



**Northeast
Nuclear Energy**

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Millstone Nuclear Power Station
Northeast Nuclear Energy Company
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The Northeast Utilities System

MAY 31 2000

Docket No. 50-423
B18135

Re: ASME Section XI
GL 90-05
10 CFR 50.55a(g)(6)(i)

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

Millstone Nuclear Power Station, Unit No. 3
Relief Request from ASME Code Section XI Requirements

The purpose of this letter is to request, consistent with the intent of NRC Generic Letter (GL) 90-05, relief from the ASME Boiler and Pressure Vessel Code Section XI requirements pursuant to 10 CFR 50.55a(g)(6)(i). Attachment 1 provides a description of actions taken by Northeast Nuclear Energy Company (NNECO) to make interim repairs on a through-wall pinhole leak located on the downstream side of a reducer on line 3SWP-003-210-3, which is the cooling water return line from the Safety Injection pump cooler (3CCI*E1A) as an alternative to an IWA-4000/7000 repair/replacement.

Consistent with the provisions of GL 90-05, NNECO is submitting this relief request for a temporary Non-Code repair on a Service Water line leak prior to performing a Code repair. The Resident Inspector at Millstone Unit No. 3 has been informed of this course of action and, as has been our practice, we will keep the Resident Inspector fully informed of all future repairs and/or replacement activities. Permanent Code repair for this flaw is scheduled for the next refueling outage, expected to begin in the first quarter of 2001.

There are no regulatory commitments contained within this letter.

A047

U.S. Nuclear Regulatory Commission
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Should you have any questions regarding this submittal, please contact Mr. Ravi G. Joshi at (860) 440-2080.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

A handwritten signature in cursive script that reads "Stephen E. Scace". The signature is written in black ink and is positioned above a solid horizontal line.

Stephen E. Scace
Director - Nuclear Oversight and
Regulatory Affairs

Attachment

cc: H. J. Miller, Region I Administrator
V. Nerses, NRC Senior Project Manager, Millstone Unit No. 3
A. C. Cerne, Senior Resident Inspector, Millstone Unit No. 3

Docket No. 50-423
B18135

Attachment 1

Millstone Nuclear Power Station, Unit No. 3

Relief Request from ASME Code Section XI Requirements

May 2000

ATTACHMENT 9.A

TRACKING FORM FOR RELIEF REQUEST FROM ASME SECTION XI REQUIREMENTS

MUST BE COMPLETED AND FILED WITH NRC WITHIN 30 CALENDAR DAYS

UNIT: MILLSTONE UNIT # 3

CYAPCO _____

NCR/CR # M3-00-1210

DATE: 5-6-00 (event) TIME: 21:00
5-9-00

1.0 ORIGINATOR (PTSG)

Processing Time: should not exceed 24 hours

Ⓢ Note: Leak found approx midnight on 5/6/00.

1.1 PERFORM INITIAL OPERABILITY ASSESSMENT PER RP 5 (GL91-18) ✓

1.2 COMPLETE SECTION 1 OF ATTACHMENT 9.B

1.3 NOTIFY RESIDENT NRC INSPECTOR

Person Contacted: BETH SIGEL Date: _____

1.4 FORWARDED COMPLETED ATTACHMENTS 9.A AND 9.B, NCR AND NDE MEASUREMENTS TO SUPERVISOR OF PLANT DESIGN ENGINEERING GROUP (PDEG)

Originator: Steven Pieregk Date: 5/9/00
(Signature/Printed name)

2.0 PDEG SECTION

Date Received: 5/8/00

Processing Time:

72 hours from flaw detection for documented preliminary operability assessment per RP 5 (GL 90-05). ✓

Conf Rec'd
VI CA/00
Process

25 calendar days from flaw detection for final operability assessment per RP 5 (GL 90-05). ✓

2.1 PRELIMINARY FLAW EVALUATION

Evaluation Completed By: Tim Raetz

Date 5/8/00

Notify PTSG

Person Contacted: Mike Finla

Date 5/8/00

2.2 END OF CYCLE FLAW EVALUATION

Evaluation Completed By: Timothy B Raetz
TIMOTHY B RAETZ

Date 5/10/00

2.3 REVIEW RESULTS OF AUGMENTED INSPECTION

Completed By: Steve Pietryk

Date: 5-16-00

If additional inspections are required, notify PTSG Engineer. Awo m3-00-08661, All measurements exceed T_{min} and

2.4 FORWARD COMPLETED ATTACHMENTS 9.A AND 9.B TO NUCLEAR LICENSING

Show no evidence of localized wall thinning
PK

Supervisor, PDEG Section:

Pierre J. Heuroux P. J. HEUROUX
(Signature/Printed name)

Date: 5-30-00

3.0 NUCLEAR LICENSING

Processing Time: should not exceed 30 calendar days from flaw detection.

3.1 RELIEF REQUEST SUBMITTED

By: Mohamed A. Elmoghribi

Date: May 31, 2000

Docket No. 50-423

ATTACHMENT 9.B

NORTHEAST UTILITIES

RELIEF REQUEST FORM FOR RELIEF REQUEST
FROM ASME SECTION XI REQUIREMENTSUNIT: 3 ^{CR} MS-00
NRC # -1210 DATE: 5-6-00 Time: 21121.0 ORIGINATOR (PTSG)1.1 DESCRIPTION OF FLAWPiping/Component Drawing No.: CI-SWP-210 P-56P&ID No.: EM-133BThrough wall pin-hole.1.2 IMPRACTICALITY OF CODE REPAIRUNISOLABLE / NOT REPAIRABLE w/in LCO AOT.1.3 DESCRIPTION OF PROPOSED TEMPORARY REPAIRLeave pinhole as is. INSTALL temporary patch and mechanical clamp.1.4 SAFETY SIGNIFICANCE: System Interaction EvaluationFlooding? N/AJet Spray? N/ALoss of Flow? N/A

Other Interactions:

See OD MS-008-00

Failure Consequences?

