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October 12, 2004

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, DC 20555

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Docket No.	50-336
License No.	DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
REQUEST TO IMPLEMENT A RISK-INFORMED INSERVICE INSPECTION PROGRAM PLAN AS AN ALTERNATIVE TO ASME CODE SECTION XI REQUIREMENTS

By a letter dated November 10, 2003, Dominion Nuclear Connecticut, Inc. (DNC) requested NRC approval to implement a Risk-Informed Inservice Inspection (RI-ISI) Program (Relief Request RR-89-40) as an alternative to the American Society of Mechanical Engineers (ASME) Section XI inservice inspection requirements for Class 1 piping at Millstone Unit 2 (MPS2). Additionally, DNC requested NRC approval to allow a pressure test and corresponding VT-2 visual examination (Relief Request RR-89-41) in lieu of a volumetric examination for socket welds of any size and branch pipe connection welds Nominal Pipe Size (NPS) 2 inches and smaller that will be examined in accordance with the RI-ISI program.

On March 11, 2004, a Request For Additional Information (RAI) was received from the Nuclear Regulatory Commission (NRC) staff containing eight questions related to Relief Request RR-89-40 and two questions related to RR-89-41. In a letter dated July 6, 2004, DNC provided a response to Questions 1 and 3 through 8 for RR-89-40 and Questions 1 and 2 for RR-89-41. As agreed upon in a conference call on June 16, 2004, DNC is providing a response to Question 2 on RR-89-40 in Attachment 1 of this correspondence.

In a facsimile dated August 18, 2004, the NRC staff forwarded an RAI containing an additional seven questions related to the answers provided in the July 6, 2004 response. Attachment 2 of this letter provides the response to the August 18, 2004 RAI.

The additional information provided in this letter does not affect the previous conclusions made in the Safety Summary and Significant Hazards Consideration contained in the DNC letter of November 10, 2003.

A047

If you have any questions or require additional information, please contact Mr. Paul R. Willoughby at (804) 273-3572.

Very truly yours,

Leslie N. Hartz
Vice President – Nuclear Engineering

Attachments: (2)

Commitments made in this letter: None.

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Serial No. 04-155A
Docket No. 50-336

ATTACHMENT 1

REQUEST TO IMPLEMENT A RISK-INFORMED INSERVICE INSPECTION PROGRAM PLAN AS AN ALTERNATIVE TO ASME CODE SECTION XI REQUIREMENTS

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION QUESTION 2, MARCH 11, 2004

MILLSTONE POWER STATION, UNIT 2
DOMINION NUCLEAR CONNECTICUT, INC.

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On March 11, 2004, a Request For Additional Information (RAI) was received from the Nuclear Regulatory Commission (NRC) staff containing eight questions related to Relief Request RR-89-40 and two questions related to RR-89-41. In a letter dated July 6, 2004, DNC provided a response to Questions 1 and 3 through 8 for RR-89-40 and Questions 1 and 2 for RR-89-41. As agreed upon in a conference call on June 16, 2004, DNC is providing a response to Question 2 on RR-89-40 below.

NRC Question 2

2) Did any of your segments (piping for systems that are included in the ISI program) include lengths of piping with different diameters? If some of your segments included piping of different diameters, please describe how you estimated the failure frequency of these segments and explain how this process comports with the WCAP Topical.

DNC Response to Question 2

Yes, 14 segments out of 130 total segments have piping with different diameters.

The occurrence of multiple pipe sizes in these segments may be categorized into two types. The first type includes segments in which the fluid flow path diameter varies based on required flow capacity as needed for the active design function of the system. The pipe size for this type is 2 ½ inches and larger. A leak at any point on the flow path of this type pipe has direct impact on the function of the system. The different pipe sizes in these segments are connected by butt welded reducer fittings. Eight of the 14 segments have this type of multiple pipe size.

