action will be completed post startup. Meanwhile, as additional corrective action for CR M3-98-0691, FSAR Table 1.8-1 and Table 6.5-1 will be revised to take exception to the R.G. 1.52, par. C.3.k requirement to provide backup cooling systems. Also, references to use of fire protection water as a cooling mechanism will be deleted. This corrective action will be completed before startup and will be tracked by AR 98002864-05.

Attachments:
Action Request Report (A10) for AR 98002864

Previously identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Stout, M. D.	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	5/13/98

Date: 5/12/98

Date: 5/12/98

SL Comments: Comments on First Response

NU's response does not adequately address the issues identified in the DR.

1) A calculation that determines the decay heat cooling requirements for filter units 3HVR*FLT1A/1B and 3HVR*FLT3A/3B is not available for review.

2) Calculation P(B)-1064, Rev. 0 'Water Flow Discharge Time vs. Water Level in Charcoal Filter Housing' does not address if the water discharge times calculated are adequate to provide sufficient water for adsorbent cooling.

3) The water sprays use fire protection water which may not be available post-accident when adsorbent cooling would be required.

4) P&ID EM-146C shows a normally closed isolation valve (3FPW-V119, -V120, -V122, -V123) upstream of the fire protection deluge valves (3FPW-FV70. 71, 72, 73) that would have to be manually opened to supply water to the filter unit water sprays. The valves are located on elevation 66'-6" in the auxiliary building outside the filter equipment rooms. This area may not be accessible after an accident when adsorbent cooling would be required to prevent iodine desorption and/or autoignition.

NU's response does not adequately address heat load due to radiodecay. The exception to the requirement for "...any cooling mechanism satisfying single failure criteria ..." implies that either; (a) the heat load has been calculated to be below that which could lead to autoignition, or (b) autoignition is acceptable, and the resulting fire would be sucessfully extinguished by the fire protection system. UIR 2172 indicates that the heat load due to radiodecay has not been calculated for these filters. Therefore, additional information is needed to support the deviation from this requirement and the acceptability of the potential for autoignition.

Comments on Second and Supplemental Responses

REFERENCES
(1) Engineering Record Correspondence 25212-98-0103, Rev. 0.
(2) Calc. 97-EBF-01955-M2, Rev. 0
(3) Calc. MP3LOCA94-01048-R3, Rev. 2

The methodology described in Reference 1 to estimate the MP3 SLCRS peak heat loading using the calculational parameters of MP2 has been reviewed and appears to be conservative. However, the largest heat loading calculated in Reference 2, at 24 hours, may not be the peak value. The heat loading on the filter is a function of containment leakage and the radioactive decay of the various iodine isotopes I-131 through I-135, among other things. Each isotope of iodine, having its own decay rate, has its own peak heat generation rate. It is the sum of the heat generation rates that determines the peak heat generation rate experienced by the filter. From an examination of the summary

table shown on page 21 of Reference 2 it is not evident the heat loading at 24 hours is the peak. The time steps do not appear to be fine enough for this determination. More calculations are required at time points around suspected peaks to demonstrate a maximum..

It is estimated that the cooling available due to leakage thru backdraft damper 3HVR*DMPF13A/B (33 cfm @ 12.5 iwg), entering air temperature of approx 150 °F (120°F entering operating filter unit + temperature rise across heater + temperature rise across operating exhaust fan), and a leaving air temperature of 300°F is on the order of 5000 Btu/hr for the SLCRS filter units. This is sufficiently greater than the 800 Btu/hr heat generation rate contained in reference 1 to conclude that damper leakage will provide adequate airflow for adsorbent cooling for the SLCRS filter units. For the ABVS filter units, leakage thru damper 3HVR*MOD28A/B would provide for ABVS filter unit adsorbent cooling.

FSAR Table 6.5-1 states that the filter units are in partial compliance with RG 1.52, Rev. 2 position C.3.k regarding absorbent cooling and that the absorbers are provided with a sprinkler system (water sprays). Since the water spray system is non-safety related and cannot be relied on for absorbent cooling this is considered to be a Level 3 discrepancy.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0632

Review Group: Programmatic
Review Element: Corrective Action Process
Discipline: Environmnental Quailification
Discrepancy Type: Corrective Action
System/Process: N/A
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 11/22/97

Discrepancy: Technical and Quality Problems with a Calculation

Description: Condition Report (CR) M3-97-1273 deals with problems found in S&W calculation PR-220, Revision 0, titled "Radiation Levels for Equipment Qualification in the ESF Building". No corrective action was taken for this CR since the NU Radiological Assessment Branch performed an independent review of the calculation and was able to follow the calculation and determine the results were acceptable. In addition, where S&W references or QAD output were not available, the results or assumptions were checked with similar results in the NU electrical equipment qualification files and the results matched well.

1. S&L nuclear and environmental qualification engineers reviewed the technical criticisms of the calculation and determined that there is not enough documentation in the CR package to completely confirm the technical adequacy of the calculation given the nature and extent of the criticisms.

If the comparison with the NU electrical equipment qualification files meets the requirements for design verification by use of alternate calculations, this may be used to qualify PR-220, Revision 0, for safety related use provided the documentation showing consistency of results is auditable and the criticisms concerning the identification of the calculation, appropriateness of input data, assumptions and computer code used are resolved.

2. CR M3-97-1273 also points out some aspects of the calculation which do not meet Regulatory Gude 1.64 dated June, 1976. This guide is a commitment of NU's Quality Assurance Program Topical Report. Presumably, S&W either had to commit to this guide or ASME NQA-1. In any case, the fact that the computer code and run could not be found, the lack of documentation or support for some of the assumptions (where appropriate), and the fact that the calculation did not reflect the redesign of the recombiner shed among the other stated criticisms indicates that the quality of the calculation does not meet Unit 3's licensing basis.

The lack of sufficient information in the CR package to justify the "use as is" disposition is a discrepancy.

		Valid	Invalid	Review Needed	Date
Initiator:	Sheppard, R. P.	☒	☐	☐	11/7/97
VT Lead:	Ryan, Thomas J	☒	☐	☐	11/7/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	11/10/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	11/18/97

Date:

INVALID:

Date: 5/12/98

RESOLUTION: Disposition:

NU has concluded that this issue reported in DR-MP3-0632 has identified a CONFIRMED SIGNIFICANCELEVEL 4 condition which requires correction. The approved corrective action plan in CR M3-98-0613 will be completed post startup and requires revising Calculation PR-220.

CR M3-98-0613, Section 5.1(Cause of Event) states that the calculation, issued in 1980, may not meet 1998 standards in terms of content, flow, format,etc., however, the criticisms identified in CR M3-97-1273 do not effect the results or conclusions of the calculation. NU has detailed an item-by-item response in CR M3-98-0613 to the CR M3-97-1273 criticisms. The item-by-item responses address S&L issues such as: 1) S&W references and QAD outputs, 2) the recombiner shed redesign, and 3) quality requirements in preparation of calculations meeting Unit 3 licensing basis.CRs M3-97-1273 and M3-98-0613 are linked in NU's Corrective Action Program database.

Conclusion:

NU has concluded that this issue reported in DR-MP3-0632 has identified a CONFIRMED SIGNIFICANCELEVEL 4 condition which requires correction.

The approved corrective action plan in CR M3-98-0613 will be completed post startup and requires revising Calculation PR-220. CR M3-98-0613, Section 5.1(Cause of Event) states that the calculation, issued in 1980, may not meet 1998 standards in terms of content, flow, format,etc., however, the criticisms identified in CR M3-97-1273 do not effect the results or conclusions of the calculation. NU has detailed an item-by-item response in CR M3-98-0613 to the CR M3-97-1273 criticisms. The item-by-item responses address S&L issues such as: 1) S&W references and QAD outputs, 2) the recombiner shed redesign, and 3) quality requirements in preparation of calculations meeting Unit 3 licensing basis. CRs M3-97-1273 and M3-98-0613 are linked in the NU's Corrective Action Program database.

Attachment:

CR M3-98-0613.

Previously identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Sheppard, R. P.	☒	☐	☐	5/12/98
VT Lead:	Ryan, Thomas J				

VT Lead:	Ryan, Thomas J	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	

Date: 5/12/98

SL Comments: NU's item-by-item response to the CR M3-97-1273 criticisms and the resulting plans to revise calculation PR-220, Revision 0, are adequate. NU's schedule for revising the calculation after start-up is acceptable since no effect on the the licensing basis was found.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0648

Review Group: System
Review Element: System Design
Discipline: Structural Design
Discrepancy Type: Calculation
System/Process: QSS
NRC Significance level: NA

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 12/7/97

Discrepancy: Calculation reference discrepancy

Description: Calc. # 12179-BE-52WV,R0

We have reviewed Millstone Unit 3 Equipment Foundation Calc. # 12179-BE-52WV,R0. Based on this review, we have noted the following discrepancy.

1. This calculation was provided by NU to confirm the adequacy of equipment foundation for Junction Box No. 3QSS*JB27.This calculation is a generic calculation for the qualification of Dwg. No. 12179-BE-52WV. Specific calculations for the subject equipment could not be found in the aforementioned calculations.

		Valid	Invalid	Review Needed	Date
Initiator:	Klaic, N	☒	☐	☐	11/22/97
VT Lead:	Neri, Anthony A	☒	☐	☐	11/22/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	12/1/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	12/3/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: NU has concluded that Discrepancy Report, DR-MP3-0648, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and.17010 It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0515 has been written to develop and track resolution of this item per RP-4.

SECOND RESPONSE:

NU has concluded that the overall issue reported in Discrepancy Report, DR-MP3-0648 does not represent a discrepant condition. The original discrepancy description is:Calc. # 12179-BE-52WV,R0 We have reviewed Millstone Unit 3 Equipment Foundation Calc. # 12179-BE-52WV,R0. Based on this review, we have noted the following discrepancy. 1. This calculation was provided by NU to confirm the adequacy of equipment foundation for Junction Box No. 3QSS*JB27.This calculation is a generic calculation for the qualification of Dwg. No. 12179-BE-52WV. Specific calculations for the subject equipment could not be found in the aforementioned calculations.Subsequent investigation by NU has determined that specific calculations for each junction box do not exist. The drawing series BE-52 was

specifically developed to install a variety of JB sizes and locations. Each drawing would establish several box sizes, locations etc. A seismic calculation for each drawing was issued that justified the junction box installations generically. This encompassed the conditions that can be encountered. Calculation BE-52WV generically provides the justification for this JB.NU believes that providing a calculation which qualifies a standard support detail that encompass the actual conditions is adequate and that individual calculations are not necessary. These calculations were prepared and checked by discipline competent people expressly for this reason.Significance level criteria do not apply as this is not a discrepant condition.

Previously Identified by NU? ○ Yes ◉ No **Non Discrepant Condition?** ◉ Yes ○ No

Resolution Pending? ○ Yes ◉ No **Resolution Unresolved?** ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Kiaic, N	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: To defer this DR , justification that the junction box is adequately mounted is needed.

SECOND RESPONSE:

S & L concurs with NU's disposition regarding the generic qualification of the junction box details.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0695

Review Group: System
Review Element: System Design
Discipline: Mechanical Design
Discrepancy Type: Calculation
System/Process: QSS
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 12/21/97

Discrepancy: RWST Insulation

Description: FSAR Sec. 6.2.2.2 requires the maximum RWST heat up or cooldown rate be less than 0.25F/day. Calculation P(R)-931, Rev. 0 assumes that the RWSTs are covered with 6 inches of thermal insulation in order to conclude that the maximum heat up and cooldown rates are 0.13F/day.

There are no design documents which demonstrate that the RWSTs are covered with 6 inches of insulation.

		Valid	Invalid	Review Needed	Date
Initiator:	Wakeland, J. F.	☒	☐	☐	11/22/97
VT Lead:	Neri, Anthony A	☒	☐	☐	11/22/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	12/1/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	12/9/97

Date:

INVALID:

Date: 5/12/98

RESOLUTION: ----------

FIRST RESPONSE:

DISPOSITION:

NU has concluded that Discrepancy Report, DR-MP3-0695, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and.17010 It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0515 has been written to develop and track resolution of this item per RP-4.

CONCLUSION:

NU has concluded that Discrepancy Report, DR-MP3-0695, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and.17010 It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0515 has been written to develop and track resolution of this item per RP-4.

SECOND RESPONSE:

DISPOSITION:

NU has concluded that the issue reported in DR-MP3-0695 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. The approved corrective action for CR M3-98-1093 will correct Calculation 931P(R), which incorrectly indicates 6" of insulation on the RWST.

The FSAR statement in section 6.2.2.2 applies to heat-up cases. Specification SP-ME-691, General Thermal Insulation, Table 1.1-3, indicates that the RWST was insulated with type J, 4" thick Owens Corning Foamglass. A review of Calc. 931P(R) indicates that 6" insulation with a conductivity of 0.38 Btu per inch per hour was used to calculate the heat-up rate of 0.133 °F. per day. If 4" thick insulation with a conductivity of 0.33 Btu per inch per hour (Corning Foamglass), is substituted, the calculation result changes to 0.163 °F. per day. There is, therefore, a considerable margin between the calculated value and the limit stated in the FSAR. Although Calculation 931P(R) contains various errors that affect the margin between the calculated data and the values stated in the FSAR, the revised final results are judged to be in compliance with the FSAR. Corrective action has been deferred to post startup, and will be tracked to completion by AR 98004262.

CONCLUSION:

NU has concluded that the issue reported in DR-MP3-0695 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. The approved corrective action for CR-M3-98-1093 will correct Calculation 931P(R) post startup. Although Calculation 931P(R) contains various errors that affect the margin between the calculated data and the values stated in the FSAR, the revised final results are judged to be in compliance with the FSAR. Corrective action has been deferred to post startup, and will be tracked to completion by AR 98004262.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Wakeland, J. F.				
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	5/12/98
Date:	5/12/98	☐	☐	☐	

SL Comments:

FIRST RESPONSE:

Sargent & Lundy acknowledges that DR-MP3-0695 is a documentation issue only; however, this design documentation issue my not be defered until after Unit 3 restart.