Impact to Safe Shutdown Capability? NONE1.5 ROOT CAUSE CAUSAL FACTOR INVESTIGATIONRoot Cause Description: Flow erosion due to reducer.Other Systems Affected? Possibly alternate train (B)

1.6 AUGMENTED INSPECTION (must be completed within 15 days of flaw detection).

Assessment of overall degradation of the affected system: *Ongoing*
No Localized Wall Thinning detected.

Additional examinations required (based on root cause) - specify number of inspection locations (five most accessible locations for moderate energy piping systems): *5 LOCATIONS AWO M3-00-08661*

~~Not~~
 Description of areas selected for augmented inspection: *90-10 Cu Ni PIPING DOWNSTREAM OF REDUCING FITTINGS. ESF AND ANG Btg.*

2.0 PLANT DESIGN ENGINEERING (PDEG) OR STRUCTURAL AND DESIGN ENGINEERING (SDE)2.1 DESIGN DETAILS

System: *SERVICE WATER UNIT 3*

Component: *3" pipe PC 56 or CI-SWP-210*

Piping Size and Schedule *3" Reg Sch*

Nominal Wall Thickness: *.219*

Safety Code Class: *3*

Material: *SB 466 90/10 Cu-Ni*

Design Pressure: *750 psig 100 psig*
~~SP~~

Design/Operating Temperature: *95°F / 33-75°F*

Code Minimum Wall Thickness:

2.2 FLAW CHARACTERIZATION

Flaw Description/Size (i.e., flaw size, adjacent wall thickness, single/multiple flaw, total area examined, etc.): *Through wall portion is approx 1/32".*
Adjacent wall beyond the flaw is 0.210"

Flaw Location: *Between FW-49 and FW-112*

Method of Examination: *U.T.*

Flaw Type: *Pinhole due to erosion/corrosion*

Referenced NDE Measurement Report:

Attached to Tech Eval M3-EV-00-0019

2.3 PRELIMINARY FLAW EVALUATION SUMMARY

Preliminary (72 hour) Operability Assessment Details:

Method Used: *Draft Code Case N513 AND N597*Limiting Flaw Size: *1.75"* min average wall thickness*outside flaw must be at least 0.075"*

Period of Time to Reach Limiting Flaw Size:

*11 13 months*Evaluation Reference: *M3-EV-00-0019*2.4 END OF CYCLE FLAW EVALUATION SUMMARY

Final Operability Assessment Details:

Method Used: *Draft Code Case N513 AND Code Case N597*Estimated Erosion Rate: *0.0088 in/year*Projected Flaw Size: *Predicted through wall portion of Flaw is 0.375"*Period of Time to Permanent Repair/Replacement: *Replacement will be in RFD7, scheduled to begin 2/1/2001.*

Provide a Discussion of Evaluation of Design Loading Conditions:

Loading conditions evaluated = pressure/deadload/thermal/seismic

Evaluation Reference:

*all were acceptable.**M3-EV-00-0019 Rev 0*

Discussion of Augmented Inspection Results:

*5 Areas were U.T. inspected. No areas of localized wall thinning were detected.*2.5 FLAW MONITORING

Walkdown Frequency (for leak monitoring):

Frequency of Follow-up NDE (for erosion rate assessment):

*each 3 months.*2.6 ADDITIONAL COMMENTS (scope, limitations, and specific considerations)2.7 EXCEPTIONS TO GL 90-05Specify if Draft ASME Code case *N-513 is used*

Specify if unapproved Code Case used (e.g. N-513, approved 8/97)

*yes as well as Approved Code Case N597.*2.8 REFERENCES/INPUTS

cc: Originator, PDEG - Responsible Supervisor, PTSG - Responsible Supervisor, Unit Director, Director Engineering Programs, Nuclear Records

RELIEF REQUEST FROM ASME SECTION XI REQUIREMENTS
Service Water Piping Leak Reported in CR M3-00-1210 on 5/6/00

1.1 DESCRIPTION OF FLAW

Piping/Component Drawing No. : CI-SWP-210

P&ID No.: EM 133B

A through-wall pinhole leak located on the downstream side of a reducer on line 3SWP-003-210-3, which is the cooling water return line from the Safety Injection pump cooler (3CCI*E1A). The leak is in a 2" long straight section of piping (piece 56) located between a reducer (FW112) and a tee fitting (FW49) as shown on isometric drawing number CI-SWP-210.

1.2 IMPRACTICALITY OF PERMANENT REPAIR

Repair during normal plant operation cannot be completed in the 72 hour LCO action statement due to piping configuration/location.

1.3 DESCRIPTION OF PROPOSED TEMPORARY REPAIR

Installation of a temporary patch of rubber lining material secured in place with a pipe clamp

1.4 SAFETY SIGNIFICANCE: System Interaction Evaluation

Flooding: The temporary patch for the pinhole leak is secured in place with a mechanical clamping device and is leak tight.

Jet Spray: Leak sprays will not affect any safety-related power supplies. The temporary patch installed over the pin hole leak is leak tight, eliminating any spray.

Loss of Flow: The temporary patch will prevent loss of flow.

Other Interactions: None

Failure Consequences: Loss of Service Water cooling for the "A" train Safety Injection pump cooler (3CCI*E1A) and the the ESF building air conditioning units (3HVQ*ACU1A and 3HVQ*ACU2A).

Impact on Safe Shutdown Capability: Total failure of the piping would require removing "A" train Safety Injection pump cooler (3CCI*E1A) and the the ESF building air conditioning units, 3HVQ*ACU1A and 3HVQ*ACU2A from service. The redundant Service Water train would be unaffected and available for safe shutdown.