The second type of multiple pipe sizes includes segments that, in addition to their main functional flow path, have small (3/4" or 1") vents, drains or sample lines branching off the main piping, which is from 2" to 4" in diameter. These branches are short in length and ancillary to the intended function of the system. They branch from the main piping via reducing tees, and generally are fabricated with both butt welded and socket welded joints. Associated valves are not operated during normal plant operation, and they are subject only to stagnant fluid pressure. Their only functional requirement is to retain pressure boundary integrity. Because these ancillary branches are so small, their failure would have significantly less functional consequence than the main piping. Regardless, they must be considered in the overall failure potential of the segment, and their welds must be considered for inspection in the final program. Six of the 14 segments have this type of multiple pipe size.

Failure potential for the eight segments with multiple pipe sizes of the first type (i.e., butt welded piping of similar size connected by reducers) was calculated using the Structural Reliability and Risk Assessment (SRRA) program with limiting inputs bounding the entire segment except for pipe size. Pipe size inputs (diameter and wall thickness to diameter ratio) were generally taken from the larger size pipe because it usually results in larger failure probabilities. Furthermore, for the larger size pipe, a small variation in pipe size is not likely to result in a large variation in failure probability. All eight segments were ultimately determined to be high safety significant (HSS) and a volumetric inspection location was chosen. For two of the eight segments a sensitivity evaluation of both sizes (2½ and 4 inches) were performed during the original evaluation, which established that the 2½ inch pipe had a slightly higher failure probability by a factor of about 1.5. The higher probability was used in the segment risk ranking.

To supplement the response to this RAI question, the failure probabilities of all eight multiple pipe size segments of the first type were recalculated for both pipe sizes. For seven of the eight segments the failure probability was the same or lower than the one used for risk ranking. For one of the eight segments, recalculation showed that failure probability for a small break (SBLOCA) would increase by a factor of about two, however the failure probability for a medium LOCA would decrease slightly. Based on the original evaluation, this one segment had already been determined to be HSS and a volumetric exam location chosen. Therefore, although incurring a slightly higher calculated failure probability in this evaluation, there was no impact on the inspection program. Thus it is concluded that the selection of limiting SRRA inputs in the original evaluation of the eight segments was acceptable.

Failure potential is also addressed for the six segments with multiple pipe sizes of the second type (i.e., ¾ or 1 inch vent/drain piping branching from the main piping). One of the six, RC-89, requires a separate discussion, so the following addresses the five remaining segments. Conceptually the defined segment may be considered a combination of subsegments having uniform size and weld type.

The failure potential for the five segments was calculated using the SRRA program with size and limiting inputs bounded from the main subsegment of piping. Engineering evaluation determined that the mechanism-specific bounding inputs were not located on the branch subsegments. In fact, the mechanism-specific inputs for the branch piping were considered to be significantly less severe. In no case was a significant mechanism, such as vibration or externally initiating cracking, active on the small branches. The small branches, being out of the normal flow path, were also not subject to the full effect of system temperature transients. Therefore, separate SRRA runs with the same inputs, but smaller pipe size, were not performed.

All of the five segments with vent/drain subsegments have at least one socket weld. It was concluded that even if treated as a subsegment, the impact of these socket welds on the determination of individual volumetric exams for the overall program would be insignificant. These socket welds are already subject to a 100% pressure test VT-2 examination irrespective of the risk-informed ISI program. Furthermore, because there is no external crack initiating mechanism for these welds, there is no possibility of improving the risk exposure of their failure by specifying a surface exam. Representing the failure potential of the entire segment by socket weld failure rates would excessively distort the failure potential and risk measure estimates for the segment and consequently distort the overall risk ranking among the segments. The segment would thus not be represented consistently within the context of similar but entirely butt-welded joints. Treated as an independent segment with the exaggerated risk contribution included in the overall risk ranking of all segments, some butt welded segments currently ranked HSS might have appeared less important and could have been ranked LSS, resulting in a lesser diversity of HSS segments and fewer total volumetric exams. Therefore, the approach used for socket welds on vent/drain branches of segments is considered conservative and consistent with the intent of the WOG methodology.

