

COPY

Beach Nuclear Plant
TEMPORARY CHANGE REVIEW AND APPROVAL

Note: Refer to NP 1.2.3, Temporary Procedure Changes, for requirements.

I - INITIATION

Doc Number OP 4F Current Rev 1 Unit PBI Temp Change No. 2004-0471
Document Title Reactor Coolant System Reduced Inventory Requirements and Nozzle Dam Operational Requirements Unit 1
Existing Effective Temporary Changes n/a
Description See PBF-0026c
(If necessary, continue description of changes on PBF-0026c and attach)

Initiate PBF-0026h and include with the change.
Other documents required to be effective concurrently with the temporary change: n/a
Changes pre-screened according to NP 5.1.8? NO YES (Provide documentation according to NP 5.1.8)
Screening completed according to NP 5.1.8? NA YES (Attach copy)
Safety Evaluation Required? NO YES (If Yes, a revision may be processed or final reviews and approvals shall be obtained before implementing)

Determine if the change constitutes a Change Of Intent to the procedure by evaluating the following questions.
(If any answers are YES, a revision may be processed or final reviews and approvals shall be obtained before implementing)

Will the proposed change:	YES	NO
1. Require a change to, affect or invalidate a requirement, commitment, evaluation or description in the Current or ISFSI Licensing Basis (as defined in NP 5.1.8 and NP 5.1.7)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Cause an increase in magnitude, significance or impact such that a rev. should be processed?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Delete or modify a prerequisite, initial condition, precaution, limitation or other steps that could have safety significance or affect the procedure's margin of safety?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Delete QC hold points, Independent Verification or Concurrent Check steps without the related step(s) that require the performance also being deleted?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Change Tech Spec or other regulatory acceptance criteria other than for re-baselining?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Require a change to the procedure Purpose or change the procedure classification?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

Initiated By (print/sign) Ross Groehler / Ross JA Groehler Date 05/14/2004

II - INITIAL APPROVAL

Group Supervisor Thomas Adams / Thomas Adams Date 5/14/04
(Cannot be the Initiator) This change is correct and complete, can be performed as written, and does not adversely affect personnel or nuclear safety, or Plant operating conditions.
Senior Reactor Operator (print/sign) Rick Merkes / Rick Merkes Date 05/16/04
(Cannot be the Initiator or Group Supervisor) This change does not adversely affect Plant operating conditions. (Safety Related procedures only)

III - PROCEDURE OWNER REVIEW

Permanent One-time Use Expiration Date, Event or Condition: _____
Training review recommended per NP 1.2.3? NO YES (If Yes, RFT Number per NP 1.2.3 RFT13241)
 Hold change until procedure completed (final review and approval still required within 14 days of initial approval)
QC review required according to NP 1.2.3/NP 8.4.1? NA YES (If yes, QC Signature) _____
 QR/PORC Review NOT Required (Admin/NNSR only) QR Review Required PORC Review Required (Reference NP 1.6.5)
Procedure Owner (print/sign) Rick Merkes / Rick Merkes Date 05/16/04
This Change and supporting requirements correctly completed and processed.

IV - FINAL REVIEW AND APPROVAL

(Must be completed within 14 days of initial approval) (The Initiator, QR and Approval Authority shall be independent from each other)
OR/PORC Tom Stora / Tom Stora Date 5/18/04 PORC Meeting 2004-040
Indicates 50.59/72.48 applicability assessed, any necessary screenings/evaluations performed, determination made as to whether additional cross-disciplinary review required, and if required, performed.
Approval Authority (print/sign) Mike Miller / Mike Miller Date 5/18/04

V - REVISION INFORMATION FOR PERMANENT CHANGES

Post Typing Review (print/sign) _____ Date 5-9-04
Indicates temporary change(s) incorporated exactly as approved and no other changes made to document.
Incorporated into Revision Number _____ Effective Date _____

Point Beach Nuclear Plant
DOCUMENT REVIEW AND APPROVAL CONTINUATION

Doc Number OP 4F Revision 1 Unit PBI
 Title Reactor Coolant System Reduced Inventory Requirements and Nozzle Dam Operational Requirements Unit 1
 Temporary Change Number 2004-0471