1.5 ROOT CAUSE CAUSAL FACTOR INVESTIGATION:

Root Cause Description: Pipe wall thinning of 90-10 Cu Ni piping due to erosion immediately downstream of a pipe fitting .

Other Systems Affected: The redundant "B" Train Service Water piping includes sections of piping of the same material and similar piping configuration

1.6 AUGMENTED INSPECTION (must be completed within 15 days of flaw detection)

Assessment of the overall degradation of the affected system:

This type of leak is typical of erosion in Service Water 90-10 Cu-Ni piping. These leaks do not result from large areas of damage but from very localized wall loss. The Millstone Erosion/Corrosion Program identifies areas in the Service Water system which are susceptible to erosion and/or corrosion and schedules periodic UT examinations.

Additional examinations required (based on root cause)- specify number of inspection locations (five most accessible locations for moderate energy piping systems): Five additional locations were chosen and are listed below:

- a.) FW-13 (3SWP-150-071-3)

RELIEF REQUEST FROM ASME SECTION XI REQUIREMENTS
Service Water Piping Leak Reported in CR M3-00-1210 on 5/6/00

- b.) FW-39 (3SWP-003-085-3)
- c.) FW 33 (3SWP-003-154-3)
- d.) FW-18 (3SWP-150-061-3)
- e.) PC-67 (3SWP-003-211-3)

Description of areas selected for augmented inspection: Small bore Service Water system piping constructed of 90-10 Cu-Ni located downstream of fittings.

2.0 STRESS ANALYSIS UNIT

2.1 DESIGN DETAILS

System: Service Water System

Component: 3" Pipe; Piece 56 on isometric drawing CI-SWP-210

Piping Size and Schedule: 3", Regular

Nominal Wall Thickness: 0.219"

Safety Code Class: Class 3

Material: SB 466 90/10 Cu Ni

Design Pressure: 100 psig

Design/Operating Temperature: 95°F Design; 33°F to 75°F Operating Temperature Range

Code Minimum Wall Thickness: 0.02 "

2.2 FLAW CHARACTERIZATION

Flaw Description/Size: (i.e., flaw size, adjacent wall thickness, single/multiple flaw, total area examined, etc.): The flaw area is highly localized and is limited to the piping section in an area of approximately 1.25 in². The through wall portion of the flaw is approximately 0.0313" in diameter. The pipe wall thickness in the flaw area surrounding the pin hole varies from 0.054" to 0.090" and the wall thickness surrounding the flawed area varies from 0.210" to 0.222".

Flaw Location: On a 2" long section of straight piping located between a reducer (FW 112) and tee fitting (FW 49). This piping is the "A" train cooling water return piping for the Safety Injection pump heat exchanger (3CCI*E1A) and the ESF Building Ventilation units (3HVQ*ACU1A and 3HVQ*ACU2A)

Method of Examination: UT

Flaw Type: Pin Hole resulting from erosion/corrosion

Referenced UT Measurement Report: Attached to Technical Evaluation M3-EV-00-0019.

2.3 PRELIMINARY FLAW EVALUATION SUMMARY

Preliminary Operability Assessment Details:

Method Used: Draft Code Case N513 (dated 8/13/92) and Code Case N-597 (Approved by NRC for use on MP3 2/23/99)

Limiting Flaw Size: Total flaw size predicted and analyzed was 1.75". Minimum average wall thickness surrounding flaw must be at least 0.075".

Period of Time to Reach Limiting Flaw Size: 11 months

RELIEF REQUEST FROM ASME SECTION XI REQUIREMENTS
Service Water Piping Leak Reported in CR M3-00-1210 on 5/6/00

Evaluation Reference: M3-EV-00-0019

2.4 END OF CYCLE FLAW EVALUATION SUMMARY

Final Operability Assessment Details:

Method Used: Draft Code Case N513 (dated 8/13/92) and Code Case N-597 (Approved by NRC for use on MP3 2/23/99)

Projected Flaw Size: Predicted flaw size is 1.75".

Period of Time to Permanent Repair/Replacement: This section of piping will be replaced in the next refueling outage, 3RF07 which is scheduled to begin on 2/1/2001

Provide a Discussion of Evaluation of Design Loading Conditions: Loading conditions evaluated include: pressure, deadload, thermal and seismic. The evaluation concluded that the structural integrity of the piping is maintained and will continue to remain acceptable until the piping can be replaced in the next refueling outage.

Evaluation Reference: M3-EV-00-0019

Discussion of Augmented Inspection Results: No areas of wall thinning were detected in any of the additional areas.

2.5 FLAW MONITORING

Walkdown Frequency (for leak monitoring): SHIFTLY PLANT ROUNDS

Frequency of Follow-Up NDE (for erosion rate assessment): At least once every three months.

2.6 ADDITIONAL COMMENTS

None

2.7 EXCEPTIONS TO GL-05

The evaluations were performed in accordance with GL 90-05, draft Code Case N513 (dated 8/13/92) and Code Case N-597, which was approved for use on Millstone Unit 3 on 2/23/99.

2.8 REFERENCES/INPUTS

- CR M3-00-1210
- CRED M3-00-1210
- Isometric Drawing No. CI-SWP-210
- P&ID No. EM133B
- Operability Determination MP3-008-00
- DCN DM3-00-0157-00
- Technical Evaluation M3-EV-00-0019, Rev 0, "Service Water Pipe Wall Leak Evaluation at FW-112 and FW-49 (Ref. line 3-SWP-003-210-03)"
- Work Orders: M3-00-08343(Initial UT), M3-00-08389(Patch), M3-00-08661(Five additional UT's), M3-00-08758(Follow Up UT in 3 months), M3-00-08837 (Pipe Replacement)

TECHNICAL EVALUATION

for

Service Water Pipe Wall Leak Evaluation at FW-112 & FW-49
(Ref. line 3-SWP-003-210-03)

Millstone Station Unit 3

M3-EV-00-0019

Rev. 00

Timothy B Raetz
Preparer T. Raetz

5/8/00
Date

L. Diluna
Independent Reviewer L. Diluna

5-8-00
Date

Dina Z. Beauregard
Preparer's Supervisor D. Beauregard

5/8/00
Date

G. Olsen
Engineering Manager G. Olsen

5/9/00
Date

1.0 Purpose :

Evaluation of a through wall leak and wall thinning condition identified on Service Water line 3-SWP-003-210-03 as indicated in CR M3-00-1210. This evaluation will determine that structural integrity of the piping is maintained for the through wall leak and wall thinning in the area between field welds FW-112 and FW-49 and to predict remaining service life for recommended replacement.