Three of the five segments with vent/drains have at least one butt weld. Because they are ASME Class 1, the butt welds on the vent/drain branches were radiographed during original construction, and although exempt from volumetric exam under the existing Section XI program could potentially be selected for radiograph under a risk-informed program. The discussion for butt welds on vent/drain branches therefore differs slightly from that for socket welds. Conceptually the most limiting inputs from the entire segment could have been applied along with pipe size inputs in a SRRA run for the ¾ or 1 inch subsegment piping. If this had been done the failure potential might have been calculated higher than that used for the original risk ranking; however, the engineering team selecting the inputs judged that the resulting failure probabilities would not be significantly higher. In addition, the earlier discussion regarding the lack of an active mechanism and attenuation of loading for the five segments remains valid for these three segments with butt welds. For these particular segments there are no mechanism-specific limiting inputs derived from the vent/drain piping. More importantly, the segments were determined to be HSS even with SRRA runs based on the larger size pipe inputs. Therefore, there would be no impact on the risk classification of these three segments even if the butt welds were explicitly considered. However, excessive conservatism in estimating failure potential for butt welded branches could negatively impact the risk classification of other segments in the same manner described above for socket welded branches. Therefore the approach used for butt welds on vent/drain branches of the three segments is considered conservative and consistent with the intent of the WOG methodology.

To supplement the response to this RAI question for segments with vent/drain branches, the failure probabilities of all five segments of the second type were recalculated using the same input except for the branch pipe sizes. For the three with butt welded branches, the calculated failure probability was higher by a maximum factor of less than 2.0. Since an order of magnitude difference is necessary to significantly impact segment ranking, this result confirms the engineering judgment that the failure probabilities would not be significantly higher for the small butt welded piping. Thus it is concluded that the selection of limiting SRRA inputs in the original evaluation of the five segments was acceptable.

The above discussion addressed the failure potential estimation and risk ranking of thirteen of multiple pipe size segments and concluded there was no impact. Regarding the numbers and selection of welds for examination in the segments, there is also no impact. The selection of volumetric exam locations was governed chiefly by the localized potential for development of the postulated mechanisms, which in all cases lead to selection of a location on the main piping. Since none of the failure probabilities for the small butt welded pipe exceeded the 1e-4 value considered indicative of an active mechanism, even when considering the supplementary evaluations performed for this RAI, none of the segments have welds requiring 100 percent inspection in accordance with the WOG topical. The socket welds receive 100 percent pressure test VT-2 regardless of failure importance. For the butt welds, the total count of butt welds was included in the WOG statistical evaluation process. In addition, reconsideration of the process considering the ¾" and 1" butt welded piping for the same number of welds resulted in no change in the number of required exams, so there is no impact on the original conclusion for the Millstone Unit 2 program that one volumetric exam per segment is more than adequate to meet target leak rate limits in accordance with the topical.

The above description of the process used to estimate failure probabilities for segments with multiple sizes of both types comports with the approved WCAP (WCAP-14572, Rev. 1-NP-A, Feb. 1999). As shown in Figure 3.5-1 and accompanying text in the WCAP, failure probability estimation is the responsibility of the engineering team based upon their knowledge of the pertinent information at their plant and any potential concerns identified from industry experience at other plants.

The segment failure probability is defined in the following from Section 3.5 (page 71) of the WCAP:

> "The intent of the failure probability estimation is to postulate the potential failure mechanism(s) for a given piping segment and then, based on the specific conditions for the given piping segment (not an individual weld in the piping segment) to provide an estimate of the failure probability for the piping segment, in order to differentiate the piping segments based on the potential failure mechanism and postulated consequences. The failure probability of a segment is characterized by the failure potential (probability or frequency as appropriate) of the worst case situation in each segment (not a single selected weld in each segment). This is calculated by the SRRA code by inputting the conditions (typically, the most limiting or bounding) for the entire piping segment. Essentially, the piping failure probability is a representation or characterization of the piping segment."

The SRRA tool is used to quantify the effects of the engineering team's input on the calculated leak and break probabilities. In its most simple application, a single SRRA analysis is performed with limiting inputs representing all locations. In other applications, for example segments with multiple pipe sizes, the overall segment failure potential may be more accurately evaluated by conceptually considering the segment as a combination of sub-segments and applying the appropriate limiting inputs in several SRRA analyses. Choosing the limiting SRRA probabilities from the sub-segments of different sizes in a segment is consistent with the NRC approved methodology in the WCAP. The fifth item in the section of the NRC SE discussed above states:

> "The simplified nature of the SRRA code has resulted in a number of conservative assumptions and inputs being used in applications of the code. It is therefore recommended that sensitivity calculations be performed to ensure that excessive conservatism does not unrealistically impact the categorization and selection of piping locations to be inspected."