Description of Changes:	
Step *	Change/Reason
TOC	Added Table Of Contents.
3.10	Removed reference to OI 163, SI, RIIR and CS Pump Runs, and Venting SI Pump Casings. Feedback from Operator JITT (Just in Time Training) expressed concern that if SI pumps were vented by another procedure such as OI-128, SI system Fill and Vent Unit 1, they could not sign off Step. Prescreened to Criteria 1 Editorial Change.
3.11	Added "During Reduced inventory" Clarification as to when P&L applies. Prescreened to Criteria 1 Editorial Change.
3.14	Added Equipment identifiers associated with equipment description. Prescreened to Criteria 1 Editorial Change.
4.1.1	Added step to ensure this procedure was intended to be used for this refueling outage. This action is being taken to address concerns associated with nozzle dam guidance being contained in a procedure for reduced inventory. This guidance had to be placed in this OP 4F because PBNP does not have a nozzle dam procedure. CAP056574. Prescreened to Criteria 1 Editorial Change.
4.1.5	Added " Ensure high alarms for each thermocouple set at 135 and 195 degrees Fahrenheit" Prescreened to criteria 6.
4.1.6	Modified the initial condition as follows deleted "review the" and added "are met for entering reduced inventory". Clarification of what is expected by Figure 1. Prescreened to Criteria 1 Editorial Change.
4.1.11	Added initial condition for one narrow range RVLIS instrument available. This was an existing precaution and limitation that was worded as an initial condition. Prescreened as Criteria 1 Editorial.
4.2, 4.2.1	deleted step associated with initial conditions for installing the last nozzle dam. CAP 056605 Feedback from Operator JITT (Just in Time Training) expressed concern over how to sign off step if just in reduced inventory and not installing nozzle dams. Step deletion will allow procedure to be completed without confusion associated over how to sign off. Prescreened to Criteria 6 Maintenance activity.
5.1.2.a., b., c.	Added Equipment identifiers to equipment description. Prescreened to Criteria 1 Editorial change.
5.1.5	Removed reference to TS 3.4.7. Mode 5 RCS Loops Filled. CAP 056605 Feedback from Operator JITT (Just in Time Training) wondered how this tech spec applied if current guidance in OP 4D part 1 state that tubes will be burped if intry into Reduced inventory is desired. Prescreened to criteria 4. OP 4D Part 1
5.1.8	Added unit designator and equipment descriptors for SW-144 and SW-176. CAP 056605 Feedback from Operator JITT (Just in Time Training) requested that this be added to procedure. Prescreen to criteria 1 Editorial change.

