

March 22, 1989

Docket No. 50-245

Mr. Edward J. Mroczka
Senior Vice President
Nuclear Engineering and Operations
Northeast Nuclear Energy Company
P.O. Box 270
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Dear Mr. Mroczka:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION - GENERIC LETTER 88-01
(TAC NO. 69145)

The staff has reviewed information contained in your submittals dated July 27, 1988 and February 3, 1989 regarding Intergranular Stress Corrosion Cracking (IGSCC) and Generic Letter 88-01. In order for the staff to complete its review of this issue, we request that you submit the information identified in the enclosures within 60 days of receipt of this letter. In order to expedite the review process, please send a copy of your submittal to the following NRC Contractor:

Dr. Armand A. Lakner
Director, Safety & Reliability
Viking Systems International
101 Chestnut Street
Gaithersburg, MD 20877

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

original signed by

Michael L. Boyle, Project Manager
Project Directorate I-4
Division of Reactor Projects I/II
Office of Nuclear Reactor Regulation

Enclosures:
Request for Additional
Information

cc w/enclosure
See next page

[DOCKET NO. 50-245]

LA:PDI-4
SNorris
03/16/89

PM:PDI-4 *MLB*
MBoyle:cb
03/17/89

PD:PDI-4
JStoltz
03/20/89

8903300040 890322
PDR ADOCK 05000245
PDC

JFol
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Mr. Edward J. Mrocza
Northeast Nuclear Energy Company

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ATTACHMENT A
GENERAL QUESTIONS/REQUESTS

Reviews of several licensee submittals has shown that most (although not all) of the submittals commonly lack certain information that is needed for evaluation of the submittals. Thus, this general list of questions and requests has been prepared for submission to each of the licensees. For those portions of this attachment for which the requested information was supplied (in the detail requested herein) in the original submittal, the utilities may reference the relevant pages or tables in the original submittal and supply only the requested information that was not provided. However, if the information requested concerning any of the items herein was not provided in the original licensee submittal, an omission of that information from the response to this RAI will be construed as an endorsement of the applicable NRC Staff position.

Item 1. Position on NRC Staff Positions

Generic Letter 88-01 states on page 3:

"Pursuant to 10 CFR 50.54(f), you, as a BWR operating reactor licensee or construction permit holder, are requested to furnish, under oath or affirmation, your current plans relating to piping replacement, inspection, repair, and leakage detection. Your response should indicate whether you intend to follow the staff positions included in this letter, or propose alternative measures."

The staff positions outlined in Generic Letter 88-01 include positions on: (1) Materials. (2) Processes. (3) Water Chemistry. (4) Weld Overlay. (5) Partial Replacement. (6) Stress Improvement of Cracked Weldments. (7) Clamping Devices. (8) Crack Evaluation and Repair Criteria. (9) Inspection Method and Personnel. (10) Inspection Schedules. (11) Sample Expansion. (12) Leak Detection. (13) Reporting Requirements.

Please supply information concerning whether the licensee: (1) endorses these positions, (2) proposes alternate positions, exceptions, or provisions, and (3) is considering or planning to apply them in the future. Please describe any alternate positions, exceptions, or provisions that are proposed.

Please supply this information using a table such as that illustrated in the example shown in Table 1.

Table 1

Responses to NRC Staff Positions

<u>Staff Position</u>	<u>Licensee Response*</u>			<u>Licensee Has/Will**</u>	
	<u>Accept</u>	<u>Accept with Provisions</u>	<u>Requests Alternate Position</u>	<u>Applied in Past</u>	<u>Consider for Future Use</u>
1. Materials					
2. Processes					
3. Water Chemistry					
4. Weld Overlay					
5. Partial Replacement					
6. Stress Improvement of Cracked Weldments					
7. Clamping Devices					
8. Crack Evaluation and Repair Criteria					
9. Inspection Method and Personnel					
10. Inspection Schedules					
11. Sample Expansion					
12. Leak Detection					
13. Reporting Requirements					

* Answer with "yes", "check mark" or "X" in appropriate column for each of the 13 NRC Staff Positions. List and explain each provision and/or alternate position (or reference original submittal if it contains the listing and explanation). Use separate page(s) if needed.

** Answer with "yes" or "no", as appropriate, in each column for each of 13 NRC Staff Positions.

ATTACHMENT A (continued)

Item 2. Inservice Inspection Program

Generic Letter 88-01 requests on page 3:

"Your current plans regarding pipe replacement and/or other measures taken or to be taken to mitigate IGSCC and provide assurance of continued long-term integrity and reliability."