The FSAR Section 6.2.2.2 requirement for a maximum RWST heat up/cooldown rate of 0.25F/day is a licensing requirement. This licensing requirement is met by Calculation P(R)-931 which assumes that the RWST is covered with 6 -inch thick insulation. Assurance that there is no Unreviewed Safey Question cannot be demostrated unless design documents are located for the 6-inch insulation thickness or a properly-documented walkdown is completed to verify the 6-inch insulation thickness.

SECOND RESPONSE:

Sargent & Lundy concurs that 4 inches of "type J" (Owens Corning Foamglass) would limit the RWST heat up/cooldown rate to less than 0.18F/day. Therefore, NU's evaluation in the second response to DR-MP3-0695 provides an assurance that the licensing commitment that RWST heat up/cooldown rate will be limited to 0.25F/day is met. Sargent & Lundy agrees that correction of RWST heat up/ cooldown calculation P(R)-931 (via CR M3-98-1093 and AR 98004262) can be diferred until after Unit 3 restart.

Northeast Utilit.
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0826

Review Group: System
Review Element: System Design
Discipline: Mechanical Design
Discrepancy Type: Drawing
System/Process: DGX
NRC Significance Level: 4

DR RESOLUTION ACCEPTED

Potential Ope .y Issue
○ Ye
◉ No

Date FAXed to NU:

Date Published: 1/17/98

Discrepancy: Comparison Between PDDS and P&ID EM-117A results in components not listed or not shown.

Description: A comparison was made between this P&ID and PDDS with the following comments:

Components on P&ID but not matching PDDS:
3EGF*STRT1C(C-) versus *STR1C in PDDS
3EGF*STRT1D(D-) versus *STR1D in PDDS

Components on P&ID but not listed in PDDS:
3EGF*V955(A-), Relief Valve *RV35A(A-)
3EGF*V956(A-), Relief Valve *RV36A(A-)
3EGF*V957(A-), Relief Valve *RV36A(A-)
3EGF*V958(A-), Relief Valve *RV36A(A-)
3EGF-PDIS22D (Please note that PDDS does show a 3EGF-PDIS22, which may only be a typo.)
3EGF-FICV25A
3EGF-FICV25B

Components in PDDS but not shown on P&ID:
3EGF*FE31A
3EGF*FE31B

3EGF-FY31A
3EGF-FY31B
3EGF-LS25A
3EGF-LS25B
3EGF-LS29A1
3EGF-LS29A2
3EGF-LS25A1
3EGF-LS25A2
3EGF-LS25B1
3EGF-LS25B2
3EGF-LS29A1
3EGF-LS29A2
3EGF-LS29B1
3EGF-LS29B2
3EGF-PY21A
3EGF-PY21B
3EGF-PY21C
3EGF-PY21D

		Valid	Invalid	Review Needed	Date
Initiator:	Russ,Earl.	☒	☐	☐	12/19/97
VT Lead:	Neri, Anthony A	☒	☐	☐	12/19/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	12/23/97

IRC Chmn: Singh, Anand K ☒ ☐ ☐ 1/13/98

Date:

INVALID:

Date: 5/12/98

RESOLUTION: First disposition:
NU has concluded that Discrepancy Report, DR-MP3-0826, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and.17010 It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0495 has been written to develop and track resolution of this item per RP-4.

Conclusion:
NU has concluded that Discrepancy Report, DR-MP3-0826, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and.17010 It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0495 has been written to develop and track resolution of this item per RP-4.

Second disposition:
NU has concluded that the issues reported in DR-MP3-0826 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction.

The original NU response to DR-MP3-0826 by M3-IRF-01695 incorrectly stated the background from DR-MP3-0796. This IRF corrects that mistake and provides the proper background, disposition and conclusion.

Items 1 and 2 meets the criteria specified in NRC letter B16901 and 17010. They have been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. U3 PI 20 section 1.3.2 e defines the type of discrepancies which will be completed during the next refueling outage or later. Attachment 11 defines the type of issues which will be completed prior to startup. The intent of attachment 11 is to correct issues prior to startup that would inhibit operations from aligning the plant systems for safe operations in accordance with the design basis.
NU concludes that the assignment of priority 4 is correct and in accordance with U3 PI 20 section 1.3.2 e. CR M3-98-0495 was closed to Bin CR M3-98-0217.

The corrective actions for items 1 and 2 in Bin CR M3-98-0217 will correct the strainer designation from "3EGF*STRT1C and D" to "3EGF*STR1C and D" on EM-117A post startup.

NU has concluded that items 3 through 11, 18 through 21 and 24 reported in DR-MP3-0826 have identified a CONFIRMED

SIGNIFICANCE LEVEL 4 conditions which have been corrected as follows;

Items 3,4,5,and 6; these relief valves are correctly listed in PDDS by their RV number and that the Vxxx number is listed as the alternate. Note that V957(A-) should be (B-) and that this applies to 3EGF*RV35(B-) and that V958(A-) should be (B-) and that this applies to 3EGF*RV36(B-).

Item 7; 3EGF-PDIS22 does not appear in PDDS and that 3EGF-PDIS22D is listed in PDDS.

Items 8 and 9; 3EGF-FICV25A and B is listed in PDDS.

Items 10 and 11; the flow elements are shown on EM-117A, DCN DM3-00-1035-97 written on 7/30/97 added them.

Items 18 through 21 and 24; these numbers are not listed in PDDS.

NU has concluded that items 12 through 17, 22, 23 and 25 through 29 reported in DR-MP3-0826 have identified a NON-DISCREPANT condition.

Items 12 to 17; these are instrument rack cards which are not shown on the P&ID.

Item 22; is a duplicate of item 16.

Item 23; is a duplicate of item 17.

Items 25 to 29; these are instrument rack cards which are not shown on the P&ID.

Conclusion:
NU has concluded that the issues reported in DR-MP3-0826 have identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. The corrective actions in Bin CR M3-98-0217 will correct these items post startup. Items 1 and 2 of this discrepancy meet the criteria specified in NRC letter B16901 and 17010. It has been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meets section 1.3.2.e deferral criteria. NU has concluded that items 3 through 11, 18 through 21 and 24 reported in DR-MP3-0826 have identified a confirmed significance level 4 conditions which have been corrected in PDDS and the P&ID.
NU has concluded that items 12 through 17, 22, 23 and 25 through 29 reported in DR-MP3-0826 have identified a non-discrepant condition, these are instrument rack cards that are not shown on the P&ID or are duplicate discrepancies of items 16 and 17.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

Review

Review	Acceptable	Not Acceptable	Needed	Date
Initiator: Obersnel,Bojan.	☒	☐	☐	5/12/98
VT Lead: Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr: Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn: Singh, Anand K	☐	☐	☐	

Date: 5/12/98

SL Comments: S&L comment on the first NU disposition.
The NU response M3-IRF-01695 does not address the discrepancy. The subject of this NU response is valve 3HVR*V219 classification (DR-MP3-0796).

S&L comment on the second NU disposition:
S&L agrees with the NU disposition as described in the ICAVP Response Form, Response M3-IRF-02098 (copy of the referenced Condition Report CR M3-98-0495 was attached to previously submitted Response M3-IRF-01695). S&L also agrees that the remaining issues meet the deferral criteria, and that the corrective action can be completed after the startup.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0832

Review Group: System
Review Element: System Design
Discipline: Piping Design
Discrepancy Type: Drawing
System/Process: DGX
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 1/10/98

Discrepancy: Conflicting Information Between PDDS and Pipe Isometric Drawings

Description: Regarding P&ID EM-177A, Rev.10, Pipe line numbers 3-EGF-001-057-3 through 3-EGF-001-060-3, there is a discrepency in that the applicable pipe design table, CL 0152, requires schedule 40 weight pipe, but the PDDS system shows the pipe as schedule 10 weight. The isometric drawings are not definitive in that they show 10s, 40s and 80s information. The isometric drawings are CP-360530 (9&11) and CP-36053 (18&20).

Also, for pipe line numbers 3-EGF-002-028-3 and 3-EGF-002-031-3, PDDS show pipe wall thickness as standard weight, whereas pipe table CL 0151 shows schedule 80. The pipe isometrics CP-360252, CP-360519 and CP-360537 do not show the wall schedule.

		Valid	Invalid	Review Needed	Date
Initiator:	Russ,Earl.	☒	☐	☐	12/18/97
VT Lead:	Neri, Anthony A	☒	☐	☐	12/19/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	12/23/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	12/31/97

Date:

INVALID:

Date: 5/13/98

RESOLUTION: First disposition:
NU has concluded that Discrepancy Report, DR-MP3-0832, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and.17010 It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0495 has been written to develop and track resolution of this item per RP-4.

Conclusion:
NU has concluded that Discrepancy Report, DR-MP3-0832, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and.17010 It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0495 has been written to develop and track resolution of this item per RP-4.

Second disposition:

NU has concluded that the new issue reported in Discrepancy Report, DR-MP3-0832 does not represent a discrepant condition. CR M3-98-0495 was closed to CR M3-98-0217. Bin CR M3-98-0217 corrective actions will correct PDDS, post startup. NU considers the overall classification of this DR as significance level 4.

The original DR description was;
Regarding P&ID EM-177A, Rev.10, Pipe line numbers 3-EGF-001-057-3 through 3-EGF-001-060-3, there is a discrepency in that the applicable pipe design table, CL 0152, requires schedule 40 weight pipe, but the PDDS system shows the pipe as schedule 10 weight. The isometric drawings are not definitive in that they show 10s, 40s and 80s information. The isometric drawings are CP-360530 (9&11) and CP-36053 (18&20).

Also, for pipe line numbers 3-EGF-002-028-3 and 3-EGF-002-031-3, PDDS show pipe [illegible] thickness as standard weight, whereas pipe table C[illegible] hows schedule 80. The pipe isometrics CP-36025[illegible], [illegible]0519 and CP-360537 do not show the wall schedule.

For line numbers 3-EGF-001-057-3 through 3-EGF-001-060-3 schedule 10 piping was installed as per E&DCR N-ME-01582 as a one time deviation from the specifications requirement of schedule 40 or 80.PDDS correctly lists the pipe as schedule 10. The isometric drawings clearly show the pipe as schedule 10 and that the approximately last 6" at the end of the pipe run that attaches to the equipment changes to schedule 40 or 80 to match that equipment. No discrepancy exists no corrective action is required.

For line numbers 3-EGF-002-028-3 and 3-EGF-002-031-3 the material take off isometrics clearly shows the pipe class. No discrepancy exists no corrective action is required.
PDDS is incorrect for 3-EGF-002-028-3 and will be revised to schedule 80 by the corrective actions of CR M3-98-0217, post startup.

Conclusion:
NU has concluded that the new issue reported in Discrepancy Report, DR-MP3-0832 does not represent a discrepant condition. CR M3-98-0495 was closed to CR M3-98-0217. Bin CR M3-98-0217 corrective actions will correct PDDS, post startup. NU considers the overall classification of this DR as significance level 4.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Obersnel,Bojan.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/14/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

Date 5/13/98

SL Comments: S&L comments on the first NU disposition:
NU response cannot be evaluated since it fails to identify what will be corrected for the identified discrepancy, and for what reason.

S&L comments on the second NU disposition:
S&L accepts NU disposition.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0871

Review Group: System
Review Element: System Design
Discipline: Structural Design
Discrepancy Type: Calculation
System/Process: HVX
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 1/17/98

Discrepancy: Duct Support Discrepancy

Description: We have reviewed the Misc. Platform calculation no. 12179-C29.347, Rev.0, dated 12/14/81.
Based on this review we have noted the following discrepancy.

Connections check for clip angles and bolts used to connect the equipment to the platform steel has not been addressed in the design.

		Valid	Invalid	Review Needed	Date
Initiator:	Klaic, N	☒	☐	☐	12/22/97
VT Lead:	Neri, Anthony A	☒	☐	☐	12/20/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	12/23/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	1/13/98

Date:

INVALID:

Date: 5/12/98

RESOLUTION: NU has concluded that Discrepancy Report, DR-MP3-0871, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and.17010 It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0515 has been written to develop and track resolution of this item per RP-4.

SECOND RESPONSE:

NU has concluded that this issue reported in DR-MP3-0871 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which require correction. Correction of this issue will be performed in accordance with the corrective actions outlined in CR MP3-98-0515.
NU has concluded that the new issue reported in DR-MP3-0871 (See Background above) has identified a NON-DISCREPANT condition. Justification of the current equipment configuration is as follows:
It would not be expected that the design of the equipment anchorage be included in the calculation for the platform design. The equipment attached to this platform is 3EGD-P1A Crankcase Vacuum Pump and 3EGD-SP1A Oil Separator. Both of these components are non QA and were supplied to the requirements of specification 2447.300-241 by the diesel supplier. There are no potential seismic interaction concerns. Seismic interactions were previously addressed by the NERM-69

hazards program.
NU considers DR-MP3-0871 to be a level 4 discrepancy. The corrective actions o CR-M3-98-0515 will be implemented post MP3 startup.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Klaic, N	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/12/98				

SL Comments: To defer this DR, justification that the equipment is adequately anchored to the existing steel platform is needed.