The methodology on how the degradation mechanisms in the different sized subsegments are to be "combined" is consistent with the approved methodology as stated in the last paragraph of Section 3.2.3, Piping Failure Potential, of the NRC SER and in Section 3.2, Simplified and Detailed Input (page 16, paragraph 3), in Supplement 1 of the WCAP:

> "If more than one degradation mechanism is present in a given piping segment, then the limiting input values for each mechanism should be combined so that a limiting failure probability is calculated for risk ranking."

As indicated on page 84 in Section 3.5.6, Failure Probability Determination, of the approved WCAP, combining degradation mechanisms does not imply adding the failure probabilities for each mechanism. Typically, one degradation mechanism will dominate the failure probability in the segment by several orders of magnitude.

For Millstone Unit 2, mechanism-specific inputs were conservatively taken from the bounding conditions for the entire segment and used consistently irrespective of pipe size. As justified above, this methodology comports with the approved WCAP. Subsegments were not explicitly defined; however as noted in the discussion of the supplementary SRRA runs, subsequent explicit analyses showed that there is no significant impact to estimated failure probabilities for the segments, nor any impact to risk classification or number of required examinations.

In review of failure probabilities prompted by this RAI, it was determined that segment RC-89 was not evaluated consistent with an adjacent, very similar segment CH-03. Both have vent/drain branches. Both are on the pressurizer auxiliary spray flow path and both are socket welded (RC-89 also has two butt welds dating from a modification installed in 1999). It was determined that the failure potential for RC-89 as estimated in the original evaluation was not conservative. Furthermore, RC-89 had been ranked LSS while CH-03 was ranked HSS so there was a potential impact to the risk-informed program. To address this inconsistency, the expert panel was reconvened and they determined that segment RC-89 should be reranked as HSS. The element selection subpanel was then reconvened and they determined that one of the two butt welds should be volumetrically examined as part of the revised program. The socket welds in the segment would remain adequately addressed by the continuing VT-2 exam. Conservatively, the increase in risk measures for RC-89 was not used to reduce the risk measures or originally specified examinations for other segments. Therefore the overall impact of the reevaluation for the segment is the conversion of one segment from LSS to HSS and the addition of one volumetric exam to the risk-informed program. The updated version of Table 5.1, reflecting the conversion of segment RC-89 to HSS, is provided within the response to Question 7 of the second RAI found in Attachment 2 of this submittal.

ATTACHMENT 2

REQUEST TO IMPLEMENT A RISK-INFORMED INSERVICE INSPECTION PROGRAM PLAN AS AN ALTERNATIVE TO ASME CODE SECTION XI REQUIREMENTS

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION AUGUST 18, 2004

MILLSTONE POWER STATION, UNIT 2
DOMINION NUCLEAR CONNECTICUT, INC.

ATTACHMENT 2

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION AUGUST 18, 2004

By a letter dated November 10, 2003, Dominion Nuclear Connecticut, Inc. (DNC) requested NRC approval to implement a Risk-Informed Inservice Inspection (RI-ISI) Program (Relief Request RR-89-40) as an alternative to the American Society of Mechanical Engineers (ASME) Section XI inservice inspection requirements for Class 1 piping at Millstone Unit No. 2 (MPS2). Additionally, DNC requested NRC approval to allow a pressure test and corresponding Visual, VT-2 examination (Relief Request RR-89-41) in lieu of a volumetric examination for socket welds of any size and branch pipe connection welds Nominal Pipe Size (NPS) 2 inches and smaller that will be examined in accordance with the RI-ISI program.