Other Comments

Point Beach Nuclear Plant
DOCUMENT REVIEW AND APPROVAL CONTINUATION

Page 3 of 5

Doc Number	<u>OP 4F</u>	Revision	<u>1</u>	Unit	<u>PB1</u>
Title	<u>Reactor Coolant System Reduced Inventory Requirements and Nozzle Dam Operational Requirements Unit I</u>				
Temporary Change Number	<u>2004-0471</u>				
5.1.9.a	Deleted "May have other duties assigned by shift manager" This concern was addressed because Dedicated operator usage was not applicable and Shift management wanted discretion to use the control operator for other duties (not to interfere with monitoring RCS inventory and RHR operations). Without this guidance there will be questions associated with using assigned CO to perform any duties beyond monitoring the above mentioned tasks. Prescreened to Criteria 1 Editorial Change.				
5.1.9.c	Added "OR a member of the Fire Brigade" to statement which described the responsibilities of the Auxiliary Operator in regards to OP 4F. Prescreen to criteria 1 editorial change				
Note prior to 5.1.12	Added informational note associated with nozzle dam installation. note is to let operator know that procedure may be continued. Prescreen to criteria 1 Editorial change.				
5.1.12	Added step to initiate new attachment D. Shiftly reduced inventory checks. Step is to ensure requirements exist while in reduced inventory. Prescreen to criteria 6.				
5.2	Reworded high level step. Step will now control nozzle dam installation requirements. No longer will these requirements be initiated before the last nozzle dam is installed. They will be initiated before nozzle dams are installed. This will ensure hot leg vent path exists before any nozzle dam is installed. Previous to this we allowed the vent paths to be the S/G primary manways and controlled the logic to installing the nozzle dams. This change will prevent this logic path from being used and will require a vent be available prior to installing nozzle dams. Prescreen to criteria 6.				
5.2.3.a, 5.2.3.b, 5.3.1.c bullets, 5.3.2.b. bullets	Added equipment name to valves. Prescreened to criteria 1 editorial.				
5.3, 5.3.1	Reworded high level step to ensure section is more clearly defined. Also reformatted step to flow with Reactor Vessel head on. editorial in nature no change to intent. Prescreened to criteria 1.				
5.3.6	Added step to initiate Attachment E, Shiftly Nozzle Dam Checks. These checks are formatted after like checks in RP-1C refueling procedure. Prescreened to Criteria 6				
Note prior to step 5.4	Added P&L from OI-11 associated with nozzle dams air leakage. This note has been added as an informational note to ensure operations is aware of this potential. The potential for air leakage into Cold Leg could be such that up to 305 gallons could be needed for reflood. Prescreen to criteria 1 Editorial change.				
5.4	Reworded high level step. Prescreened to criteria 1 editorial				
5.4.1, 5.4.1.a, 5.4.1.b	Reformatted step to allow protected signage to be removed prior to getting to exact level for removal. this will give a heads up to remove the signs since there are a lot of them. Prescreen to criteria 6.				
5.5.3 bullets	Added Unit designators to SW valves. Prescreened to criteria 1 Editorial.				

Other Comments

* Note Recording of Step Numbers is not required for multiple occurrences of identical information or when not beneficial to reviewers.

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Doc Number OP 4F Revision 1 Unit PBI
 Title Reactor Coolant System Reduced Inventory Requirements and Nozzle Dam Operational Requirements Unit 1
 Temporary Change Number 2004-0471

Figure 1	<ol style="list-style-type: none"> 1. Added informational note stating that figure 1 is not appropriate for nozzle dams requirements. CAP 056605 Feedback from Operator JITT (Just in Time Training) requested that this be addressed in procedure. Nozzle dam usage requires a hot leg vent path and these requirements are delineated in P&L 3.19 Nozzle Dams. Prescreened to Criteria 1 Editorial Change 2. Added Figure 1 title to 2 nd page of figure 1. Prescreened to Criteria 1 Editorial Change 3. Revised figure to include entry point and arrows for movement through diagram. 4. Added more information on containment closure requirements to allow entry into reduced inventory. Prescreen to criteria 6.
Attachment A, Attachment B	Revised note. Note was aligned with exact verbiage of NP 10.3.6. Prescreen to criteria 4.
Attachment D	Created new attachment D. Shiftly Reduced Inventory Checks. This attachment incorporates required checks to maintain required conditions necessary for reduced inventory. Prescreen to criteria 6.
Attachment E	Created new attachment E, Shiftly Nozzle Dam Checks. This attachment incorporates required checks to maintain required conditions necessary for nozzle dam installation with head on or head off. Prescreen to criteria 6.
5.2.8	Changed title of step. This changed because step 5.3 wording change. prescreened to criteria 1 Editorial

Other Comments

TEMPORARY CHANGE AFFECTED MANUAL LOCATION

Procedure Number OP 4F Revision _____ Unit _____
 Title Reactor Coolant System Reduced Inventory Requirements and Nozzle Dam Operational Requirements
Unit 1
 Temporary Change Number 2004-0471

I - IMMEDIATELY AFTER INITIAL APPROVAL ON PBF-0026e (Non-Intent changes)
 (after Final Approval if change of intent involved)

This procedure change has been processed as follows: (Manual/Location)	Date Performed
<input type="checkbox"/> Copy included in work package for field implementation. (WO No. _____)	
<input type="checkbox"/> Sign offs for completed work and QC stamps included/transferred in work package or procedure for field implementation. (WO No. _____)	
<input checked="" type="checkbox"/> Copy filed in Control Room temp change binder (Operations only).	5-18-04
<input checked="" type="checkbox"/> Original change package provided to <u>K. Meikes</u> to obtain Procedure Owner Review (e.g., Owner review may be coordinated by In-Group OA II, Procedure Writer, Procedure Supervisor, etc.).	5-16-04
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
Performed By (print and sign) <u>Carl Schneider</u> <u>Carl Schneider</u> Date <u>5-18-04</u>	

II - PROCEDURE OWNER REVIEW ON PBF-0026e
 (may be performed by OA II, Procedure Writer, etc.)