SECOND RESPONSE:

S & L concurs with NU that the mounting of non-safety related item is a deferrable issue.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0925

Review Group: Configuration
Review Element: System Design
Discipline: Electrical Design
Discrepancy Type: Drawing
System/Process: HVX
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 1/18/98

Discrepancy: Miscellaneous Drawing Errors

Description: The following design document (drawing) anomalies were noted during the preparation for and conduct of system walkdowns

1. P&ID EM-148E, Rev. 10 (Boundary Document Revision) indicates that the heater elements within filter units 3HVR*FLT3A and B have control switches located on control room panel VP1. These switches are not shown on the elementary diagram (ESK-6AHB, Rev. 4), the vendor drawing (2170.430-065-070 Rev. C) nor on the control panel drawings. These switches were not observed on the Panel VP1.

2. The Cable and Raceway Control Program (TSO2) indicates a service function of "spare" for cables 3HVRAOC700 and 703, however the cable is not tagged with an asterisk ("*") indicating it is spare and the cable appears on circuit drawings as used.

3. The Cable and Raceway Control Program (TSO2) lists incorrect connection diagrams for the following cables: 3HVROX298, 3HVRAOX252, 3HVRBPX246, and 3HVRBPC215.

4. Drawing EE-12J Rev. 4, lists cable 3HVPCOC521 at junction box 3HVP*JB20C going to junction box 3JB*8609. At junction box 3JB*8609 the cable is identified as 3HVPAOC521.

5. Drawing 3HVP-029B-1 Rev. 3 has cable 3HVPDPX220 shown twice. The cable at 3HVP*JB20B should be 3HVPBPX220.

6. Drawing EE-6AX, Rev. 4 shows both cable 3RMSNPC101 and 3RMSNPX420 with the same designator "G" at the terminal block/points. It is not feasible for two different cables to have the same internal continuation designator.

7. Drawing EE-18BF, Rev. 5 incorrectly shows cable 3HVRAOK010 at panel 3HVR*PNL-FLT-3A (correct number is 3HVRAOK011). Additionally, the drawings incorrectly shows cable 3HVRBPL010 at panel 3HVR*PNL-FLT-3B (correct number is 3HVRBPL011).

8. Conduit 3CX987NS8 is installed between equipment 3HVR*RIY10A AND 3HVR*RIY10B. This conduit is routed completely within the Auxiliary building at elevation 66'-6". The Cable and Raceway Control Program (TSO2) manual indicates that conduits with numbers in the range of 986 to 989 (i.e., this conduit) are located in the Main Steam Valve Building. This conduit number appear to violate the number standards.

9. The Cable and Raceway Control Program (TSO2) indicates

one of the connection diagrams for cable 3RMSNNX638 is "68F," the correct reference is "6BF."

10. Connection Diagram EE-12BJ, Rev. 7 incorrectly identifies the cables entering junction box 3JB*2015 as 3HVRCAOC503 and 504. The correct numbers are 3HVRAOC503 and 504.

11. P&ID EM148B Rev. 13 (Boundary Document Revision) indicates that temperature switches TIS-109A, B, and C are indicating (i.e., temperature indicating switches that provide local indication). Field verification verified that these switches do have local indication and therefore the installation is consistent with the P&ID. These instruments were found to have both TS and TIS tags. The TS tag is used on the loop and layout drawings as well as in the Cable and Raceway Control Program (TSO2). This use of the TS is consistent with the function and these drawings. However, the vendor drawing, 2472.900-609-099 Rev. B, identifies the instruments as "TS"s only and fails to show that the instrument also carries the TIS tag.; it is noted that the description does reveal that it is indicating.

		Valid	Invalid	Review Needed	Date
Initiator:	Sarver, T. L.	☒	☐	☐	1/6/98
VT Lead:	Neri, Anthony A	☒	☐	☐	1/5/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	1/12/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	1/14/98

Date:

INVALID:

Date: 5/13/98

RESOLUTION: FIRST RESPONSE:

Disposition:

NU has concluded that Discrepancy Report, DR-MP3-0925, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0971 has been written to develop and track resolution of this item per RP-4.

Conclusion:

NU has concluded that Discrepancy Report, DR-MP3-0925, has identified a condition not previously discovered by NU which requires correction. This discrepancy meets the criteria specified in NRC letter B16901 and 17010. It has been screened per U3 PI-20 criteria and found to have no operability or reportability concerns and meets the Unit 3 deferral criteria. CR M3-98-0971 has been written to develop and track resolution of this item per RP-4.

SECOND RESPONSE:

Disposition:

NU has concluded that the issues reported in DR-MP3-0925 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction.

After further review, NU concurs with S&L's opinion that the corrective action for Item 1 does not meet the deferral criteria for "Operations Critical Drawings". Therefore, CR M3-98-2383 has been initiated to document this condition for resolution and the corrective actions for this CR will correct P&ID EM-148E prior to startup.

Conclusion:

NU has concluded that the issues reported in DR-MP3-0925 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. After further investigation, NU concurs with S&L's opinion that the corrective action for Item 1 does not meet the deferral criteria for "Operations Critical Drawings". The corrective actions for CR M3-98-2383 will correct P&ID EM-148E prior to startup.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Morton, R.				
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/13/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	5/14/98
Date:	5/13/98	☐	☐	☐	

SL Comments: FIRST RESPONSE:

Item 1: S&L's opinion is that this item does not meet the deferral criteria for "Operations Critical Drawings" as defined in the Project Instructions PI-MP3-11, Attachment 6.9. The handswitch shown on P&ID EM-148E "may ... mislead the user".

Items 2 - 11: S&L agrees with NU's response.

SECOND RESPONSE:

S&L agrees with NU's response.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0983

Review Group: System
Review Element: System Design
Discipline: Piping Design
Discrepancy Type: Calculation
System/Process: HVX
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 1/25/98

Discrepancy: Mounting detail qualification for ductmounted radmonitor can not be verified

Description: Calculations for the qualification of pipe lines 3HVR-006-36-3, 3HVR-006039-3, 3HVR-750-46-3 and 3HVR-750-49-3 could not be located. These lines are used to protect leak tight radiation monitor sample points in ductwork. The lines are identified on Sketches B-313A-5 and B-313B-6, Specification SP-ME-573.

Qualification of the connection of these lines to the ductwork, as shown on the above noted sketches, can not be verified.

		Valid	Invalid	Review Needed	Date
Initiator:	Prakash, A.	☒	☐	☐	1/16/98
VT Lead:	Neri, Anthony A	☒	☐	☐	1/16/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	1/20/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	1/22/98

Date:

INVALID:

Date: 5/12/98

RESOLUTION: First Response

ID: M3-IRF-01838

Disposition
NU has concluded that Discrepancy Report DR-MP3-0983 has identified a condition not previously discovered by NU for which corrective action is complete. As a result of investigation into Condition Report (CR) M3-98-0666, standard calculation 12179-NM(S)-767-CZC has been located. Results of this calculation were translated during plant design into the document of origin for these connections, which is SWEC specification 2280.000-627, pages 105 and 106.
The drawings in the SWEC specification were later translated into Sketches B-313A-5 and B-313B-6, Specification SP-ME-573. Since the document of origin has been available to the station, and only the supporting calculation was needed, this issue is considered a level 4 significance.

Conclusion:
NU has concluded that Discrepancy Report DR-MP3-0983 has identified a condition not previously discovered by NU for which corrective action is complete. As a result of investigation into Condition Report (CR) M3-98-0666, standard calculation 12179-NM(S)-767-CZC has been located. Since the Engineer's design drawings have been available and the installation is consistent

with the drawings, only the source calculation was needed. Therefore this issue is a level 4 significance.

Attachments:

Condition Report M3-98-0666
Calculation 12179-NM(S)-767-CZC
SWEC Specification 2280.000-627, pages 105 and 106

Second Response

ID: M3 - IRF - 02313.

Disposition:
NU has concluded that this issue reported in DR-MP3-0983 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. The approved corrective action plan for condition report (CR) M3-98-2271 will revise calculation 12179-NM(S)-767-CZC to include the remaining lines in question. Action will be completed post startup.

Conclusion:
NU has concluded that the issue reported in DR-MP3-0983 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which requires correction. The approved corrective action plan for CR M3-98-2271 will revise calculation 12179-NM(S)-767-CZC to include the remaining lines in question. Action will be completed post startup.

Attachment:

Condition Report M3-98-2271 with approved corrective action plan

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Olson, P.R.				
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	5/12/98
Date:	5/12/98	☐	☐	☐	

SL Comments: First Response
ID: M3-IRF-01838

Calculation 12179-NM(S)-767-CZC Rev.0 was performed to qualify nozzles for 3CMS*RE22A/B and 3HVR*RE19 B. This addresses line 3HVR-006-039-3 but nothing has been mentioned about the qualification of lines 3HVR-006-36-3, 3HVR-750-46-3 and 3HVR-750-49-3. The qualification of these lines is presumably similar to those addressed by the calculation, therefore we concur with NU that this issue is a level 4 significance. The calculation should be revised to include the qualification of these lines.

Second Response
ID: M3-IRF-02313

The corrective action plan, revising the subject calculation to address the qualification of the additional lines, is acceptable.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-1015

Review Group: System
Review Element: System Design
Discipline: Mechanical Design
Discrepancy Type: Calculation
System/Process: NEW
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 2/7/98

Discrepancy: Revision of Calculation US(B)-273 for DCR M3-97045

Description: The purpose of US(B)-273, Rev. 6 is to determine the containment pressure and temperature response to postulated design basis LOCAs.

Two discrepancies were identified in US(B)-273:

1. Calculation US(B)-253 provides the input data deck for US(B)-273. US(B)-253, Rev. 5 changed the QSS time delay, ZSTART, to 68.6 sec after a CDA. Three results of the US(B)-273 analysis are not consistent with this QSS effective time:
   a. For a pump discharge double-ended rupture with Min. ESF, the sequence of events (Table 7, p. 20) states that a CDA signal is generated 1.4 sec into the event, but that QSS does not become effective until 71.5 sec into the event -- a time delay of 70.1 sec.
   b. For a 0.6 pump suction double ended rupture with Min ESF, the sequence of events (Table 8, p. 21) states that a CDA signal is generated 2.0 sec into the event, but that QSS does not become effective until 71.5 sec into the event -- a time delay 69.5 sec.
   c. For a 3 ft2 pump suction break with Min. ESF, the sequence of events (Table 9, p. 22) states that a CDA signal is generated 3.0 sec into the event, but that QSS does not become effective until 71.5 sec into the event -- a time delay of 68.5 sec.

2. The sequence of events in the results section of US(B)-273 indicates that QSS spray stops 10,000 sec into a pump suction double ended rupture event with Min. ESF (Tbl. 5, p. 18). This 10,000 sec time to reach the RWST empty level setpoint requires an analytical basis, but no calculation was referenced. The ICAVP reviewer could not locate a calculation which computes this quantity.

These errors have little effect on the conclusions of US(B)-273, Rev. 6.

		Valid	Invalid	Review Needed	Date
Initiator:	Wakeland, J. F.	☒	☐	☐	2/2/98
VT Lead:	Neri, Anthony A	☒	☐	☐	2/2/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	2/2/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	2/3/98

Date:

~~INVALID:~~

INVALID:

Date: 5/12/98

RESOLUTION: DISPOSITION:

NU has concluded that Discrepancy Report DR-MP3-1015 has identified issues not previously discovered by NU which require correction. The approved corrective action plan for CR M3-98-1054 (attached) will correct C lation US(B)-273 with respect to each of the discrepancies identified after startup. The revised results will then be carried forward into the calculations and documents which use results from US(B)-273 as an input.

CR M3-98-0619 (attached) contains the corrective action plan to complete the review of all RSS and QSS related calculation discrepancies identified by the ICAVP program. This corrective action will be completed after startup and will ensure that the errors in US(B)-273 are clearly identified and addressed. The corrective action plant for CR M3-98-1504 is tied to CR M3-98-0619 by AR 98002805.

As part of the ICAVP program, trending CR M3-98-1132 has been written to ensure that any process-related issues related to these calculations are clearly identified and are being dealt with. This assessment is scheduled to be completed prior to startup.

Each of the discrepancies in DR-MP3-1015 has been reviewed by NU design engineers, who have determined that none of the discrepancies impacts the operability of the RSS system. As such there is no effect on the license or design basis.

CONCLUSION:

NU has concluded that Discrepancy Report DR-MP3-1015 has identified issues not previously discovered by NU which require correction. The approved corrective action plan for CR M3-98-1054 (attached) will correct Calculation US(B)-273 with respect to each of the discrepancies identified after startup. In addition, an assessment will be performed, prior to startup, of the issues related to calculational discrepancies. This will ensure that these issues are clearly identified and addressed. Each of the discrepancies identified in DR MP3-1015 has been reviewed by NU, and none of them affect the conclusion that the RSS system meets its design basis. As such there is no effect on the license or design basis.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Wakeland, J. F.	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	

Date: 5/12/98

SL Comments: Sargent & Lundy agrees that CR M3-98-1504 will address the issues identified in DR-MP3-1015.

The discrepancies in QSS pump effective times are no more than 1.5 seconds. For all of the post-LOCA QSS effective times modeled, QSS spray commences after the peak containment temperature and pressure is reached. The discrepancy in QSS pump stop time occurs well after the minimum NPSHa condition for the RSS pumps. Therefore Sargent & Lundy concludes that the errors identified in DR-MP3-1015 do not place the QSS or containment systems outside of their design and licensing bases, and they may be corrected after Unit 3 restart.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-1018

Review Group: System
Review Element: System Design
Discipline: Mechanical Design
Discrepancy Type: Calculation
System/Process: NEW
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 2/7/98

Discrepancy: Revision of Calculation US(B)-266 for DCR M3-97045

Description: The purpose of US(B)-266, Rev. 3 is to determine the containment pressure and temperature response to postulated design basis main steam line breaks.