2.0 Background :

Per UT data attached, through wall pipe leak and area wall thinning is identified between field welds FW-112 and FW-49 on Service Water line 3-SWP-003-210-03 as documented in CR M3-00-1210 (Attachment 3). See attached UT data (Attachment 4) for specific location. The piping is to be evaluated to determine the current piping structural integrity until repair can/should be made.

References : As noted in the wall thinning evaluations in Attachment 2.

3.0 Discussion :

A through wall leak evaluation was performed in accordance with Generic letter 90-05 and Draft Code Case N513 and Code Case 597 (NRC approved). This evaluation will demonstrate structural integrity of the existing condition and determine the remaining service life before replacement is recommended/required.

The minimum UT reading was used with the associated stress levels for the affected locations. The evaluation for the through wall leak is attached.

Note: Use of Draft Code Case 513 for this application is similar in approach to Code Case N-597 thus yielding similar results. Therefore, is acceptable for use in the through wall leak evaluation.

A temporary patch to eliminate the pipe leak using clamps and rubber gasket material will be installed on the pipe until the pipe section is replaced. This temporary patch will be attached to a 3" pipe with a potential min. wall of .069". Using an assumed weight of 10 lbs for the temporary patch in comparison to the mass of the 3" pipe section and close proximity of existing supports, it is determined that the additional weight has insignificant deadload and seismic effect on the system.

Buckling of the thinned area since $R/tp > 50$ was evaluated. Based on the low temperature of the system and close proximity of existing supports, any potential buckling effect on the pipe would be insignificant. Existing functional capability check performed in stress calculation 12179-NP(F)-X1913 Rev. 5 CCN 6 envelopes this evaluation and is acceptable.

The wall thinning area at FW 112 was reviewed and it was determined based on its close proximity of the through wall leak and similar wall thickness values, the through wall leak evaluation envelopes the wall thinning condition and is acceptable for the same duration before replacement is required.

4.0 Safety Significance :

These Service Water pipe thinning evaluations are performed in accordance with Generic Letter 90-05, Draft Code Case N513 and Code Case N597 (NRC approved). This evaluation determined structural integrity is maintained and predicted service life remaining. This evaluation ensures the system's ability to perform its intended function and is not affected by the wall thinning condition. The above condition does not create/implement changes to Tech Specs, facility, procedures or require any new tests therefore, a CFR 50.59 Safety screen/evaluation is not required for this Technical Evaluation.

5.0 Conclusion:

Based on the evaluation in Attachment 2, it is determined that pipe line 3-SWP-003-210-03 at the specified FWs currently meet structural integrity criteria. In addition, the evaluation yield that the structural integrity of the pipe would continue to be met to April 1, 2001 based on predicted wear rate.

6.0 Attachments :

- Attachment 1 : Independent Review Comment and Resolution Sheet
- Attachment 2 : Service Water thinning evaluation
- Attachment 3 : CR M3-00-0210 1210 TBR
- Attachment 4 : UT Data
- Attachment 5: Pipe Stress Worksketch

Attachment # 1
Independent Reviewer Comment and Resolution Sheet(s) (Example)
 (Sheet 1 of 2)

(ER/EV) No. M3-EV-00-0019 REV. 0

Independent Reviewer Name: L. J. DILUNA

Page 1 of 1
 Date: 5/8/00

Comment No.	ER/EV Section	Comment
		MINOR COMMENTS INCORPORATED

Comments Resolved:

ER/EV Preparer Signature: Timothy B Raetz Date 5/8/00

Independent Reviewer Concurrence: LJDILUNA [Signature] Date 5-8-00

If applicable, Manager's Signature: _____ Date _____

Level of Use Information

STOP THINK ACT REVIEW

PART 1 3" pipe outlet to 3CCI*E1A/3HVQ*ACUS1A (near FWs 112-49)

Objective: The objective of this evaluation is to qualify a pin hole leak in 3" service water line 3-SWP-003-210-3 outlet to 3CCI*E1A & 3HVQ*ACUS1A as described in CR M3-00-1210 for structural integrity. This evaluation qualifies the piping through 4/1/01.

Parameter The following parameters will be applied in this evaluation (Reference 1):

Pipe Size Nominal	Outside Dia. (in)	Schedul	Wall thic (in)	Design Pressure (psi)	Temp (F)	Material	Allowable Sh (psi)
3	3.500	nonstd	0.219	100	95	SB466 706	8700

1.0 SCOPE

This evaluation is applicable to:

- a) Class 3 Section III Subsection ND piping
- b) Operating conditions <200F, < 275 psig
- c) Pipe, tube, fittings and flanges - NO WELDING
- d) Structural integrity only. This does not demonstrate system operability.
- e) t-adj is used throughout this calculation. t-adj is always the predicted t-adj.

3.0 FLAW EVALUATION

This evaluation is applicable to non-planar (through wall holes) and is performed in accordance with Generic Letter 90-05, DRAFT Code Case N513 (8/13/92) and Code Case N597 (Reference 3).