This procedure change has been processed as follows: (Manual/Location)	Date Performed
<input checked="" type="checkbox"/> Copy of permanent changes to Operations procedures forwarded to Emergency Planning and Simulator Training within the next normal working day after initial approval.	5-18-04
<input checked="" type="checkbox"/> Copy sent to Document Control Distribution Lead for Master File. (Not required for one-time use change)	5-18-04
<input type="checkbox"/> Copy filed in Group satellite file. (Not required for one-time use changes.)	
<input type="checkbox"/> Copy filed in Group one-time use file.	
<input checked="" type="checkbox"/> Original Temp Change provided to <u>Point Beach 2004-040</u> <u>J. Shaw</u> to obtain Final Approvals (e.g., final approval may be coordinated by In-Group OA II, Procedure Writer, Procedure Supervisor, etc.)	5-18-04
<input checked="" type="checkbox"/> <u>Unit 2</u>	5-18-04
<input checked="" type="checkbox"/> <u>PAB + OPS Shop</u>	↓
<input checked="" type="checkbox"/> <u>OPS Office</u>	↓
Performed By (print and sign) <u>Carl Schneider</u> <u>Carl Schneider</u> Date <u>5-18-04</u>	

Point Beach Nuclear Plant
10 CFR 50.59/72.48 PRE-SCREENING REVIEW

Brief Activity Title or Description: <u>TCN 2004-0471 to OP 4F, Reactor Coolant System Reduced Inventory Requirements and Nozzle Dam Operational Requirements Unit 1</u>	
This form is required to be completed and attached to the applicable activity change forms (i.e., PBF-0026a/c, etc.) to document use of Pre-screening Criterion 3 through 6 for 10 CFR 50.59 / 72.48 review of proposed changes (see NP 5.1.8, 10 CFR 50.59/72.48 Applicability, Screening and Evaluation (New Rule) Section 4.6 and Attachment A.)	
Pre-screening Criterion 3 - Activity Covered by Existing 10 CFR 50.59 / 72.48 Screening or Evaluation	
Criterion 3 is <input checked="" type="checkbox"/> Not Applicable to the proposed activity.	
Identify the screening or evaluation number(s) (SE for old 50.59/72.48 rule evaluations, EVAL for new rule evaluations): SCR / SE / EVAL #(s): <u>SPEED # (NP 9.3.3, Rev. 3 or later ONLY):</u>	
If applicable, briefly summarize the parts of the proposed activity that are covered by Pre-screening Criterion 3.	
VERIFY THAT <u>ALL</u> OF THE FOLLOWING ARE TRUE FOR CHANGES THAT ARE PRE-SCREENED TO CRITERION 3:	Verified
The current licensing basis has been searched. The licensing basis <u>APPLICABLE</u> to the activity <u>AND</u> to the affected systems, structures or components has <u>NOT</u> changed since the screening or evaluation was completed.	<input type="checkbox"/>
The screening or evaluation has <u>NOT</u> been cancelled <u>OR</u> superceded by another screening or evaluation (i.e., either via a revision to the original screening or evaluation, or completion of a new screening or evaluation).	<input type="checkbox"/>
The referenced screening or evaluation was completed <u>AFTER</u> December 1, 2001, <u>OR</u> the proposed activity does not involve a Method of Evaluation (see NMC 50.59 Resource Manual Section 3.10 for definition) <u>AND</u> does not involve a Design Basis Limit for a Fission Product Barrier (see NP 5.1.8, Attachment E for list).	<input type="checkbox"/>
Pre-screening Criterion 4 - Activity Covered by Existing Approved and Valid Plant Procedure	
Criterion 4 is <input type="checkbox"/> Not Applicable to the proposed activity.	
Identify the applicable plant procedure. Procedure number, revision and title: <u>OP 4D Part 1 rev 63, Part 1 Draining the Reactor Coolant System., NP 10.3.6, rev.11 Outage safety review and assessment.</u>	
If applicable, briefly summarize the parts of the proposed activity that are covered by Pre-screening Criterion 4. <u>OP 4D Part 1</u> <u>Removed TS 3.4.7 from 5.1.3. To enter OP 4F S/G Tubes must be drained, therefore loops filled TS can not be applicable.</u> <u>NP 10.3.6</u> <u>Verbiage on Attachment A and B were changed to match verbiage on NP 10.3.6 associated with work on protected equipment.</u>	
Pre-screening Criterion 5 - NRC has Reviewed and Approved the Activity.	
Criterion 5 is <input checked="" type="checkbox"/> Not Applicable to the proposed activity.	
Identify the NRC Safety Evaluation Report Number and/or Date. NRC SER(s) # or Date(s):	