Three discrepancies were identified in US(B)-266:

1. The QSS effective time is input as 71.2 seconds (Attachment 7, pp. 1 and 8, Attachment 8, pp. 1 and 8), but Rev. 5 of US(B)-253 changed the QSS effective time, ZSTART, to 68.6 sec after CDA. The consequences are QSS initiates 76.3 sec, rather than 73.7 sec, after the postulated MSLB at 75% power (Table 2, p. 31), and QSS initiates 75.2 seconds, rather than 72.6 sec, after the postulated MSLB at 25% power (Table 3, p. 32).

2. The inputs for HHSI injection mode flow for postulated MSLBs with Max. ESF (p. 4 of Att. 7, and p. 4 of Att. 8) are incorrect. The correct source of this input is Table 4 on p. 63 of US(B)-361, Rev. 0:

Head (psid)	Incorrect Flow (gpm)	Correct Flow (gpm)
-23.4	1707	1467
0.0	1698	1458
500	1466	1250
1000	1181	990
1500	657	434
2000	407	322
2400	256	190

3. The inputs for HHSI recirculation mode flow for postulated MSLBs with Max. ESF (p. 4 of Att. 7, and p. 4 of Att. 8) are incorrect. This flow should be 1553 gpm, not 2734 gpm. The correct source of this input is Case 5 of Tables 2 and 3 on pp. 61 and 62 of US(B)-361, Rev. 0.

These errors have little effect on the conclusions of US(B)-266, Rev. 3.

		Valid	Invalid	Review Needed	Date
Initiator:	Wakeland, J. F.	☒	☐	☐	1/31/98
VT Lead:	Neri, Anthony A	☒	☐	☐	2/2/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	2/2/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	2/3/98

Date:

~~INVALID:~~

INVALID:

Date: 5/12/98

RESOLUTION: DISPOSITION:

NU has concluded that the issues reported in Discrepancy Report, DR-MP3-1018, have identified conditions not previously discovered by NU which require correction. The approved corrective action plan for CR M3-98-1505 (attached) will correct Calculation US(B)-266 with respect to each of the discrepancies identified after startup. The revised results will then be carried forward into the calculations and documents which use results from US(B)-266 as an input.

CR M3-98-0619 (attached) contains the corrective action plan to complete the review of all RSS and QSS related calculation discrepancies identified by the ICAVP program. This corrective action will be completed after Startup, and will ensure that the errors in US(B)-266 are clearly identified and addressed. The corrective action plan for CR M3-98-1505 is tied to CR M3-98-0619 by AR 98002805.

As part of the ICAVP program, trending CR M3-98-1132 has been written to ensure that any process-related issues related to these calculations are clearly identified and are being dealt with. This assessment is scheduled to be completed prior to Startup.

Each of the discrepancies in DR-MP3-1018 has been reviewed by NU design engineers, who have determined that none of the discrepancies impacts the operability of the RSS system. As such there is no effect on the license or design basis.

CONCLUSION:

NU has concluded that the issues reported in Discrepancy Report, DR-MP3-1018, have identified conditions not previously discovered by NU which require correction. The approved corrective action plan for CR M3-98-1505 (attached) will correct Calculation US(B)-266 with respect to each of the discrepancies identified after Startup. In addition, an assessment will be performed prior to Startup of the issues related to calculational discrepancies. This will ensure that these issues are clearly identified and addressed. Each of the discrepancies identified in DR MP3-98-1018 has been reviewed by NU, and none of them affect the conclusion that the RSS system meets its design basis. As such there is no effect on the license or design basis.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Wakeland, J. F.	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K				

NRC Chmn: Singh, Anand K ☐ ☐ ☐

Date: 5/12/98

SL Comments: Sargent & Lundy agrees that CR M3-98-1505 will address the issues identified in DR-MP3-1018.

Sargent & Lundy has concluded that Item #3 of DR-MP3-1018 is not a discrepant condition. Item #3 identifies the flow to be used to model the ECCS cold leg recirculation flow once ECCS manual suction switchover is completed. However, the containment design basis created by modification M3-97045 and modeled in US(B)-266, Rev. 3 is that the RSS pumps never actuate, never take suction from the containment sump, and ECCS never operates in its recirculation mode.

For the design basis MSLBs which produce the worst-case peak containment pressure and the worst-case peak temperature, the QSS is modeled to commence spray 2.6 seconds too late. This results in less RWST water sprayed into containment over the duration of the containment transients modeled in US(B)-266, Rev. 3. This is a conservative error. For the ECCS injection mode, the model for SIH and CHG flows overestimates the injection of RWST water into the vessel by up to 240 gpm. This results in a reduction in the calculated mass released during the containment transients modeled in US(B)-266, Rev. 3. This is a conservative error. Therefore, Sargent & Lundy concludes that the errors identified in Items #1 and #2 of DR-MP3-1018 do not place the QSS or containment systems outside of their design and licensing bases. These errors may be corrected after Unit 3 restart.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-1051

Review Group: System
Review Element: Corrective Action Process
Discipline: Mechanical Design
Discrepancy Type: Corrective Action Implementation
System/Process: RSS
NRC Significance level: NA

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 2/23/98

Discrepancy: UIR 1035

Description: UIR 1035 describes the sump compliance with RG 1.82, Position 10. Calculation PE-029 does not address all the requirements of Position 10. The calculation only considers the RSS spray nozzles, but should include all functions and systems which are served by the sump including SIH, CHS and RCS for recirculation mode. The SIH throttle valves are open less than the screen mesh size resulting in possible blockage.

The UIR Close Out Report concludes that CCN 2 to Calculation PE-029, Rev. 0 was approved, thus completing the necessary actions for closure. The CCN provides a resolution to the problem with the sump screens, but leaves compliance 'pending on the implementation of DCR # M3-96-077.' The DCR installs new orifices in the ECCS injection lines allowing a larger opening in the throttle valves; satisfying RG 1.82, Position 10.

This is an administrative error. There is no mechanism for tracking the DCR closure to the calculation.

		Valid	Invalid	Review Needed	Date
Initiator:	Langel, D.	☒	☐	☐	2/17/98
VT Lead:	Neri, Anthony A	☒	☐	☐	2/17/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	2/18/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	2/19/98

Date:

INVALID:

Date: 5/13/98

RESOLUTION: Disposition:

NU has concluded that the issue reported in Discrepancy Report, DR-MP3-1051, does not represent a discrepant condition.

CCN #2 was submitted as part of the UIR 1035 Closure Package to document how compliance to RG 1.82 position 10 would be satisfied. After submitting UIR 1035 Closure Package, the original CCN was lost prior to entry into Nuclear Records. Several months later, the CCN was recreated for submittal to Nuclear Records and was reissued with some minor changes being made to the text to account for actions taken between 3/97 and 11/97. The attached Record Copy of CCN #2 does not condition its closure on the completion of DCR # M3-96077. In order to update UIR 1035 with the record copy of CCN #2, CR M3-98-1684 was initiated to correct the documentation. No technical changes had occurred as a result of this change. The

statement "pending on the implementation of DCR # M3-96077" has been removed from CCN #2. The Design Engineer did not make changes to calculation PE-029 to support DCR # 96077 "ECCS Orifices and Throttle Valves" and therefore the PE-029 would not be listed in the turnover transmittal, Form 3-2H. CCN #2 to PE-029 was a stand alone change that was initiated outside of the changes made by DCR M3-96077 and, therefore no direct link between the DCR closure and the calculation should exist.

"The Design Control Manual (DCM) Chapter 5 provides the administrative controls for the process of closing out calculation changes associated with plant modifications. Revision 6 of the DCM now requires that when a plant modification is completed and turned over to Operations, a new box on the Calculation Title Sheet or CCN form, entitled "Installation Verified;, is signed signifying that the calculation or CCN may become or complement the "calculation record." The intent of this procedure change was to enhance the closure mechanisms to the calculations associated with plant design changes. CCNs which are entered into the system become part of the calculation record whereby the CCNs are included with the requested calculation. New guidelines have been developed to establish the number of CCNs that can be posted against a calculation prior to formal revision of the calculation (refer to A/R 97029822-11) which have been incorporated into revision 6 to the DCM. The purpose of this revision was to provide the user with an improved understanding of the calculation and DCR process as well as making it easier to follow. To ensure proper closure to CCNs associated with key calculations, A/R 97029822-10 will implement a review of key calculations to establish the installation verified status for changes made to calculations prior to the effective date of DCM rev 6. Based on the more recent revisions made to the design control program, in recognition of past weaknesses in the control of calculation changes, NU does not consider this to be a discrepant condition.

CCN #2 revised Calculation PE-029 to update the current ECCS strainer mesh opening size. The mesh opening for the fine screen is 3/32 inch (0.094"). ACR 8897 identified throttled valves on the cold leg safety infection lines where the disc-to-seat clearance was less than 0.094". DCR M3-96077 corrected the clearance issue through the addition of a flow restriction orifice in each injection line that will allow increasing the throttle valves' opening to greater than 0.094". The actions performed under DCR M3-96077 satisfies the requirements of RG 1.82, Position 10.

Significance Level Criteria do not apply here as this is not discrepant condition.

Conclusion:

NU has concluded that the issue reported in Discrepancy Report, DR-MP3-1051, does not represent a discrepant condition.

The design change closure process requires design engineering

review of all calculations associated with the Design Change Request prior to close-out. This review assures that all active CCNs associated with design changes made by the DCR are incorporated in the revision and that all changes to the calculation have been reconciled. The DCM contains the process which controls the closure of the DCR and reconciliation of any associated calculation. Since the Calculation Change in question was made independent of the DCR, the CCN will remain as an attachment to the calculation until sufficient CCNs exist which will warrant a full revision to the calculation. Therefore, NU does not consider this to be a discrepant condition.

Significance Level Criteria do not apply here as this is not discrepant condition.

Previously Identified by NU? ○ Yes ◉ No **Non Discrepant Condition?** ◉ Yes ○ No

Resolution Pending? ○ Yes ◉ No **Resolution Unresolved?** ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Langel, D.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/14/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: The "revised" CCN is not pending the implementation of the DCR. Therefore, this is not a discrepancy.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-1068

Review Group: System
Review Element: Modification Design
Discipline: Mechanical Design
Discrepancy Type: Procedure Implementation
System/Process: NEW
NRC Significance level: NA

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 2/28/98

Discrepancy: Incomplete documentation implementing changes to Specification SP-ME-570

Description: In the process of reviewing modification DCR M3-97063 and associated DCN-00-1122-97 the following is noted.

DCN-00-1122-97 states on page 3 under the topic Specification Changes Required,
"Add snubber mark nos. 3-RSS-4-PSSP459 and 3-RSS-4-PSSP460 to the snubber list, Appendix U of Specification SP-ME-570."

Based on a review of the subject DCN, no change paper incorporating the changes to Appendix U of Specification SP-ME-570 could be identified.

In addition, the subject DCN also identifies the addition of other new pipe supports and the deletion of one support. It is believed these cases should be reflected by changes to the listing of pipe supports contained in Appendix M of Specification SP-ME-570. The subject DCN does not mention this potential change to the specification or include any change paper to reflect its implementation.

Discrepancy:

DCN DM3-00-1122-97 does not provide change paper to implement the noted changes to specification SP-ME-570 Appendix U and does not identify or implement potential changes to Appendix M of the same specification.

		Valid	Invalid	Review Needed	Date
Initiator:	Olson, P.R.	☒	☐	☐	2/20/98
VT Lead:	Neri, Anthony A	☒	☐	☐	2/21/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	2/21/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	2/25/98

Date:

INVALID:

Date: 5/12/98

RESOLUTION: Response ID: M3-IRF-02231

Disposition:

NU has concluded that the issue reported in Discrepancy Report, DR-MP3-1068, does not represent a discrepant condition. DCN DM3-00-1122-97 lists SP-ME-570 as an affected document to

add the new snubbers. DCN DM3-05-1122-97 (attached) was issued to supplement DM3-00-1122-97 to add all the pertinent information concerning the new snubbers. Additionally, no update to Appendix 'M' of SP-ME-570 is required as no interface seismic supports were affected. This Appendix to the specification is for seismic supports on Class 4 lines which are credited, not to list all seismic supports in general.

Significance Level Criteria does not apply as this is not a discrepant condition.

Attachments:1) DCN DM3-05-1122-97

Conclusion:NU has concluded that the issue reported in Discrepancy Report, DR-MP3-0987, does not represent a discrepant condition. The update to Appendix 'U' SP-ME-570 is included in DCN DM3-05-1122-97 and there is no update required to Appendix 'M' of SP-ME-570.

Significance Level Criteria does not apply as this is not a discrepant condition.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ◉ Yes ○ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Olson, P.R.	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/6/98				

SL Comments: S&L agrees with NU's response that the required update for Appendix U to SP-ME-570 (originally missing in DCN DM3-00-1122-97) was identified by NU during the modification process and corrected in the subsequent DCN revision, DM3-05-1122-97. It is noted however, that Rev. 05 of this DCN was not initially provided by NU with the review package for DCR M3-97063. Also, based on further review, we agree that Appendix M of SP-ME-570 does require an update

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-1076

Review Group: System
Review Element: Modification Design
Discipline: I & C Design
Discrepancy Type: Drawing
System/Process: NEW
NRC Significance level: NA

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 3/12/98

Discrepancy: Incorrect markup of design drawing depicted in Plant Modification DCR M3-97045.

Description: The change to LSK-27-11H Rev. 10 is shown incorrectly on pages 5 and 6 of DCN DM3-00-0079-98.

Only one logic drawing (which details the Train A logic configuration) is affected by the modification, therefore, pages 7 and 8 should be removed from DCN DM3-00-0080-98.

Pages 5 and 6 of DCN DM3-00-0079-98 should be revised to show the modification correctly.