3.1 tmin and t-adj Determination

- a) Determine tm per construction code (Reference 2).

$$t_m = P * D_o / (2 * (S E + P y)) + A$$

P= pressure, psig

D_o= outside diameter, in

S= stress allowable, psi

E= joint efficiency = 1.00

y= a coefficient = 0.4

A= additional thickness (corrosion allowance, threading, etc...)

= 0 for this analysis

Outside Dia. (in)	t _m (in)	t _{meas} minimum (in)	Instrumen + Calibrat Toleranc (in)	(Ref. 6) Years of Service (yrs)	Wear Rate (in/yr)	Remaining Life Required (yrs)	t _{adj} (1) (in)
3.500	0.0200	0.088	0.005	14.85	0.0088	0.903	0.0750

Note 1) The t-adj value is the predicted remaining wall through 04/01/2001.

Note 2) The component considered in this evaluation has been inservice since July 1985.

Note 3) The minimum thickness used is conservative compared to the measured data of Reference 5.

PART 1 continued

3.2 Branch reinforcement Evaluation Method (Reference 3)

a) t_{adj} must be greater than $2 \cdot t_m$

Pipe Size Nominal	t_{adj}	$2 \cdot t_m$
3	0.0750	0.0400

acceptable

b) The postulated circular diameter, d , shall not exceed the pipe nominal outside diameter.

Pipe Size Nominal	d Outside Dia. (in)	Maximum Allow Flaw Length (in)	Predicted Total Flaw Circ Length (in)
3	3.500	3.500	1.75

Predicted flaw is set equal to 1.75 inches.
OK

The following branch connection reinforcement calculation is performed in accordance with ND 3643.3 (Reference 2).

Required reinforcement area = $1.07 \cdot t_m \cdot d_1$

A_1 = area provided by excess wall in the pipe = $d_2 \cdot (T_h - t_m)$

The mill tolerance on T_h is ignored since UT is available.

Note: d_2 has been set equal to the maximum allowable hole size.

Pipe Size Nominal	t_m (in)	d_1 (in)	d_2 (in)	t_{adj}	Required Reinforce Area, in^2	Excess Pipe Area A_1, in^2
3	0.0200	3.50	1.75	0.0750	0.075	0.096

OK

c) Determination of unreinforced branch connection stresses per ND 3650

Pipe Size Nominal	t_{adj}	R_{madj}	h	t_{adj} SIF	SIF Per Figure NC3672	t_{nom} SLP (psi)	t_{adj} SLP (psi)
3	0.075	1.71	0.044	7.242	2.1	400	1166

Pipe Size Nominal	t_{adj}	R_{madj}	t_{nom} Section Modulus (in^3)	t_{adj} Section Modulus (in^3)
3	0.075	1.71	1.744	0.677

The following table presents both the tnom & t-adj corrected Code stress equations:

Equation	Point Number	tnom Stress (psi)	t-adj Stress (psi)	Allowable Stress (psi)(1)	t-adj Factor of Safety	
8 Sustaine	272 / 275	493	1996	8700	4.36	OK
9 Norm/Up Occasion	272 / 275	811	4822	10440	2.17	OK
10 Thermal	272 / 275	1477	13121	13050	0.99	NO GOOD
11 Sus + Th	272 / 275	1970	15118	21750	1.44	OK
9 Faulted Occasion	272 / 275	1001	6509	20880	3.21	OK

Failure of Eq 10 is acceptable if Eq 11 is met

d) An additional limitation is placed on the through wall portion of the maximum hole size. The through wall portion of the crack may not exceed d/2 or 5 inches.

(1) Based on <1 yr. remaining, f used to determine stress is taken as 1.0.

tm	0.020 in
Additional Predicted Wall Thinning	0.008 in
Minimum Wall Required To Prevent Expansion of the Through Wall Flaw	0.028 in

Measured Through Wall Portion of Flaw	1/8 in	
Maximum Allowed Through Wall Portion of Flaw (lesser of d/2 or 5 inches)	1.750 in	
Predicted Through Wall Portion of Flaw	0.375 in	OK

Note: 1) This value includes a .25 inch tolerance.

- Reference
- 1) S&W Stress Calculation 12179-NP(F)-1913-XD, Rev 5, CCN 7
 - 2) ASME Section III 1971 Edition through the 1973 Summer Addenda
 - 3) ASME Draft Code Case N513 (8/13/92), N597 (3/2/98) and GL 90-05
 - 4) CR M3-00-1210
 - 5) UT data (Attached)
 - 6) DWG. No. CI-SWP-210 Sh. 1-3
 - 7) Spec. SP-ST-Me-947 Rev. 1.
- Ref: Computer Storage: k:\deptdata\raetz\pipeleak\1913fw112-49.xls

2/26/00

Approval Date

ATTACHMENT 3

2/29/00

Effective Date

AR No.	CR Form Initiation	CR No: M3-00-1210
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Section I: To be completed by initiator (please type or print)

Affected Unit(s): 1 <input type="checkbox"/> 2 <input type="checkbox"/> 3 <input checked="" type="checkbox"/> Common <input type="checkbox"/>	Affected System #: 3720A	Component ID: 3LAK-PNLSF2 CKT-11	Source Documents (TR, AWO, Procedure, etc.) NA
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1A. Summarize the condition in a single sentence:
SERVICE WATER LEAK IN 36' ESF CAUSED SHORT CIRCUIT IN LIGHTING FIXTURE PLUG CAUSING CKT-11 OF 3LAK-PNLSF2 TO TRIP.

1B. Describe the condition:

- What happened?
Service water leaking from return header from 3HVQ*ACUS1A.
- Describe any relevant physical conditions, e.g., equipment configuration, environment.
No label on lighting fixture plug. This delayed finding power supply.
- If known, are any regulations or requirements impacted, e.g., codes, tech. specs? If so, specify.