On March 11, 2004, a Request For Additional Information (RAI) was received from the Nuclear Regulatory Commission (NRC) staff containing eight questions related to Relief Request RR-89-40 and two questions related to RR-89-41. In a letter dated July 6, 2004, DNC provided a response to Questions 1 and 3 through 8 for RR-89-40 and Questions 1 and 2 for RR-89-41. As agreed upon in a conference call on June 16, 2004, DNC is providing a response to Question 2 on RR-89-40 in Attachment 1 of this letter.

In a facsimile dated August 18, 2004, the NRC staff forwarded an RAI containing an additional seven questions related to the answers provided in the July 6, 2004 response.

General: The entire population of ASME Class I welds has been evaluated. Of the segments selected for examination, some contain only socket welds (i.e., there are no butt welds in those segments). The original submittal for the relief requests was based on a template proposed by NEI and approved by the NRC for use in this application.

NRC Question 1. Regarding socket welds and branch connection welds NPS2 or less, DNC's RAI response dated July 6, 2004, stated that UT won't provide meaningful results. If that's the case why were they selected in the first place?

DNC Response: The socket welds and branch connection welds NPS2 or less were selected for examination as a result of the process described in WCAP-14572 Rev. 1-NP-A, Section 3.7.3. The process for selection of actual inspection locations described in this section states, "a minimum of at least one examination location per segment should be performed." The selection process does not factor in whether volumetric examination can be performed acceptably.

NRC Question 2. In the list of socket welds and branch connections, can they be substituted with larger butt welds of the same materials in the same system, section, environment, risk category so that a volumetric examination can be performed?

DNC Response: Butt welds were chosen over socket welds for volumetric examination in HSS segments where that was possible. However, since MPS 2 is an older vintage plant, many of the HSS segments containing socket welds are entirely made up of socket welds and choices do not exist for this type of selection.

NRC Question 3. Are those welds where only a VT-2 is practical, insulated? If yes, is VT-2 performed with the insulation removed?

DNC Response: The welds are both insulated and non-insulated. If they are insulated then the VT-2 examination will be performed during the normal Section XI pressure test that would require a 4-hour hold time prior to the VT-2 examination and the insulation will not be removed.

NRC Question 4. In a case where only a tight crack is developed, how can a VT-2 detect a small leak?

DNC Response: Operating experience has shown that identification of small tight cracks is possible with a bare metal VT-2 examination looking for evidence of boric acid. The only socket welds selected for a VT-2 examination where it has been postulated a small tight crack is on the reactor vessel head vent line. This line is not insulated and thus a bare metal VT-2 examination at these locations can be used to identify small tight cracks.

NRC Question 5. In Table 3.10-1 of DNC's submittal, the results given for the RC system's contribution to LERF "with operator action" appears to be erroneous. In all of the other categories of risk information in this table, the RC system contributes almost 100% to total risk. In fact, to 3 significant digits the RC system's contribution matches the total Class 1 piping contribution, except in this category. Is the figure given for the RC system's contribution to LERF "with operator action" correct as stated, or should it be "1.16E-07"? If the current figure is correct, please explain why the RC system doesn't contribute to virtually all of the LERF risk for this case as it does for all of the other cases?

DNC Response: The figure given in Table 3.10-1 for the RC system's contribution to LERF "with operator action" is incorrect as stated. It should it be "1.16E-07."

NRC Question 6. Section 3.4 of the DNC's submittal states that, "The SRRA code could not be used for all failure mechanisms or piping materials. In these instances, values were determined using "alternative Means". Please describe "alternative means" and provide technical bases.

DNC Response: As clarification of the statement, the SRRA code was in fact used for every segment. Additional SRRA inputs were required for two segments. Upon the advice of Westinghouse, the alternative of using the detailed input capability of SRRA was chosen to properly represent the 40 inch diameter, 3.75 inch thick hot legs. Because they are thicker than usual they would not be well represented by the simplified inputs option of SRRA and the "flaws per inch" parameter would be incorrect. The correct parameters were therefore input using the detailed inputs capability. For all segments, the results obtained from the SRRA runs were reviewed to ensure they were reasonable compared to industry experience. The SRRA runs were therefore considered valid for all segments.