		Valid	Invalid	Review Needed	Date
Initiator:	Reed,William.	☒	☐	☐	3/3/98
VT Lead:	Neri, Anthony A	☒	☐	☐	3/4/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	3/6/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	3/9/98

Date:

INVALID:

Date: 5/12/98

RESOLUTION: Disposition:

NU has concluded that this issue reported in Discrepancy Report DR-MP3-1076 has identified a NON-DISCREPANT condition.

DCNs DM3-00-0079-98 and DM3-00-0080-98 were issued to implement DCR M3-97045 design changes related to the control logic of valves 3RSS*MOV38A and 3RSS*MOV38B, respectively. Contrary to Discrepancy Report DR-MP3-1076, drawing 12179-LSK-27-11H details both Train A and B logic configurations for valves 3RSS*MOV38A and 3RSS*MOV38B. Note 3 on drawing 12179-LSK-27-11H indicates the control logic for containment recirculation pump miniflow valve 3RSS*MOV38A is shown and the control logic for 3RSS*MOV38B is similar. Both DCN DM3-00-0079-98 and DM3-00-0080-98 implemented logic changes that affected drawing 12179-LSK-27-11H. However, since each of these DCNs implemented changes to the plant at different times that affected only one train, they only document the changes made to the affected train on drawing 12179-LSK-27-11H.

Page 7 of DCN DM3-00-0080-98 shows drawing 12179-LSK-27-11H before the control logic changes to valve 3RSS*MOV38B are implemented and page 8 shows the drawing after the changes are made. Since this DCN only affected Train B, the

changes on the drawing correctly reference Note 8 which indicates they are applicable to Train B only. It should be noted that this DCN was implemented and turned over to operations prior to DCN DM3-00-0079-98.

Block 7 of DCN DM3-00-0079-98 indicates it was issued as a supplement to DCN DM3-00-0080-98. Page 5 of DCN DM3-00-0079-98 shows drawing 12179-LSK-27-11H before the control logic changes to valve 3RSS*MOV38A are implemented but reflects the changes made to the control logic for valve 3RSS*MOV38B by DCN DM3-00-0080-98. Page 6 of DCN DM3-00-0079-98 shows drawing 12179-LSK-27-11H after the control logic changes to valve 3RSS*MOV38A and reflects the changes made to the control logic for valve 3RSS*MOV38B by DCN DM3-00-0080-98. A review of pages 5 and 6 of DCN DM3-00-0079-98 found they accurately depict the changes made to the control logic of valve 3RSS*MOV38A. Since DCN DM3-00-0079-98 was issued as a supplement to DCN DM3-00-0080-98, pages 5 and 6 also reflect changes made to the control logic of valve 3RSS*MOV38B by DCN DM3-00-0080-98.

Significance level criteria do not apply as this is not a discrepant condition.

Conclusion:

NU has concluded that this issue reported in Discrepancy Report DR-MP3-1076 has identified a NON-DISCREPANT condition.

DCNs DM3-00-0079-98 and DM3-00-0080-98 were issued to implement DCR M3-97045 design changes related to the control logic of valves 3RSS*MOV38A and 3RSS*MOV38B, respectively. Contrary to Discrepancy Report DR-MP3-1076, drawing 12179-LSK-27-11H details both Train A and B logic configurations for valves 3RSS*MOV38A and 3RSS*MOV38B. Note 4 on drawing 12179-LSK-27-11H indicates the control logic for containment recirculation pump miniflow valve 3RSS*MOV38A is shown and the control logic for 3RSS*MOV38B is similar. Both DCN DM3-00-0079-98 and DM3-00-0080-98 implemented logic changes that affected drawing 12179-LSK-27-11H. However, since each of these DCNs implemented changes that affected only one train, they only document the changes made to the affected train on drawing 12179-LSK-27-11H.

Pages 5 and 6 of DCN DM3-00-0079-98 accurately depict the changes made to the control logic of valve 3RSS*MOV38A. Since DCN DM3-00-0079-98 was issued as a supplement to DCN DM3-00-0080-98, pages 5 and 6 also reflect changes made to the control logic of valve 3RSS*MOV38B by DCN DM3-00-0080-98.

Significance level criteria do not apply as this is not a discrepant condition.

Previously Identified by NDT? ○ Yes ◉ No Non Discrepant Condition? ◉ Yes ○ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	DeMarco, J.	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/12/98				

SL Comments: Sequence of implementation of drawing changes per DCR M3-97045 has been adequately addressed.

Review Group: System
Review Element: Modification Design
Discipline: Mechanical Design
Discrepancy Type: Licensing Document
System/Process: NEW
NRC Significance level: NA

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 3/14/98

Discrepancy: Incomplete Failure Modes Analysis in S3-EV-98-0021 attached to DCR M3-98008

Description: Safety Evaluation S3-EV-98-0021, Modification of RSS Pumps' Seal Water Coolers, is the safety evaluation for DCR M3-98008. Section 2.0 of the safety evaluation identifies two failure modes analyzed. They are:

1. Failure of RSS pump outboard seal.
2. Failure of new tubing.

The safety evaluation does not address the three following failure modes:

1. Failure of the RSS pump inboard seal.
2. Failure of the pressure chamber on the RSS pump mechanical seal.
3. Failure of the new valves to maintain the RSS pump seal pressure boundary.

Therefore, the failure modes analysis in the safety evaluation is considered to be incomplete.

		Valid	Invalid	Review Needed	Date
Initiator:	Feingold, D. J.	☒	☐	☐	3/10/98
VT Lead:	Neri, Anthony A	☒	☐	☐	3/10/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	3/11/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	3/11/98

Date:

INVALID:

Date: 5/13/98

RESOLUTION: Disposition:

NU has concluded that this issue reported in Discrepancy Report DR-MP3-1081 has identified a NON-DISCREPANT condition.

DCR M3-98-008 did not implement any changes that would introduce failures to the RSS pump outboard seal or the pressure chamber that had not been previously evaluated and found acceptable. The DCR did install a new tubing configuration for each RSS pump mechanical seal to separate the seal cooling loop from the pressure chamber. This new configuration included a normally closed manual vent valve in the seal cooling loop to ensure it is properly vented during system fill. As part of the new tubing configuration, although not explicitly stated, the failure of the new vent valve was considered in Safety

Evaluation S3-EV-98-0021, Revision 0, when evaluating a failure of the tubing. The normally closed QA Category I, ASME Class 2, manual needle valve, like the tubing, was designed and installed to the same standards and criteria that were used to construct the original outboard seal water cooling and pressurizing equipment. Therefore, as stated in the safety evaluation, there is no increase in the probability of occurrence of previously evaluated malfunction of equipment important to safety.

The mechanical seals for the RSS pumps are a tandom style. The lower seal uses process fluid as the coolant for the seal and the upper seal uses a closed loop cooling system initially filled with demineralized water to cool the seal. To ensure no process fluid escapes through a pump seal (for the first seven days of pump operation following a LOCA), the upper seal cavity is maintained at a higher pressure relative to the lower seal cavity. This is accomplished by the use of a pressure chamber (seal tank). The lower seal chamber is connected to the top chamber of the pressure chamber and the upper seal cavity is connected to the bottom of the pressure chamber via tubing. This ensures the pressure in the bottom chamber of the pressure chamber equals the pressure in the top chamber plus the pressure applied by the cylinder that divides the pressure chamber.

Prior to the implementation of DCR M3-98-008, a portion of the tubing between the outboard seal cavity
and the bottom chamber of the pressure chamber served two functions; it allowed for the application of pressure from the bottom chamber of the pressure chamber to the outboard seal cavity and it served as a flow path for the closed seal cooling loop. As the flow in the closed seal cooling loop was found to induce an undesirable pressure loss in the pressure being applied to the outboard seal assembly, DCR M3-98-008 reconfigured the tubing to separate the two functions. This DCR removed the tubing that connected the pressure chamber to the seal cooling loop and installed tubing directly from the bottom chamber of the pressure chamber to a different connection on the outboard seal cavity completely separate from the seal cooling loop.

Safety Evaluation S3-EV-98-0021, Revision 0, evaluated the changes implemented by DCR M3-98-008 and found the changes do not alter the function or performance of any of the equipment affected by the modification. The safety evaluation correctly indicates that since the seals are not being changed, it is not credible for a seal failure to occur other than one previously evaluated and determined acceptable. This conclusion can also be applied to the pressure chamber.

Significance level criteria do not apply as this is not a discrepant condition.

Conclusion:

NU has concluded that this issue reported in Discrepancy Report DR-MP3-1081 has identified a NON-DISCREPANT condition.

DCR M3-98-008 did not implement any changes that would introduce failures to the RSS pump outboard seal or the pressure chamber that had not been previously evaluated and found acceptable. The DCR did install a new tubing configuration for each RSS pump mechanical seal to separate the seal cooling loop from the pressure chamber. This new configuration included a normally closed manual vent valve in the seal cooling loop to ensure it is properly vented during system fill. As part of the new tubing configuration, although not explicitly stated, the failure of the new vent valve was considered in Safety Evaluation S3-EV-98-0021, Revision 0, when evaluating a failure of the tubing. The normally closed QA Category I, ASME Class 2, manual needle valve, like the tubing, was designed and installed to the same standards and criteria that were used to construct the original outboard seal water cooling and pressurizing equipment. Therefore, as stated in the safety evaluation, there is no increase in the probability of occurrence of previously evaluated malfunction of equipment important to safety.

Significance level criteria do not apply as this is not a discrepant condition.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ◉ Yes ○ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Feingold, D. J.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: Sargent & Lundy accepts Northeast Utilities' resolution that this issue is non-discrepant for the following reasons:

1. According to section 2.1.2 of the subject safety evaluation, there are no portions of the seals that will be required to experience conditions that they were not designed to experience. Even though the safety evaluation excludes failure the inboad seal from its list of malfunctions, the analysis in section 2.1.2 does address a failure of both the inboard and outboard seals.

2. According to page 2 of DCR M3-98008, the new valves are installed as QA Category 1, ASME Class 2 in accordance with NU specification SP-EE-212. Therefore, the new valves are constructed and installed to equivalent standards and criteria as the existing seal system valves. The safety evaluation does not address failure of the new valves. However, section 2.1.2 of the safety evaluation does address failure of the new tubing, providing an anaylsis stating that the new tubing is constructed

and installed to the same standards and criteria as the existing seal system tubing. The evaluation of the new tubing in the safety evaluation could be interpreted to include the new valves.

3. The new tubing configuration between the pressure chamber and the pump seal ensures that the outboard seal cavity is pressurized as intended by the original seal system design. This modification does not change the current failure mode(s) of the pressure chamber. Therefore, the probability of a failure of the pressure chamber and the consequences of a failure of the pressure chamber have not changed as a result of this modification.

Even though the subject malfunctions NOT addressed in the safety evaluation are bounded by the malfunctions that were addressed, Sargent & Lundy recommends that future safety evaluations address all failure modes to ensure all failure modes are bounded.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-1082

Review Group: Programmatic
Review Element: Corrective Action Process
Discipline: Other
Discrepancy Type: Corrective Action Implementation
System/Process: DGX
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 3/14/98

Discrepancy: Insufficient Documentation to Verify Corrective Action for CR M3-97-0729.

Description: In the implementation review of CR M3-97-0729 the following was noted:

1. Corrective action #1 for CR M3-97-0729 was to "revise applicable drawings".

2. AR No. 97005927-02 assignment completion notes state "revised applicable drawings to correct the drafting error and added EDG ratings under DCN #DM3-00-0372-97 as part of the corrective action plan." This DCN No. is also indicated on CR Form RP4-1, page 5 of 9 in the CR package.

3. CR M3-97-0729 Action Closeout Form RP4-4 (for AR 97005927-02) also indicates in part, under steps 5 & 6 that DCN #DM3-00-0372-97 is the DCN which addresses the concern in the CR.

Contrary to the above, our review of DCN #DM3-00-0372-97 (copy which was included in the CR closeout package) indicates that this DCN did not address the concerns documented in the CR.

		Valid	Invalid	Review Needed	Date
Initiator:	Caruso, A.	☒	☐	☐	3/11/98
VT Lead:	Ryan, Thomas J	☒	☐	☐	3/10/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	3/11/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	3/11/98

Date:

INVALID:

Date: 5/13/98

RESOLUTION: Disposition:

NU has concluded that Discrepancy Report, DR-MP3-1082, has identified a condition not previously discovered by NU which requires correction. DCN DM3-00-0372-97 was incorrectly referenced in the CR Action Closeout Form and in the Corrective Action Plan in M3-97-0729 as well as in the AR # 97005927-02 completion notes. The correct DCN reference is DCN DM3-00-0509. Changes have been processed to correct the CR Action Closeout Form and the Corrective Action Plan in M3-97-0729. The approved Corrective Action Plan for M3-98-1952 will update the DCN reference in the AR closure notes post startup.

Conclusion:
NU has concluded that Discrepancy Report, DR-MP3-1082, has identified a condition not previously discovered by NU which requires correction. DCN DM3-00-0372-97 was incorrectly referenced in the CR Action Closeout Form and in the Corrective Action Plan in M3-97-0729 as well as in the AR # 97005927-02 completion notes. The correct DCN reference is DCN DM3-00-0509. Changes have been processed to correct the CR Action Closeout Form and the Corrective Action Plan in M3-97-0729. The approved Corrective Action Plan for M3-98-1952 will update the DCN reference in the AR closure notes post startup.

Attachments - Corrected CR Action Closeout Form and Corrective Action Plan for M3-97-0729, CR M3-98-1952,DCN DM3-00-0509-97

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Caruso, A.				
VT Lead:	Ryan, Thomas J	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/13/98
IKC Chmn:	Singh, Anand K	☒	☐	☐	5/14/98
Date:	5/13/98	☐	☐	☐	

SL Comments: NU's response is acceptable.