"An Inservice Inspection Program to be implemented at the next refueling outage for austenitic stainless steel piping covered under the scope of this letter that conforms to the staff positions on inspection schedules methods and personnel, and sample expansion included in this letter."

The information pertaining to the pipe replacement and other mitigating actions as well as the Inservice Inspection Program provided in most of the licensee submittals were either incomplete or did not provide the background data that is needed to evaluate the ISI Program such as (1) reasons/justification for IGSCC classification of welds, (2) methods, personnel qualification, schedules and identities of welds inspected, and (3) results of previous inspections, and/or identities of welds to be inspected during future inspections.

Thus, the following information is requested:

1. A listing of all welds by system, pipe size, configuration (e.g., pipe to elbow, pipe to valve, etc.), drawing number (piping ISO with weld I.D.), location (i.e., inside or outside of containment, etc.), weld I.D. number, and IGSCC classification (i.e., IGSCC Category A, B, C, D, E, F and G).
2. Reason/justification for the classification of each weld, using such information as (a) weld history such as heat sink welding (HSW), (b) pipe and weld metal compositions or material identities to show either conforming material or non-conforming material, (c) mitigating treatment(s) applied such as solution heat treating (SHT), stress improvement (IHSI or MSIP).
3. Identity of welds to be inspected during past and future refueling outage. Include (a) dates and results of previous inspections, (b) flaw characteristics including orientation (axial or circumferential), maximum length, maximum depth, repairs and/or mitigating treatments applied.

Please supply this information in tabular form using forms such as that illustrated in Tables 2 and 3.

Table 2

History of Welds and Prior Mitigating Actions/Treatments*

IGSCC Categ	System	Weld Number	Configuration	Dia. Inch	Material**			Treatment***				
					Forging,	Pipe	Weld	SHT	HWS	CRC	SI	O.L.

Notes:

- * List each weld separately, using one or more lines as required.
- ** For material: identify as non-conforming or conforming as appropriate concerning whether it conforms with the NRC Staff position on resistant materials. If conforming, identify the material type (e.g., Type 316 NG).
- *** For treatment: list "X" under appropriate column(s) if weld was treated using indicated technique, i.e., solution heat treated (SHT), heat sink welded (HSW), corrosion resistant clad (CRC), stress improved (SI), or overlaid (O.L.). For SI, add explanation of method used, i.e., whether by induction heating or mechanical, whether pre and/or post treatment inspection was applied using methods and personnel qualified under NRC/EPRI/LWROG coordination plan, and whether treatment was applied within two years of service date. Also add explanation and justification of any overlays that were not standard (per NRC Staff position).

Table 3
Inspection Schedules

IGSCC Categ	System	Weld No.	Dia. Inch.	Configuration	Inspected/To Be Inspected/Flaws Found				
					Past			Future	
					R.O.#X-2	R.O.#X-1	Flaw	R.O.#X	R.O.#X+1

Instructions:

1. Under the heading, "Inspected/To BE Inspected," use as many columns as required to describe the following:
 - (a) All previous inspections that were conducted (per NUREG 0313, Revision 2, page 5.2) using methods and personnel qualified under NRC/EPRI/BWROG coordination plan as upgraded in September, 1985.
 - plus
 - (b) A sufficient number of future inspections to demonstrate that the schedules will follow the NRC Staff positions as given in Table 1 in Generic Letter 88-01.
2. Replace R.O.# (X-2, X-1, X, X+1) with actual refueling outage numbers. Indicate dates inspections were/will be performed.
3. List each weld within the scope of Generic Letter 88-01.
4. Place an "X" or other appropriate symbol under the appropriate column for each refueling outage for which that weld was inspected or will be inspected.
5. Indicate with "yes" under column marked "flaw" if a flaw indication was found. Attach a statement for each flawed weld giving the orientation (axial or circumferential), the dimensions (maximum length and depth), and describing any repairs made.

ATTACHMENT A (continued)

Item 3. Welds Covered in Licensee Submittal

Generic Letter 88-01 (on page 2) states:

"This Generic Letter applies to all BWR piping made of austenitic stainless steel that is four inches or larger in nominal diameter and contains reactor coolant at a temperature above 200°F during power operation regardless of Code classification. It also applies to reactor vessel attachments and appurtenances such as jet pump instrumentation penetration assemblies and head spray and vent components."