NRC Question 7. In Table 5-1, DNC notes that the CH system, which contains only one segment, is in SES Matrix Regions 1A, 1B, and 2. Explain how one segment is categorized into three matrix regions? Also, please explain why no welds were selected from this HSS segment for a volumetric NDE.

DNC Response: Characterization of the CH system as being in the SES Matrix Region 2 is a typographical error. This segment has no locations that fall under Region 2 and is made up entirely of socket welds. Two selected welds were postulated to be subject to thermal fatigue cracking at the root of the socket welds from temperature changes occurring with the controlled operation of the auxiliary spray system located in the SES Matrix Region 1A and one weld with no mechanism in Region 1B. This type of postulated flaw in two welds of Region 1A could not be identified with UT examination of the base material and so it was determined that these socket welds should be looked at with increased attention. In order to address this postulated concern the socket welds were chosen for a VT-2 type examination. Table 5-1 has been updated to correct the Region 2 typographical error, degradation mechanism for this segment, and the addition of a new HSS segment RC-089. This new HSS segment has been added as a result of our response to the March 11, 2004, RAI Question 2 on RR-89-40, and is addressed in this correspondence. Additionally, as discussed in the conference call that was held on August 30, 2004, a column by column explanation is provided for Table 5-1 as part of this response.

Table 5-1

STRUCTURAL ELEMENT SELECTION
RESULTS AND COMPARISON TO ASME SECTION XI
1989 EDITION REQUIREMENTS

1. System	2. Number of High Safety Significant Segments (No. of HSS in Augmented Program / Total No. of Segments in Augmented Program)	3. Degradation Mechanism(s)	4. Class	5. ASME Code Category	6. Weld Count (Section XI / Exempt ≤ NPS1)		7. ASME XI Examination Methods (Volumetric (Vol) and Surface (Sur))		8. RI-ISI [a]	
					6a. Butt	6b. Socket	7a. Vol & Sur	7b. Sur Only	8a. SES Matrix Region	8b. Number of Exam Locations
CH	1 (0 / 0)	TF, None [b]	Class 1	B-J	11 / 0	27 / 24	0	10	1A, 1B	3 VIS [c]
SI	4 (0 / 0)	None [b]	Class 1	B-J	118 / 0	0 / 142	30	0	2	4 NDE
RC	69 (0 / 0)	None [b], VF, TF, Strip/Strat, PWSCC	Class 1	B-F	28	0	19	9	2	28 NDE
				B-J	305 / 22	48 / 331	76	11	1A, 1B, 2	12 NDE + 1 VIS [c] / 11 NDE + 23 VIS + 45 VIS [c]
TOTAL	74 (0 / 0)		Class 1	B-F	28	0	19	9		28 NDE
				B-J	434 / 22	75 / 497	106	21		16 NDE + 4 VIS [c] / 11 NDE + 23 VIS + 45 VIS [c]

Table 5-1

STRUCTURAL ELEMENT SELECTION
RESULTS AND COMPARISON TO ASME SECTION XI
1989 EDITION REQUIREMENTS

1. System	2. Number of High Safety Significant Segments (No. of HSS in Augmented Program / Total No. of Segments in Augmented Program)	3. Degradation Mechanism(s)	4. Class	5. ASME Code Category	6. Weld Count (Section XI / Exempt ≤ NPS1)		7. ASME XI Examination Methods (Volumetric (Vol) and Surface (Sur))		8. RI-ISI [a]	
					6a. Butt	6b. Socket	7a. Vol & Sur	7b. Sur Only	8a. SES Matrix Region	8b. Number of Exam Locations
			Total		484	572	125	30		55 NDE + 72 VIS

Summary: Current ASME Section XI selects a total of 155 non-destructive exams while the proposed RI-ISI program selects a total of 127 exams (127 - 72 visual exams), which results in a 65% reduction.