As noted in the above attachment, NU issued CR M3-98-1952 which correctly referenced DCN DM3-00-0509-97 in the CR M3-97-0729 Action Closeout Form and in the Corrective Action Plan as well as in the AR # 97005927-02 completion notes. [Note: DCN DM3-00-0372-97 was incorrectly referenced in CR M3-97-0729.]

As noted in the above attachment, DCN DM3-00-509-97 did implement the applicable drawing changes requested in the CR M3-97-0729 Corrective Action #1.

DR-MP3-1082 is discrepant.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-1083

Review Group: System
Review Element: Corrective Action Process
Discipline: Mechanical Design
Discrepancy Type: Corrective Action Implementation
System/Process: RSS
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 3/16/98

Discrepancy: ACR M3-97-0314 Corrective Action Implementation

Description: ACR M3-97-0314 addressed problems with the material condition and cleanliness of the containment sump, sump screens and sump cover. This ACR enumerated 13 of these issues with the RSS containment sump.

AR 97002740 was issued to implement the corrective actions for ACR M3-97-0314. The following documents were traceable from ACR M3-97-0314 and AR 97002740: 3DE-96-0009, AR 96033643, LER 96-039-00, AWO M3-96-13395, DCR M3-97580, DCN DM3-00-0490-97, NSE-97-01, AR 97009899, TR 20M3151214, AWO M3-97-10839, AWO M3-13728, AWO M3-97-02630, TR21M3100340, AWO 97-10840, AWO M3-96-09729, AR 97002435, AR 96036350, AR 97015361, TR 12M33095400, AWO M3-96-13395, ACR M3-96-1372, AR 96036350, 97003665, DCN DM3-S-903-96, and DCR M3-97045.

According to ACR M3-97-0314, AR 97002740-03 address the corrective actions for ACR M3-97-0314 Issues #3 and #5. AR 97002740-03 was closed to TR 20M3151214, and TR 20M3151214 was closed to AWO M3-97-10839. TR 20M3151214 and AWO M3-97-10839 correct Item #5, the missing lower grating clip. Neither of these corrective action documents address Item #3, various deck plate screws missing or not flush with deck plating. No documentation of the correction of Item #3 was found among the corrective action documents listed above.

According to ACR M3-97-0314, AR 97002740-03 address the corrective actions for ACR M3-97-0314 Issue #10. AR 97002740-03 was closed to AWO M3-97-02630. This work order is for the removal of trash grates for a surveillance to measure the coarse mesh screens, and to remove debris found between the trash grates and fine mesh screens and debris found in the sump behind the screens. This work order does not address Item #10, to clean debris found in the sump trench outside the trash grates and screens. No documentation of the correction of Item #10 was found among the corrective action documents listed above.

The documents referenced for closure of corrective action implementation for Items #3 and #10 of ACR M3-97-0314 did not address these issues. Documentation for the closure of Items #3 or #10 was not found in ACR M3-97-0314, in AR 97002740, or in any other documents directly associated with ACR M3-97-0314 or AR 97002740.

	Valid	Invalid	Review Needed	Date
Initiator: Wakelan[illegible], J. F.				3/12/98

Initiator:	Wakeland, J. F.	☒	☐	☐	3/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	3/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	3/12/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	3/13/98

Date:

INVALID:

Date: 5/13/98

RESOLUTION: DISPOSITION:

NU has concluded that Discrepancy Report, DR-MP3-1083, has identified a condition not previously discovered by NU which requires correction.

In response to item #10 of ACR M3-97-0314, the record copy of AWO M3-97-02630 (attached) was reviewed and verified that the completion remarks documented the removal of debris from the sump screens and trench area. Item #10 of the ACR was to clean the sump screens by removing foreign materials. The AWO had a Foriegn Material Exclusion (FME) Log associated with work. AWO M3-97-02630 references FME activities under AWO M3-97-02627 (attached) which documents that the sump area was cleaned and verified to be free of debris. NU does not consider item #10 of ACR M3-97-0314 to be a discrepant condition.

In response to item #3 of ACR M3-97-0314, the record copy of AWO M3-97-10839 (attached) was reviewed against Trouble Report TR 20M3151214. The problem description of the Trouble Report was not adequately transferred to the AWO such that deck plate fasteners were not identified in the task description. Although the AWO did not specifically call out to tighten or re-fasten the deck plate bolting, these activities were completed. The RSS System Engineer performed a walkdown of the RSS sump area and verified cleanliness of the sump and trench areas and that all decking was properly secured as part of MMOD M3-97580 closure inspection (attached). CR M3-98-2135 was initiated to identify the failure of the planning for AWO M3-97-10839 to specifically identify the deck plate fastners which were required to be tightened. The approved corrective action plan for CR M3-98-2135 will add documentation into the AWO M3-97-10839 package to verify that the deck plate fasteners associated with the RSS sump are installed. AR 98008317 will track this item to completion post startup. Since the AWO was the only document referenced on Corrective Action Item #3 of ACR M3-97-0314, NU concurs with the conclusion that item #3 of the ACR is a discrepant condition. Without the documentation provided by MMOD M3-97580 closure inspection, there would have been less than adequate documentation to verify that Item #3 was properly completed.

CONCLUSION:

NU has concluded that Discrepancy Report, DR-MP3-1083, has

identified a condition not previously discovered by NU which requires correction.

Based the work package documentation (AWO M3-97-10839 and TR20M3151214) there is less than adequate documentation to support completion of corrective action item #3 identified in ACR M3-97-0314. CR M3-98-2135 was initiated to identify the failure of the planning for AWO M3-97-10839 to specifically identify the deck plate fastners which were required to be tightened. The approved corrective action plan for CR M3-98-2135 will add documentation into the AWO M3-97-10839 package to verify that the deck plate fasteners associated with the RSS sump are installed. AR 98008317 will track this item to completion post startup. NU concurs with Sargent & Lundy's assignment of significance level 4 to item #3 as a discrepant condition.

Based the work package documentation (AWOs M3-97-02630, M3-97-02627) there is sufficient evidence to support completion of corrective action item #10 identified in ACR M3-97-0314. Therefore NU does not consider item #10 to be a discrepant condition.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Wakeland, J. F.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	

Date: 5/13/98

SL Comments: Sargent & Lundy concurs that there is no discrepant condition related to Item #10 of ACR M3-97-0314. Item #10, verification that the sump trench outside of the trash sceens is free of debris, was completed via AWO M3 97-02627 and AWO M3 97-02627 was used to support ACR M3-97-0314 corrective actions.

Sargent & Lundy concurs that CR M3-98-2135 addresses documentation of the completion of Item #3 of ACR M3-97-0314, replacement of missing deck plate screws and tightening of deck plate screws. MMOD M3-97580, which eliminated gaps between closure plates and around screen penetrations, included inspection of the sump enclosure boundary (including verification that the deck plating was properly secured), and no hardware deficiency associated with the deck plate screws was identified. Thus, the discrepant condition is not a hardware deficiency. The discrepancy is incomplete documentation of the work which was performed under AWO M3-97-10839. Sargent & Lundy concludes that this documentation does not need to be corrected prior to Unit 3 restart.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-1084

Review Group: System
Review Element: Modification Design
Discipline: Mechanical Design
Discrepancy Type: Calculation
System/Process: RSS
NRC Significance level: NA

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 3/20/98

Discrepancy: Safety Evaluation of RSS/HHSI NPSH Interface Requirement for DCR M3-97045

Description: Modification DCR M3-97045 adds flow restricting orifices in the discharge of each RSS pump and diverts part of the RSS pump output from the HHSI pump supply to the spray header. These two changes reduce the NPSHa to the HHSI pumps for ECCS cold leg and hot leg recirculation.

The integrated safety evaluation, E3-EV-97-0043, Rev. 0, for Modification DCR M3-97045 did not address the RSS/HHSI NPSH interface requirement for the ECCS recirculation modes of operation.

This RSS/HHSI interface requirement was addressed by Westinghouse Calculation SAE/FSE-C-NEU-0079. SAE/FSE-C-NEU-0079 found that a substantial margin still exists between the NPSHa and the NPSHr for the HHSI pumps. Therefore this discrepancy is a level 4 lack of appropriate documentation for a 10CFR50.59 safety evaluation.

		Valid	Invalid	Review Needed	Date
Initiator:	Wakeland, J. F.	☒	☐	☐	3/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	3/16/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	3/16/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	3/17/98

Date:

INVALID:

Date: 5/13/98

RESOLUTION: DISPOSITION:

NU has concluded that the issued identified in Discrepancy Report DR-MP3-1084 is a non-discrepant condition.

Contrary to the statement made in Discrepancy Report DR-MP3-1084, Integrated Safety Evaluation E3-EV-97-0043, Revision 0, addressed the impact of the modifications made by DCR M3-97045 on the NPSH available to the ECCS pumps during recirculation which includes the RSS/HHSI NPSH interface. (Note: There are several different sets of terminology used to refer to the two sets of high head safety injection pumps at Millstone Unit 3. The first set of pumps are designated as 3SIH*P1A and *P1B and are referred to as the Intermediate High Head Safety Injection Pumps by NNECo and the High Head Safety Injection (HHSI) Pumps by Westinghouse. The second set of pumps are designated as 3CHS*P3A, *P3B, and *P3C and

are referred to as the Charging Pumps and High Head Safety Injection Pumps by NNECo and as the ECCS (Emergency Core Cooling System) Pumps by NNECo and Westinghouse. S&L has apparently used HHSI to describe both sets of pumps. The various sets of terminology are intermixed within this text due to their extraction from various sources. The DR is interpreted to address both sets of pumps.)

Section 1.2 of the ISE describes the aspects of changes that are evaluated and indicates they include minimum NPSH / pump runout for the ECCS pumps used for recirculation. Section 2.1.2 of the ISE evaluates the effect of the modification on the probablity of occurrence of a previously evaluated malfunction of equipment important to safety. This section of the ISE refers to Westinghouse Letter NEU-97-278 (Reference 23 of the ISE) and states that Westinghouse and Stone and Webster have independently performed an evaluation of all ECCS branch flows and an evaluation of the available NPSH for the ECCS pumps as a result of all the modifications, including orifice installation in the pump discharge and ECCS branch lines, new valve positioning, spray nozzle capping, and increased flow to the RCP seals supplied by the CHS pumps. The ISE states that both analyses indicated that the branch flows exceed the minimum flow required for the core. The ISE also indicates the available pump NPSH is far in excess of the minimum required for successful operation of the ECCS pumps in recirculation mode. Based in part on the Westinghouse Letter, the ISE concludes there is no increase in the probablity of malfunction of the ECCS pumps as a result of the changes. The latest revision of the Integrated Safety Evaluation E3-EV-97-0043 (Revision 3) also contains the above discussion and conclusion although it now references Westinghouse calculation SAE/FSE-C-NEU-0079 in lieu of the Westinghouse Letter.

CONCLUSION:

NU has concluded that the issued identified in Discrepancy Report DR-MP3-1084 is a non-discrepant condition.

Integrated Safety Evaluation E3-EV-97-0043, Revision 0, does address the impact of the modifications made by DCR M3-97045 on the NPSH available to the ECCS pumps during recirculation including the RSS/HHSI NPSH interface. Revision 0 of the ISE indicates that Westinghouse and Stone and Webster have independently performed an evaluation of all ECCS branch flows and an evaluation of the available NPSH for the ECCS pumps as a result of all the modifications, including orifice installation in the pump discharge and ECCS branch lines, new valve positioning, spray nozzle capping, and increased flow to the RCP seals supplied by the CHS pumps. The ISE states that both analyses indicated that the branch flows exceed the minimum flow required for the core. The ISE also indicates the available pump NPSH is far in excess of the minimum required for successful operation of the ECCS pumps in recirculation mode. The ISE concludes there is no increase in the probablity of

malfunction of the ECCS pumps as a result of the changes. The latest revision of the Integrated Safety Evaluation E3-EV-97-0043 (Revision 3) also contains the above discussion and conclusion.

Significance level criteria do not apply as this is not a discrepant condition.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ◉ Yes ○ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Wakeland, J. F.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: Sargent & Lundy agrees that the issue raised in DR-MP3-1084 is not a discrepant condition. Section 2.1.2.c of Safety Evaluation E3-EV-97-0043, Rev. 0 references Westinghouse Letter NEU-97-278 (Reference 23) and reaches the conclusion that adequate NPSHa exists for the SIH and CHG pumps during ECCS cold leg recirculation, given worst-case conditions. Safety Evaluation E3-EV-97-0043, Rev. 3 (the current revision) reaches the same conclusion and references Westinghouse Calculation SAE/FSE-C-NEU-0079. NU's response to DR-MP3-0712 addressed this issue for the old RSS configuration and demonstrated that there was no discrepancy in the NPSHa evaluation for ECCS cold leg recirculation prior to DCR M3-97045.

Review Group: System
Review Element: System Design
Discipline: I & C Design
Discrepancy Type: Calculation
System/Process: NEW
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 3/20/98

Discrepancy: 3QSS*LS56A,B,C,D low tolerance values are below the QSS pump suction minimum requirement.

Description: Regarding the Instrument Setpoint for level switches 3QSS*LS56A,B,C,D (the RWST 'empty' setpoint):

CCN-2 to calculation 3451B03-01232E3, Rev. 0 uses the process setpoint value of 40.7 inches above the bottom of the RWST as specified in US(B)-295, Rev. 7. This value, per US(B)-295, Rev. 7, is supposed to encompass the total loop uncertainty (TLU) of the level measuring instrumentation used to trip the QSS pumps before the RWST 'empty' level (for vortex considerations) of 28 inches above the tank bottom is exceeded. Since the TLU is +12.7 inches, -13.8 inches, the level switches may not actuate until 26.9 inches above the tank bottom (40.7" - 13.8" = 26.9").

The proper process setpoint is 41.8 inches above the bottom of the tank as was used in CCN-1 of calculation 3451B03-01232E3, Rev. 0; this value would ensure actuation of the level switches on, or before, the RWST level decreases to 28 inches above the tank bottom.