2A. If known, what department created the condition? Na

2B. What process was in use when the condition occurred? Normal operations

2C. What department or organization discovered this condition? U3 Ops

2D. What activity resulted in discovery of this condition and how did this activity result in the discovery?
Smoke detector alarmed on Zone panel 3B zone 11.

Discovery Date: 5/6/2000	Discovery Time: 2112	Method of Discovery (SAP-01 Definitions)	Event
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3A. Immediate corrective action taken prior to CR initiation:

Investigated smoke detector alarm

3B. Actions planned, but not implemented prior to CR initiation:

4. Is this issue a nonconforming condition requiring a Condition Report Engineering Disposition (CRED)? No. Yes. If Yes enter the name and department of the individual performing the disposition.

Name: STEVEN G. PIETRYK

Dept: ENG

5. Recommended corrective action

6. (Optional) What department should investigate the issue? Why?

7. Initiator Requests Follow-up: Yes No

Initiator Name: **Todd Berger**

Time: 2237

Date: 5/6/2000

Phone No.: 6200

Cost Control Center: 836

ATTACHMENT 1 - EXAM DATA SHEET

 <p>Northeast Nuclear Energy</p>	<p>ULTRASONIC EXAMINATION STRAIGHT BEAM MEASUREMENTS</p>
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Plant <u>Millstone</u> Unit <u>3</u>	Page <u>1</u> of <u>1</u>
System & Zone No <u>3326</u>	Exam Data Sheet No. <u>N/A</u>
Component ID <u>Pipe Between FW-49 & FW-112</u>	AWO Number <u>M3-00-08343</u>
Component Description <u>Straight Pipe</u>	Drawing No <u>12179-CI-SWP210 SH.1</u>
Examination Purpose <u>SW Leak</u>	Line No. <u>3-SWP-174-4</u>

Instrument & Settings	
Manufacturer	<u>PANA.</u>
Model No.	<u>26 DL PLUS</u>
Serial No.	<u>92097912</u>
Range	<u>.5"</u>
Velocity	<u>193"/MS</u>
Delay	<u>N/A</u>
Zero Value	<u>255 US</u>
Cal Tolerance	<u>± .005</u>

Calibration Block(s)		
Type	Serial No	Material
<u>STEP BLK.</u>	<u>98-7200</u>	<u>90/10 CUNZ</u>
<u>N/A</u>	<u>N/A</u>	<u>N/A</u>

Component Data	
Component T _{nom}	<u>MCB</u> <u>.219" / .216"</u>
Component Dia.	<u>3"</u>
Attachments	<u>N/A</u>

Calibration Checks		Block Thickness		Instrument Reading	
Type	Time	Min.	Max.	Min.	Max.
Initial	<u>0300</u>	<u>.100"</u>	<u>.400"</u>	<u>.100"</u>	<u>.400"</u>
Intermediate	<u>N</u>	<u>N</u>	<u>N</u>	<u>N</u>	<u>N</u>
Intermediate	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>	<u>A</u>
Final	<u>0330</u>	<u>.100"</u>	<u>.400"</u>	<u>.160"</u>	<u>.400"</u>

Search Unit Data	
Manufacturer	<u>PANA.</u>
Type No.	<u>D798</u>
Serial No.	<u>129404</u>
Frequency	<u>7.5 MHZ</u>
Size	<u>.2"</u>

Couplant Data	
Brand	<u>Soundsafe</u>
Batch No.	<u>99220 A</u>
MRIR/UTC No.	<u>0000396987</u>

Coatings Factor Data	
Surface Painted	<u>N/O</u>
ACT* mils =	<u>N/</u>
ACT X 3 mils =	<u>/A</u>

* Average Coating Thickness

Sketch/Comments Area - Attach Photo(s) of Relevant Conditions Separately

Performed UT Scan of of Pipe and mapped out two low areas. Recorded low readings within these areas. General pipe wall adjacent to these areas is .210" - .222"

Examiner (print & sign) <u>Michael Brebler / Michael Brehler</u>	Level <u>III</u>	Date <u>5/7/00</u>
Reviewer (sign) _____	Level _____	Date _____
ANII if Required (sign) <u>N/A</u>	Date: <u>N/A</u>	

Level of Use Information



- NOTES:
1. Δ POINT
 2. \square POINT
 3. UNLESS OTHERWISE NOTED, ALL POINTS ARE FOR ELEVATION DATA
 4. \bullet INDICATES INFORMATION POINT
 5. \times INDICATES ANCHOR POINT
 6. \rightarrow INDICATES FLOW DIRECTION

NOTES CONTINUED:

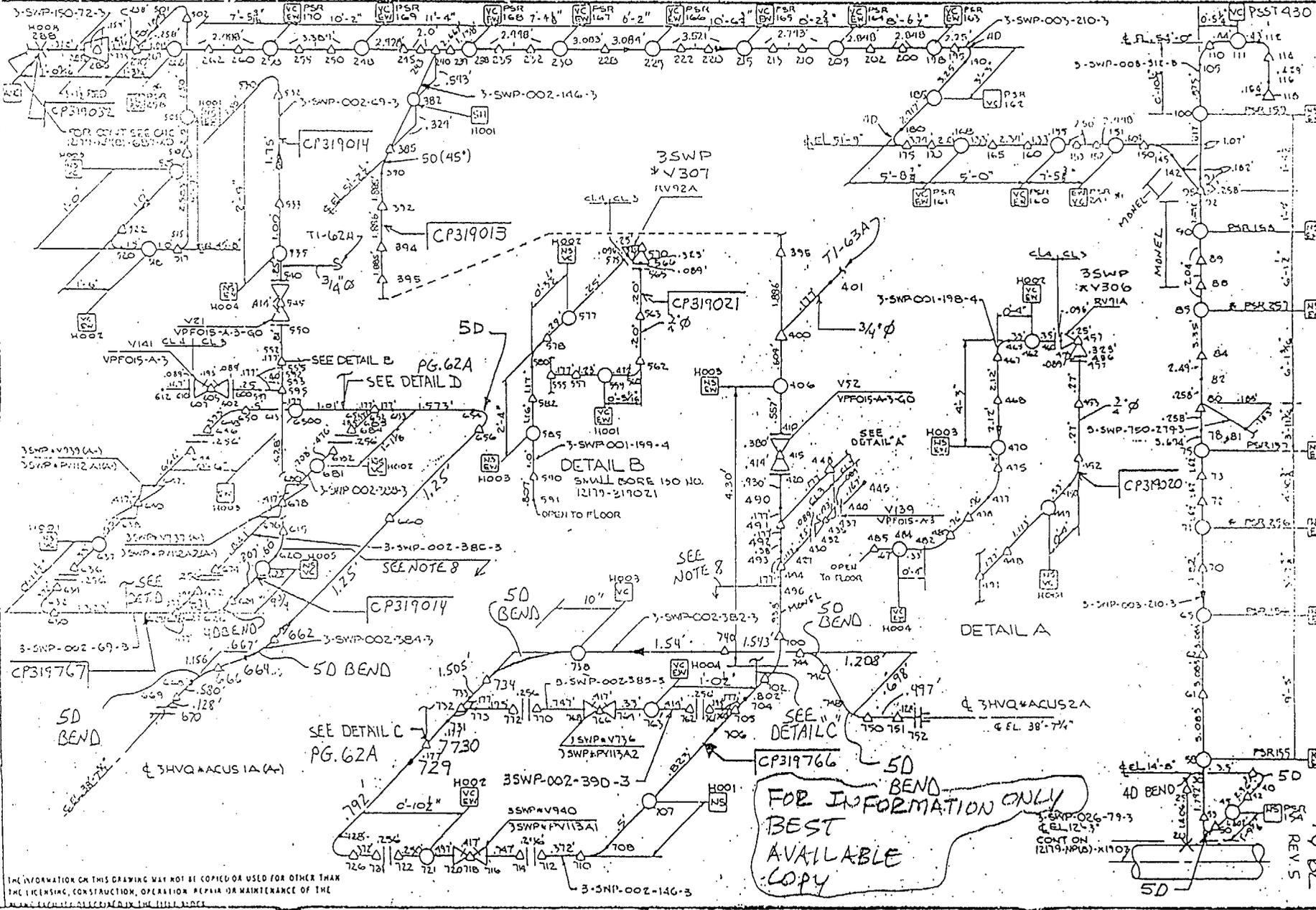
8. ALL PPG. PTS. 620-685; 496-773 AND PG. 62A; 1.5 XS .221 WALL CU-NI
7. LARGE BORE SUPPORTS MARKED WITH * ARE CONTAINED IN BZ 19E, THE REMAINING LARGE BORE SUPPORTS ARE IN BZ-19A.

PIPE STRESS - WORK SKETCH

AX-19 P.

Client: NUSCO MILLSTONE UNIT 3 Location: WATERFORD J.O. No. 121
 System: SERVICE WATER LINES - ESF BLDG

Doc. No.: 12179-NP(F)-X1913 REV 5 OA CATT



THE INFORMATION ON THIS DRAWING MAY NOT BE COPIED OR USED FOR OTHER THAN THE LICENSING, CONSTRUCTION, OPERATION REPAIR OR MAINTENANCE OF THE PROJECT FOR WHICH IT WAS PREPARED BY THE ENGINEER.

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 BEST AVAILABLE COPY

CALC. 12179-NP(F)-X1913 REV. 5 CCN NO. 07 PAGE 02

TECH. DWG. M3-EV-00-0019 REV. 00 ATTACHMENT 5

SHEET 1 OF 1

Safety Evaluation Screen Form [*Comm. 4.1.6]

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Unit MP3 Document No. CREDCR M#-00-1210 Revision No. 0 Change No. N/A

SPG# N/A

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(Attachment 6 Provides Guidance)

A. SUMMARY INFORMATION (Completed by the Preparer)

1. Description of the Proposed Change, Test or Experiment

As identified on CR M3-00-1210 a through wall leak was discovered on Service Water line 3SWP-003-210-3 on pipe piece 56 of isometric dwg. CI-SWP210 on spool 3-SWP-174-4. This leak is on the outlet of the Safety Injection Pump Cooler 3CCI*E1A just prior to where the 3HVQ*ACUS1A outlet line ties into the header. The pipe is 3 inch SB466 NO 706 ANLD SMLS .219 wall pipe. A RECO has been performed and approved to address Operability concerns. The CRED will install a housekeeping clamp on the leak using a rubber like material and necessary clamps for support. The structural integrity of the pipe has been verified by Nuclear Materials Engineering, based on UT readings taken on the pipe.

The leak repair clamp is intended to protect neighboring equipment from potential spray until a permanent repair can be implemented. The clamp is not credited with maintaining either the Service water pressure boundary or structural integrity of the pipe.

B. SCREENING QUESTIONS (Completed by the Preparer)

1. Will implementation of the proposed Change, Test or Experiment require a revision to the Operating License or the Technical Specifications? (If "Yes," complete (a.), go to Section D and sign as Preparer - prior NRC review and approval is required. If "No," complete (b) and go to Question 2.)

Yes (OL or T/S change required) No

a. Reason OL or T/S change required and sections impacted:

b. Reason OL or T/S change not required and sections reviewed:

The structural integrity of the piping has been evaluated by Nuclear Materials Engineering, as being acceptable with the leak. The clamp will protect neighboring equipment from potential spray or water damage. Any leakage detected from the outlet SW piping to the discharge canal, does not affect Service Water System performance or the ability of Service Water to cool Safety Related Equipment. The clamp does not affect seismic requirements of the system due to its weight. This is a Plant Configuration change only. Based on the fact that the repair will return the SW piping to a suitable state, the repair will not require a revision to the Operating License or Tech Specification.