Degradation Mechanisms: VF – Vibratory Fatigue; TF – Thermal Fatigue, None [b]; PWSCC – Primary Water Stress Corrosion Cracking; Strip/Strat – Striping/Stratification

Notes for Table 5-1

a. *System pressure test requirements and VT-2 visual examinations shall continue to be performed in all ASME Code Class 1, 2, and 3 systems.*
b. *Where None is listed under the Degradation Mechanism(s) column elements will be treated as having TF.*
c. *VT-2 only socket weld (Refer To Request RR-89-41).*

Table 5-1, Column By Column, Explanation

1. System = Lists the acronyms used for the systems (e.g., CH = Charging System, SI = Safety Injection System, and RC = Reactor Coolant System) where the High Safety Significant (HSS) segments are located.
2. Number of HSS segments = Lists the HSS segments contained in each system of Column 1.
3. Degradation Mechanisms = Shows all of the degradation mechanisms postulated for systems in column 1 and all of the HSS segments in each system listed in Column 2.
4. Class = Lists the ASME Class (i.e., Class 1 only for MPS 2) for all the welds in each of the systems and HSS segments listed in Columns 1 and 2.
5. ASME Code Category = Lists the ASME Code Section XI, 1989 Edition, Examination Categories (e.g., B-F = Class 1 Pressure Retaining Dissimilar Metal Welds and B-J = Class 1 Pressure Retaining Welds In Piping) for all of the systems and HSS segments listed in Columns 1 and 2.
6. Weld Count (Section XI / Exempt ≤ NPS1) = The column is subdivided to show numbers of butt welds in 6a and numbers of socket welds in 6b. These numbers are split between Section XI welds and exempt welds (ones that are ≤ NPS1). These weld numbers represent the total population of welds in each system of column 1 and all the HSS segments for that system in column 2. Example: The SI system has 4 HSS Segments and there is total of 118 butt welds that are currently large enough to be part of the existing Section XI weld population in these segments and a total of 142 socket welds in these same segments that are currently not required to be nondestructively examined under Section XI. Therefore, the total population of all the welds in these 4 HSS segments of the SI system is 260 welds.
7. ASME Section XI Examination Methods = This column is split to show numbers of welds that require volumetric and surface examinations per Section XI under 7a and welds that only require surface examinations in Section XI under 7b. Thus this column shows the total numbers of welds that are currently scheduled for examination at MPS 2 under the Section XI program. Example: For the entire SI system there is a total of 30 welds being examined by a volumetric and surface examination method under Section XI and this number is not related to the HSS segments of column 2.
8. RI-ISI = This column is split to first identify under 8a the SES Matrix Regions for all the welds selected under the RI-ISI program per the HSS segments identified in Column 2 and per the systems identified in column 1. Additionally, an examination Category split is provided between B-F and B-J welds of Column 5 where both Categories exist in the RC system. Secondly, 8b shows the number of welds being examined under the RI-ISI program and the types of examinations along with whether they are part of the program or are part of RR-89-41. Example: For the SI system, 4 HSS

segments, 4 total welds will receive NDE per this table and this NDE will be a volumetric examination at MPS 2.

Structural Element Selection (SES) Matrix Region Explanation

Based on the conference call of August 30, 2004, DNC was requested to provide some additional explanation regarding the use of the SES Matrix Figure 3.7-1 of WCAP-14572 Rev.1-NP-A, and its regions that are described in section 3.7.1 along with their relationship to the EPRI methodology. For all the HSS segments at MPS 2 only Regions 1A, 1B, and 2 apply. In the Westinghouse Owners Group (WOG) methodology, RI-ISI segments are not divided by a degradation mechanism as they are in the EPRI methodology. A single HSS piping segment may have multiple locations under the WOG methodology that are either susceptible to or not susceptible to the same degradation mechanism. However, the susceptible locations are put in (Region 1A) and require 100% examination. The remaining elements in the same segment are in (Region 1B) and at least one location in (Region 1B) must be examined. Thus, this is why MPS 2 may have multiple levels of susceptibility for locations within a single HSS segment. This is unlike the EPRI methodology that is limited to one degradation mechanism per HSS segment.

For more information regarding Table 5-1, please refer to Westinghouse Owners Group (WOG) letter to Dr. Brian Sheron of the NRC regarding the revised template submittal for plants using the WOG risk informed inservice inspection methodology (WCAP-14572), dated August 7, 2004 (ML012270366). That letter also contains references to other pertinent documents which may assist in understanding DNC's use of the template.