Regarding the Process Setpoint for the RWST 'empty' level:

US(B)-295, Rev. 7 uses a RWST empty level setpoint of 40.7 inches with an uncertainty of +13.8 inches, -12.7 inches. The setpoint should have been identified as 41.8 inches with an uncertainty of +12.7 inches, -13.8 inches. This would have made the minimum RWST empty level setpoint 28.0 inches (and the maximum RWST empty level setpoint 54.5 inches). Calculation HYD-H39, Rev. 1/CCN 1 determined that an RWST level of 28 inches is required to suppress vortexing and air entrainment in the QSS pump suction.

The error in the setpoint and the setpoint uncertainty used in US(B)-295, Rev. 7 results in a minimum RWST empty level trip setpoint of only 26.9 inches. This does not conform with the QSS design requirement in HYD-H39, Rev. 1/CCN 1. This error does not have any safety significance because the RWST level requirement for QSS suction is determined in a conservative manner. Even if there was an onset of air ingestion, the QSS pumps would experience it for less than a minute immediately before they are tripped. After they are tripped, the QSS pumps would not be restarted: they perform no safety function after the RWST is empty.

The error in the setpoint and the setpoint uncertainty used in US(B)-295, Rev. 7 results in a maximum RWST empty level trip

setpoint for use in the containment pressurization analyses of 54.5 inches. This is the correct value to use in determining the duration of QSS spray for use in the design basis containment pressurization analyses. Therefore correction of the error in the setpoint does not affect inputs to calculations US(B)-253, US(B)-273, or US(B)-266.

		Valid	Invalid	Review Needed	Date
Initiator:	Reed,William.	☒	☐	☐	3/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	3/16/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	3/16/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	3/17/98

Date:

INVALID:

Date: 5/12/98

RESOLUTION: Disposition:

NU has concluded that the issues reported in DR-MP3-1085 have identified CONFIRMED SIGNIFICANCE LEVEL 4 conditions which require correction. These discrepancies meet the criteria specified in NRC letters B16901 and 17010. They have been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meet section 1.3.2.e of U3 PI-20 deferral criteria.

An error exists regarding the +12.7 TLU when -13.8 should have been used. This error does not violate the LB/DB. Even if there was an onset of air ingestion, the QSS pumps would complete their safety function before they are tripped. They perform no safety function after the RWST is empty. Calculation 3451B03-01232E3 and US(B)-295 will be revised to show the correct setpoint. Condition Report M3-98-2313 will be closed out to Bin CR M3-98-0138. The corrective actions for bin CR M3-98-0138 will correct calculations 3451B03-01232E3 and US(B)-295 post startup.

Conclusion:

NU has concluded that the issues reported in DR-MP3-1085 have identified CONFIRMED SIGNIFICANCE LEVEL 4 conditions which require correction. These discrepancies meet the criteria specified in NRC letters B16901 and 17010. They have been screened per attachment 11 of U3 PI-20 criteria and found to have no operability or reportability concerns and meet section 1.3.2.e of U3 PI-20 deferral criteria. Condition Report M3-98-2313 will be closed out to Bin CR M3-98-0138. Bin CR M3-98-0138 corrective actions will correct calculations 3451B03-01232E3 and US(B)-295 post startup.

Previously identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

Review

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	DeMarco, J.	☒	☐	☐	5/12/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/12/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/12/98				

SL Comments: CR M3-98-2313 is closed out to binning CR M3-98-0138. Completion of planned corrective actions will adequately address the concerns of this DR.

Review Group: System
Review Element: Corrective Action Process
Discipline: Mechanical Design
Discrepancy Type: Corrective Action Implementation
System/Process: HVX
NRC Significance level: 4

DR RESOLUTION ACCEPTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 3/30/98

Discrepancy: CR M3-96-1222 Corrective Action Implementation

Description: Calculation 97SCS-01471-M3, Rev. 0 'Charging Pump Area Ventilation Requirements for Appendix R' was reviewed as part of the corrective action implementation review of CR M3-96-1222. The review of the calculation identified the following discrepancies:

1) On page 6, calc assumes that 100% outside air is supplied since the exhaust fan is not operating and appears to use an airflow of about 26,600 cfm in calculating the RPCCW area temperature. This assumption does not address the impact the position of outside air balancing damper 3HVR*DMP32 has on fan performance and resulting outside airflow. In the winter mode of operation, 3HVR*DMP32 is positioned to approx 50% open per note 17 on EM-148A to reduce the amount of outside air. A reduction in outside airflow would increase the temperature calculated in the RPCCW area.

2) On page 7, the 640 MBH value for Qt include the capacity of one train of unit heaters. The capacity of the heaters could be backed out of the room load if the resulting temperature is above the thermostat setpoint for the unit heaters.

3) The 5120 cfm airflow thru the charging pump room door calculated on page 8 results in an air velocity of approx 730 ft/min which does not seem realistic considering the 28°F temperature differential. Using the equation from reference 15 shown on page 9 of the calculation and the following values:

Cd = .40 + 0.0025(Ti - To) = 0.47
Ti = 570°R = charging pump cubicle temperature
To = 542°R = ccw area temperature
A = 7 ft² = one-half of the door opening area
NPL = 3.5 ft = one half of the door height
dHnpl = 3.5 ft / 2 = 1.75 ft= distance between NPL and midpoint of lower half of door opening
g = 32.2

the airflow was found to be
cfm = 60(0.47)(7)[2(32.2)(1.75)(28/570)]^.5 = 464 cfm

The 464 cfm estimated above is lower than the 3,350 cfm calculated on page 9. The calculation used the 12'-7" distance from the door midpoint (NPL) to the ceiling instead of the distance between NPL and midpoint of lower half of door opening. The 464 cfm estimated above is also lower than the 3315 cfm required to maintain the charging pump room below 110°F.

4) The 1990 ASHRAE Refrigeration Handbook in Chapter 27 provides a method for calculating the cooling load due to air exchange through open doorways. Using equation 10 on page 27.3, a 82°F RPCCW area temperature and a 110°F charging pump area temperature, the heat transfer through the open door was estimated to be 18,166 BTu/hr. This value is significantly lower than the 91,370 Btu/hr load in the charging pump room. It is expected that with a 82°F RPCCW area temperature the charging pump room temperature would need to approach 170°F before sufficient airflow is established to remove the 91,370 Btu/hr load.

		Valid	Invalid	Review Needed	Date
Initiator:	Stout, M. D.	☒	☐	☐	3/20/98
VT Lead:	Neri, Anthony A	☒	☐	☐	3/20/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	3/23/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	3/26/98

Date:

INVALID:

Date: 5/13/98

RESOLUTION: First Response

NU has concluded that Discrepancy Report DR-MP3-1087 has identified a condition not previously discovered by NU which requires correction. Condition Report (CR) M3-98-1690 (See Attached) was written to provide the necessary corrective actions to resolve this issue. The corrective actions to correct this issue are as follows:

1. Revise calculation No. 97-SCS-01471-M3 to incorporate the inaccuracies identified in DR-MP3-1087.
2. Revise / Close OD No. MP3-042-98 to a fully qualified status.
3. Provide results to the Appendix R Program owner for incorporation.

NU's assessment of Calculation No. 97-SCS-01471-M3 indicates that although the body of the calculation does require corrections, an investigative computer analysis (Gothic), by NU engineering, determined that the conclusion of the calculation will not change. The charging pump cubicles will remain within acceptable temperature range during an Appendix R fire and equipment operability and qualification is not affected. Based upon the preceding discussion, the LB / DB of MP3 is not impacted by this discrepancy therefore NU considers this issue to be a level 4 discrepancy.
These corrective actions will be performed prior to MP3 restart (Mode 2).

Attachments:
CR M3-98-1690

Second Response (M3-IRF-2244)

NU has concluded that this issue, reported in DR-MP3-1087, has identified a CONFIRMED SIGNIFICANCE LEVEL 4 condition which has been corrected.

As part of the corrective action for CR M3-98-1690, NU calculation 97-SCS-01471-M3 has been revised. A copy is attached to this transmission. Results confirm NU's position stated in M3-IRF-02100 that Charging Pump Cubicle temperatures will remain within acceptable limits during an Appendix R fire in the Control Room and equipment in the Charging Pump Cubicle will remain operable in all modes of plant operation. Calculation 97-SCS-01471-M3, Rev. 1 indicates that temperatures in the Charging Pump Cubicles during an Appendix R fire (122 °F. after 72 hours) do not challenge the EEQ limits of 170 °F. during a HELB.

Attachments:
Calculation 97-SCS-01471-M3, Rev. 1, Charging Pump Area Ventilation Requirements for Appendix R

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Stout, M. D.	☒	☐	☐	5/13/98
VT Lead:	Neri, Anthony A	☒	☐	☐	5/13/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	5/14/98
IRC Chmn:	Singh, Anand K	☐	☐	☐	
Date:	5/13/98				

SL Comments: Comments on First Response

The response does not provide sufficient information to support NU's conclusion that this is a Level 4 calculation discrepancy.

CR M3-98-1609 evaluation summary states "An investigative (scoping) computer analysis (Gothic) has been performed for the charging pump cubicle. The analysis concluded that the temperatures within the charging pump cubicles will remain within acceptable temperature limits during an Appendix R fire in the Control Room and the charging pump cubicle equipment qualification is not affected. Therefore, there is assurance that the charging pump cubicle and equipment is operable in all modes of plant operation". The results of the scoping analysis that provide the temperatures expected in the charging pump cubicle and what was considered to be acceptable temperature limits is needed to complete the review of DR resolution.

Comments on Second Response

This is considereded to be a significance level 4 discrepancy since the revised calculation provided with NU's response shows that the temperature rise in the charging pump rooms is within the maximum EQ temperature limits.

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-1094

Review Group: System
Review Element: System Design
Discipline: Mechanical Design
Discrepancy Type: Calculation
System/Process: NEW
NRC Significance level: 4

DR RESOLUTION REVIEW IN PROGRESS

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 4/9/98

Discrepancy: Modeling of Air Conditioning Units in Calculation T-01528-S3

Description: During review of calculation T-01528-S3, Rev. 0 "Evaluation of ECCS Passive Failure in RSS Pump Cubicle" discrepancies regarding the modeling of the sensible and latent cooling capacity of the air conditioning units were identified.

1) Assumption 4.7 on page 9 assumes that the air conditioning units (3HVQ*ACUS2A/B) operate at design conditions during the entire transient. At rated conditions the direct-expansion refrigerant cooling coil has a total capacity of 386,000 Btu/hr and a sensible capacity of 355,000 Btu/hr at entering air conditions of 104°Fdb/70.4°Fwb (at 18% RH). The sensible and latent cooling capacity of the coil is a function of the entering dry-bulb temperature and the moisture content of the air. As the moisture content of the entering air increases the sensible heat ratio (sensible capacity /total capacity) for the coil decreases. When this is accounted for in the GOTHIC model the resulting RSS Pump Cubicle temperature is expected to increase.

2) The results of the GOTHIC model show that the room temperatures are approx 120°F and 100 %RH. At this condition the capacity of the cooling coils is significantly higher than rated conditions. Calculation should address the ability of the air conditioning units (3HVQ*ACUS2A/B) to operate with this loading.

		Valid	Invalid	Review Needed	Date
Initiator:	Stout, M. D.	☒	☐	☐	4/1/98
VT Lead:	Neri, Anthony A	☒	☐	☐	4/3/98
VT Mgr:	Schopfer, Don K	☒	☐	☐	4/3/98
IRC Chmn:	Singh, Anand K	☒	☐	☐	4/4/98

Date:

INVALID:

Date: 5/13/98

RESOLUTION: First Response (M3-IRF-2140)

NU has concluded that Discrepancy Report DR-MP3-1094 has identified a condition not previously discovered by NU which requires correction. Condition Report (CR) M3-98-1851 (See Attached) was written to provide the necessary corrective action to resolve this issue. The corrective action to correct this issue is to revise calculation T-01528-S3 to correct the assumed inlet air conditions as specified in DR-MP3-1094. The conclusion reached in calculation T-01528-S3 will not change. This discrepant condition does not impact the MP3 LB / DB. NU

considers DR-MP3-1094 to be a level 4 discrepancy.

This corrective action will be completed post MP3 restart.

Attachments:
Condition Report M3-98-1851

Supplemental Response (M3-IRF-2341)

In a telephone conference on 5/1/98, S&L requested additional evidence supporting NU's conclusion on DR-MP3-1094, stated in M3-IRF-02140.

NU has concluded that the issue reported in DR-MP3-1094 has identified a CONFIRMED SIGNIFICANCE LEVEL 4 discrepancy, which has been corrected.

Corrective action for CR M3-98-1851 to revise calculation T-01528-S3 has been completed. A copy of the revised calculation is attached to this transmission. The conclusion remains that the peak area room temperatures are bounded without credit for air conditioning units 3HVQ*ACUS2A/B.