Reviewed TS Section 3/ 4.7.4 Service Water System

2. Is the proposed Change, Test or Experiment fully bounded by the scope of a previously approved Safety Evaluation? (Refer to Section B.2 of Attachment 6 to determine if fully bounded. If

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SPG# N/A

①

"Yes," complete (a.) and (b.), go to Section D and sign as Preparer - a new SE is not required. If "No," go to Question 3.)

Yes (new SE not required) No

a. Identification of previously approved SE:

b. Reason previously approved SE fully bounds proposed activity:

3. Is it obvious that the proposed Change, Test or Experiment requires a Safety Evaluation? (If "Yes," a SE is required - complete (a.), go to Section D and sign as Preparer. If "Not Obvious," go to Question 4. If it is not clear, a SE is required.)

Yes (SE required) Not Obvious

a. Reason SE required:

4. Does the proposed activity meet the criteria of a Non-Intent Change to the Facility or procedures as described in the SAR? (Refer to the guidance in Section B.4 of Attachment 6 to determine if Non-intent. If a Non-intent Change, check "Yes," complete (a.) go to Section D, and sign as Preparer - a SE is not required. If "No," go to Question 5.)

Yes (SE not required) No

a. Reason SE not required and SAR sections reviewed:

5. Will implementation of the proposed activity modify the Facility as described in the SAR? (Per the guidance in Section B.5 of Attachment 6, ensure that you check "Yes" if the proposed activity could directly or indirectly as a result of a system interaction, introduce different failure modes or affect the function or reliability of equipment described in the SAR. If "Yes," complete (a.), go to Section D and sign as Preparer. - a SE is required. If "No," complete (b.) and go to Question 6.)

Yes (SE required) No

a. Reason SE required and SAR sections impacted:

b. Basis for "No" and SAR sections reviewed:

The structural integrity of the piping has been evaluated by Nuclear Materials Engineering, as being acceptable with the leak. The clamp will protect neighboring equipment from potential spray or water damage. Any leakage on the outlet SWP piping to the discharge canal, does not affect Service Water System performance or the ability of Service Water to cool Safety Related Equipment. The clamp does not affect seismic requirements of the system due to its weigh. This is a Plant Configuration change only.

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SPG# N/A

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This change and the administrative DCN associated with it does not affect the heat removal capabilities of the service Water System as described in the FSAR. This is a Plant Configuration change only that will not affect the design basis or any safety functions of the Service Water System.

The intent of the repair is to return the Service water pipe to state that will meet the description in the FSAR and as such does not modify the Facility as described in the FSAR.

Reviewed FSAR Section 9.2.1 Service Water System.

6. Will implementation of the proposed activity modify procedures as described in the SAR?

(Refer to the list of supplemental questions in Section B.6 of Attachment 6 to evaluate the need for a SE. If "Yes," complete (a.), go to Section D and sign as Preparer - a SE is required. If "No," complete (b.) and go to Question 7.)

Yes (SE required) No

a. Reason SE required and SAR sections impacted:

b. Basis for "No" and SAR sections reviewed:

The installation of the damage control/ emergency leak repair clamp is used to protect neighboring equipment from potential spray. The operation of the SW system is not affected by the repairs installation. No operating or Emergency operating procedures are impacted. The clamp is being installed in accordance with NU procedures and programs.

Therefore, installation of a pipe clamp does not modify procedures as described in the FSAR.

Reviewed FSAR section 9.2.1 Service Water System and sections 10.0 and 14.0 of the FSAR.

7. Will implementation of the proposed activity involve a Test or Experiment not described in the SAR? (Refer to the list of examples in Section B.7 of Attachment 6 to determine the need for a SE. If "Yes," complete (a.), go to Section D and sign as Preparer - a SE is required. If "No," complete (b.), go to Section D and sign as Preparer.)

Yes (SE required) No

a. Reason SE required:

b. Basis for "No" and SAR sections reviewed:

The installation of the damage control/ emergency leak repair clamp is used to protect neighboring equipment from potential spray. The operation of the SW system is not affected by the repairs installation. The installation of the clamp does not require any test or experiments to be performed. The scope is limited to a repair

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SPG# N/A

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to the pipe. The installation of the pipe clamp does not involve a test or experiment not described in the FSAR.

Reviewed FSAR section 9.2.1 Service Water System and section 15.0 of the FSAR.

C. SUMMARY (Completed by the Approver)

1. Is a revision to the technical specifications or operating license required? ("Yes, if Question B.1 checked "Yes")
 Yes No
2. Is a Design Engineering Screening Evaluation per the Design Change Manual Required? (Yes, if proposed Change is an Intent Change to the Facility as described in the SAR)
 Yes No Not Applicable
3. Is a new Safety Evaluation required? (Yes, if Question B.1, B.3, B.5, B.6 or B.7 is checked "Yes")
 Yes No
4. Is a FSARCR per RAC 03 necessary? (Yes, if responses to Question B.5 or B.6 indicate proposed activity will cause the FSAR description to be incorrect)
 Yes No Not Applicable
5. Is the proposed activity fully bounded by a previously approved Safety Evaluation? (Yes, if Question B.2 is checked "Yes")
 Yes No
6. Is the Quality Assurance Plan, Emergency Plan or Security Plan affected, requiring an evaluation per RAC 01? (Yes, if response to Question B.5, B.6, or B.7 identifies these portions of the SAR as being affected by the proposed activity)
 Yes No Not Applicable

D. APPROVAL

Preparer: Thomas North Thomas North Date: 5/6/00
Print and Sign

Reviewer: NA Date: _____
(if required) Print and Sign

Approver: Paul G. Atherton Date: 5/7/00
Print and Sign