Were any welds that fall within this defined scope excluded from the licensee submittal (for example, welds in the RWCU outboard of the isolation valves)? If previously excluded, please list identity of such welds and plans for mitigation and inspections in Tables 2 and 3 or provide alternative proposal. If IGSCC susceptible welds were excluded from the licensee submittal based on temperature considerations please identify the welds and describe in detail the method of temperature measurements.

Item 4. Welds that Are Not UT Inspectable

Generic Letter 88-01 (in Table 1) states: "Welds that are not UT inspectable should be replaced, "sleeved", or local leak detection applied. RT examination or visual inspection for leakage may also be considered."

Does the licensee submittal include discussions and plans for:

- (a) All welds that are inaccessible for UT inspections?
- (b) All welds that are only partially accessible for UT inspections?
- (c) Welds that cannot be UT inspected because of geometrical constraints or other reasons.

If not, please list these welds and plans for mitigation/inspection.

Item 5. Leakage Detection

Generic Letter 88-01 states on page 3:

"Confirmation of you plans to ensure that the Technical

ATTACHMENT A (continued)

Specification related to leakage detection will be in conformance with the staff position on leak detection included in this letter."

The staff position is outlined on pages 5 and 6 of Generic Letter 88-01 and include the following items:

1. Leakage detection should be in conformance with Position C of Regulatory Guide 1.45 "Reactor Coolant Pressure Boundary Leakage Detection Systems," or as otherwise approved by the NRC.
2. Plant shutdown should be initiated for corrective action when:
 - (a) within any 24 hour period any leakage detection system indicates an increase of unidentified leakage in excess of 2 gpm or its equivalent, or
 - (b) the total unidentified leakage attains a rate of 5 gpm or equivalent.
3. Leakage should be monitored (or determined from flow measurements if flow is continuously monitored) at approximately four hour intervals or less.
4. Unidentified leakage should include all leakage other than
 - (a) leakage into closed systems, or
 - (b) leakage into the containment atmosphere from sources that are both specifically located and known either not to interfere with operations of monitoring systems or not to be from a throughwall crack.
5. For plants operating with any IGSCC Category D, E, F, or G welds, at least one of the leakage measurement instruments associated with each sump shall be operable, and the outage time for inoperable instruments shall be limited to 24 hours or immediately initiate an orderly shutdown.

Although most licensee submittals describe the intention of meeting some or all of these requirements or offer alternative measures, it is not always clear whether these requirements are contained in the Technical Specifications. Thus it is requested that this information should be provided by each licensee. For clarity and completeness, please use a checklist such as that illustrated in Table 4.

Table 4

Licensee Positions on Leakage Detection

<u>Position</u>	<u>Already Contained in TS</u>	<u>TS will be Changed to Include</u>	<u>Alternate Position Proposed</u>
1. Conforms with Position C of Regulatory Guide 1.45			
2. Plant shutdown should be initiated when:			
(a) within any period of 24 hours or less, an increase is indicated in the rate of unidentified leakage in excess of 2 gpm, or			
(b) the total unidentified leakage attains a rate of 5 gpm.			
3. Leakage monitored at four hour intervals or less.			
4. Unidentified leakage includes all except:			
(a) leakage into closed systems, or			
(b) leakage into the containment atmosphere from sources that are located, do not interfere with monitoring systems, or not from throughwall crack.			
5. Provisions for shutdown within 24 hours due to inoperable measurement instruments in plants with Category D, E, F, or G welds.			

Instructions:

Place "X" or "yes" under appropriate column for each item. Provide description and justification for alternative positions if not already provided.

ATTACHMENT B

REQUEST FOR ADDITIONAL INFORMATION PERTAINING
TO MILLSTONE NUCLEAR POWER STATION, UNIT NO. 1

Item 1. Welds that are not UT Inspectable

In responding to Item 3 in Attachment A, please also provide the following information.

A description of the restricted leakage requirements and the effectiveness of the technique used for surveillance of inaccessible welds.

Item 2. Leakage Detection

In responding to Item 5 in Attachment A, please also provide the following information.

Clarification of whether Surveillance Procedure No. SP 635.1 which is referred to on page 4 of the Northeast Utilities Submittal (which contains requirements for monitoring leakage at least once every four hours) is incorporated (or referenced in the Technical Specification.