Attachments:
Calculation T-01528-S3, Rev. 1

Previously Identified by NU? ○ Yes ◉ No **Non Discrepant Condition?** ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No **Resolution Unresolved?** ○ Yes ◉ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Stout, M. D.	☐	☐	☒	5/13/98
VT Lead:	Neri, Anthony A	☐	☐	☒	
VT Mgr:	Schopfer, Don K	☐	☐	☒	
IRC Chmn:	Singh, Anand K	☐	☐	☒	
Date:	5/13/98				

SL Comments: Based on the results of Calculation T-01528-S3, Rev. 1 agree that this is a level 4 discrepancy

Northeast Utilities
Millstone Unit 3

ICAVP
Discrepancy Report

DR No. DR-MP3-0667

Review Group: System
Review Element: System Design
Discipline: Mechanical Design
Discrepancy Type: Calculation
System/Process: HVX
NRC Significance level: 3

DR RESOLUTION REJECTED

Potential Operability Issue
○ Yes
◉ No

Date FAXed to NU:

Date Published: 12/8/97

Discrepancy: Calculation P(B)-1130 Temporary Ventilation for CCP Pump Area

Description: Calculation P(B)-1130 Rev. 0 calculates the heat load and ventilation requirements for temporary ventilation in the component cooling water (CCP) pumps area due to a loss of primary ventilation resulting from a fire on El 43'-6" or EL 66'-6" in the auxiliary building. During review of the calculation the following discrepancies were identified:

1) Calculation P(B)-900 is used as the source for the internal heat loads. The MCC and misc. electrical equipment heat loads used in P(B)-1130 are lower than those found in P(B)-900.

2) Calculation uses a supply air temperature of 86°F in sizing the temporary fan but does not provide a basis for using this value.

3) Calculation selects a temporary fan but does not provide a basis for the fan pressure rating selected.

		Valid	Invalid	Review Needed	Date
Initiator:	Stout, M. D.	☒	☐	☐	11/12/97
VT Lead:	Neri, Anthony A	☒	☐	☐	11/18/97
VT Mgr:	Schopfer, Don K	☒	☐	☐	12/1/97
IRC Chmn:	Singh, Anand K	☒	☐	☐	12/4/97

Date:

INVALID:

Date: 5/12/98

RESOLUTION: First Response (M3-IRF-1302)

NU has determined that the issue reported on Discrepance Report DR-MP3-0667 does not represent a discrepant condition.

1. The heat loads of calculation P(B)-1130 have been extracted from calculation P(B)-900, and augmented by inputs from SGCS Calculation 95-052. However, these calculations represent diverse plant conditions and their total heat load values are not comparable. CCN-1 to P(B)-1130 evaluates the effect of higher temperatures than those considered in the original calculation and concludes that the additional heat load is within design limits.

Calculation P(B)-900 covers normal and accident plant operating conditions with both the component cooling water system (CCP) and the charging pump system in operation.

Calculation P(B)-1130 determines the capacity of the portable fans which are reserved for use in the event of a fire in fire area

AB-1 to cool the CCP area assuming the operation of CCP equipment only. This condition is postulated to arise due to the loss of the ventilation system by a fire at elevation 66'-6" or by a fire on the south side of the fire sprinkler curtain that separates the charging pumps area from the CCP area. This scenario is described in Appendix R Compliance Report.

2. Per FSAR Section 9.4.0, 86°F is the outdoor summer design temperature used for ventilation equipment sizing at Millstone Unit 3. According to the 1973 ASHRAE Handbook of Fundamentals, this 86°F outdoor temperature value will be exceeded for 21/2 % of the summer hours every summer on a statistical basis. Concurrent with the outdoor temperature excursions beyond 86°F, there will be indoor temperature excursions of almost the same magnitude beyond the indoor design of 110°F.

3. The fan is used in a free delivery application, therefore a pressure loss calculation is not necessary. It is installed in the frame of door A-24-2 in the Northwest corner of CCP area and the single panel Northeast door A-24-9 is opened to let the air out. The specified 1/8" i.w.g. fan static head thus provides a margin of safety.

Significance Level Criteria do not apply since this is not a discrepant condition.

Second Response (M3-IRF-01922)

NU has concluded that Item 1 of the follow-up issues on Discrepancy Report DR-MP3-0667 has identified a condition not previously discovered by NU which requires correction. CCN-02 for Calc. P(B)-1130, Rev. 00, was issued as a result of the approved corrective actions associated with CR-M3-98-1231 to revise the results to be consistent with the data in the latest revision of associated calculations P(B)-900, 3-92-103-191M3, and 92-LOE-189E3.

As requested, a copy of CCN-01 to calculation P(B)-1130 is attached. This CCN addresses the impact on the Temporary Ventilation System, which serves the Component Cooling Pump & Heat Exchanger area during loss of primary ventilation, of higher temperatures of CCP piping caused by Safety Grade Cold Shutdown operation, the revised electrical heat loads from Calc P(B)-900, and operation with a single CCP pump. Additional heat loads from piping (53,800 Btuh), utilized in CCN-01 to P(B)-1130, were taken from CCN-01 (copy attached) to Calculation P(B)-900, Rev. 1. CCN-01 to Calc P(B)-1130 is being revised/updated by CCN-02 to P(B)-1130 to utilize data from Rev. 1 of P(B)-900, including CCN-01.

1. The electrical equipment loads in P(B)-1130, Rev. 0, were originally taken from calculation P(B)-900. Rev. 0, with the discrepancies as noted in the DR. Page 6 of the current Revision of Calculation P(B)-900, (Rev. 1, copy attached),shows the Normal Condition heat load from electrical

equipment and lighting for the Component Cooling Pump & Heat Exchanger area as 95,660 Btu/Hr. This heat load, which is based on electrical load inputs from Electrical Calculation No. 92-LOE-189E3, Rev. 0, was taken from Calculation No. 3-92-103-191M3, Rev. 1.

Calculation SGCS 95-052 is referenced in CCN-01 to Calculation P(B)-900, Rev. 1, and was used to obtain the expected rise in temperature of the CCP system.

The revisions to calculation P(B)-1130 will not change the calculation's conclusions that the temporary ventilation fans have sufficient capacity to perform their function.
Therefore NU concludes that design basis/licensing basis are not affected and this issue is considered as Significance Level 4.

NU has concluded that the follow-up issues identified in Items 2 & 3 of DR-MP3-0667 do not represent a discrepant conditions.

2. Per Procedure OP 3314J, Rev. 4, Change 3, (copy attached), the outside stairwell door, A-24-1, in the northwest corner, door A-24-9, in the northeast corner, and the outer door of the HP trailer (outside of door A-24-9) are blocked open, while the inside stairwell door in the northwest corner, A-24-2, is removed and fans 3HVR-FN18A/B (as shown in Calc. P(B)-1130) are installed in the door frame, directing air to the outside. Outdoor air is thus drawn in through doorway A-24-9, via the HP trailer, in the northeast corner of the Aux. Bldg., and exhausted through doors A-24 -2 and A-24 -1 , in the northwest corner. Reference Section 4.1 and 4.2 of OP 3314J for installation and operation of the fans.

3. In accordance with standard industry practice in the selection of fans for free blow applications, these units were selected from Buffalo Forge Co. Breezo Model Catalog , each meeting the following specifications: 5393 CFM @ 1/8" WG; 1140 RPM, 3/4 HP Motor, 220 VAC Single Phase. No ductwork, either upstream or downstream, is attached to these fans. The pressure losses associated with the air intake and discharge through the building are negligible. Tests for Fans 18A & B, included in Technical Evaluation No. M3-EV-98-0030, Rev. 0, indicates that the fans were functionally verified to meet their design requirements.

Attachments:
CR-M3-98-1231 with approved corrective action
CCN-01 to Calculation P(B)-1130, Rev. 0
CCN-02 to Calculation P(B)-1130, Rev. 0
Calculation P(B)-900, Rev. 1
CCN-01 to Calc P(B)-900, Rev. 1
Procedure OP 3314J, Rev. 4, Change 3
Technical Evaluation M3-EV-98-0030, Rev.0

Supplemental Response (M3-IRF-2260)

The following information is provided to S&L supplementing NU's

response to DR-MP3-0667 as stated in M3-IRF-01922:

During an NRC BTP 9.5-1 compliance inspection at MP3, no records could be located that confirmed flow testing of fans 3HVR-FN18A/18B. CR M3-97-3182 was initiated on 9/19/97 to provide the corrective actions. As part of the corrective actions for CR M3-97-3182, steps were added to OP 3314J, Rev. 4, to block open door A-24-9 in the Northeast corner of EL. 24'-6" the Auxiliary Building and a door of the RCA access point trailer, to provide a flow path for the fans. The fans are installed in door A-24-2 in the Northwest corner of EL. 24'-6" the Auxiliary Building. Outdoor air is thus drawn in through doorway A-24-9, via the RCA access point trailer, in the northeast corner of the Aux. Bldg., and exhausted through doors A-24-2 and A-24-1 (outer stairwell door), in the northwest corner. The procedure change was approved 1/28/98, and the flow test performed on 2/3/98. This supplemental information to the follow-up issue identified as Item 2 of DR-MP3-0667, which was concluded not to represent a discrepant condition.

Attachments:
CR-M3-97-3182 with approved corrective action plan
Procedure OP 3314J, Rev. 4

Supplemental Response (M3-IRF-2336)

NU has concluded that the issues reported in DR-MP3-00667 has identified CONFIRMED SIGNIFICANCE LEVEL 4 conditions which have been corrected. During an NRC BTP 9.5-1 compliance inspection at MP3, no records could be located that confirmed flow testing of fans 3HVR-FN18A/18B. CR M3-97-3182 was initiated on 9/19/97 to provide the corrective actions. As part of the corrective actions for CR M3-97-3182, Change No. 3 to OP 3314J, Rev. 4 was issued to add steps to block open door A-24-9 in the Northeast corner of EL. 24'-6" the Auxiliary Building and a door of the RCA access point trailer, to provide a flow path for the fans. The fans are installed in door A-24-2 in the Northwest corner of EL. 24'-6" the Auxiliary Building. Change No. 3 to OP 3314J, Rev. 4 was approved 1/28/98. Change No. 3 to OP 3314J, Rev. 4, which added steps for blocking open door A-24-9 in the Northeast corner of EL. 24'-6" of the Auxiliary Building and a door of the RCA access point trailer, to ensure a flow path for fans 3HVR-FN18A/18B, was initiated and approved after 5/27/98, the date of completion of discovery of the CMP process. This is supplemental information to Item 2 of the follow-up issues of DR-MP3-0667. See M3-IRF-1922 and M3-IRF-2260 for additional information.

NU has concluded that although opening the auxiliary building and RCA access point trailer doors to allow supply air to enter the building was not previously proceduralized (Ref. procedure OP 3314J), it is considered that based on operator experience, the fact that the Technical Support Center (TSC) will be in operation and manned with experienced engineers and operators, and the time required to install the temporary ventilation fans, a reasonable assumption would be that the

doors would be opened to allow cooling air flow to the area even in the absence of specific procedural guidance. NU, therefore, considers this issue to be Significance Level 4.

Previously Identified by NU? ○ Yes ◉ No Non Discrepant Condition? ○ Yes ◉ No

Resolution Pending? ○ Yes ◉ No Resolution Unresolved? ◉ Yes ○ No

		Acceptable	Not Acceptable	Review Needed	Date
Initiator:	Stout, M. D.	☐	☒	☐	5/12/98
VT Lead:	Neri, Anthony A	☐	☒	☐	5/12/98
VT Mgr:	Schopfer, Don K	☐	☒	☐	5/12/98
IRC Chmn:	Singh, Anand K	☐	☒	☐	5/13/98
Date:	5/12/98				

SL Comments: Comments on First Response

NU is requested to provide a copy of CCN-1 to P(B)-1130 which is required to complete the review of NU's response.

1) Electrical Heat Loads
NU's response does not adequately address the differences in the electrical equipment, cable, and lighting heat gains used in calculations P(B)-1130 and P(B)-900.

The electrical equipment loads in calculation P(B)-1130 are lighting at 25,600 Btu/hr, MCC and misc. electrical equipment at 14,450 Btu/hr and cables at 4,200 Btu/hr for a total of 44,250 Btu/hr.

The electrical equipment loads in calculation P(B)-900 are motor control centers at 13,200 Btu/hr, miscellaneous electrical equipment at 8,450 Btu/hr, cable loads at 4,200 Btu/hr, and lighting at 25,600 Btu/hr for a total of 51,450 Btu/hr.

Inaddition calculation 3-92-103-191M3 has a different value for normal condition electrical loads. The electrical equipment loads shown on page 15 of calculation 3-92-103-191M3 for normal operation is 95,660 Btu/hr and was based on calculation 92-LOE-189E3.

NU's response indicates that the heat loads of calculation P(B)-1130 were augmented by inputs from SGCS Calculation 95-052. Describe what information from 95-052 was used and address why it was not documented in calculation P(B)-1130.

2) Supply Air Temperature
Agree with NU's response that the design summer outdoor air temperature is 86°F.

Per NU's response the temporary fans draw air from the northwest stairwell at door A-24-2 and discharges to the elevation 24'-6" in the auxiliary building. The air is relieved to outdoors thru door A-24-9. Provide the basis for assuming that the temperature of the air drawn from the stairwell is the same as the outdoor air temperature.

Note that System Operating Procedure OP 3314J, Rev. 4 'Auxiliary Building Emergency Ventilation and Exhaust' describes using the temporary fans at door A-24-2 as exhaust fans but does not address what door(s) are opened to allow outside air into the area for cooling.

3) Fan Pressure
While the fan is not connected to ductwork, there are still pressure losses associated with the air intake into the auxiliary building and outlet from the auxiliary building. These losses should be addressed in the calculation.

Comments on Second and Supplemental Responses

Agree with NU's response for items 1 and 3.

Agree that Procedure OP 3314J Rev. 4, Change No. 3 , dated 1/28/98 addresses the outdoor air intake path of item 2. As the need to change the procedure was identified after the CMP completion date this is considered to be a Level 3 discrepancy. FPER Section 8.5 states that portable ventilation is provided to cool the CCP pumps should all auxiliary building ventilation be lost. Failure to open a door to provide an outside air intake path for the temporary fans does not agree with the FPER and would have resulted in the area temperature being higher than that determined in calculation P(B)-1130. Disagree with NU's response that it is reasonable to rely on operator action not contained in the procedure to the open doors needed to provide an outside air intake path at the time the temporary fans are installed.

The significance level of this DR is unresolved.