Point Beach Nuclear Plant
10 CFR 50.59/72.48 PRE-SCREENING REVIEW

If applicable, briefly summarize the parts of the proposed activity that are covered by Pre-screening Criterion 5.

Pre-screening Criterion 6 – Maintenance Activity (NOTE: Dry cask or ISFSI facility maintenance CANNOT use this criterion. A screening is required for dry cask or ISFSI facility maintenance.)

Criterion 6 is Not Applicable to the proposed activity.

If applicable, briefly summarize the parts of the proposed activity that are covered by Pre-screening Criterion 6.

Installing nozzle dams are a maintenance function associated with S/G inspections. Added steps to ensure Thermocouple alarms are properly set. This will ensure alarm function to support reduced inventory operation. Revised step associated with nozzle dam installation. Previous step wanted requirements prior to installing the last hot leg nozzle dam. With this change we are going to institute these requirements prior to installing any nozzle dams.

Step associated with removal of protected equipment signage was moved ahead to allow signage to be removed earlier.

Figure 1 was enhanced to better describe flow paths to allow reduced inventory conditions. This enhancement included better descriptions of containment closure and a start box.

Created two new attachments to allow for better monitoring of requirements need for reduced inventory and for Nozzle Dam installation. These are formatted after RP-1C, refueling checks.

VERIFY THAT <u>NONE</u> OF THE FOLLOWING CHANGES ARE PRE-SCREENED TO CRITERION 6:	Verified
No changes to structure, system or component design, performance, acceptance criteria, types of materials, torque values outside of vendor recommended values, etc. (NOTE: Use Criterion 3 for SPEEDs.)	<input checked="" type="checkbox"/>
No temporary alterations to support maintenance or modification installation will be in place longer than 90 days. (If there is any doubt whether the temporary alteration will be removed in 90 days, perform a screening.)	<input checked="" type="checkbox"/>
No changes in acceptance criteria in technical specification surveillance or post-maintenance test procedures.	<input checked="" type="checkbox"/>

10 CFR 50.59/72.48 PRE-SCREENING REVIEW CONCLUSION

Preparer and Reviewer signatures below signify that the portions of the proposed activity as described above are within the scope of Prescreening Criteria 3, 4, 5, or 6 of NP 5.1.8.

EITHER preparer OR reviewer shall be 50.59/72.48 screening or evaluation qualified.

Performed By Ross Groehler / *Ross Groehler* Date 05/16/04
 Name (Print) Signature

Reviewed By Rick McKes / *Rick McKes* Date 05/16/04
 Name (Print) Signature

OP 4F

REACTOR COOLANT SYSTEM
REDUCED INVENTORY
REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS
UNIT 1

DOCUMENT TYPE: Technical

CLASSIFICATION: Safety Related

REVISION: 1

EFFECTIVE DATE: May 10, 2004

REVIEWER: Plant Operation's Review Committee

APPROVAL AUTHORITY: Department Manager

PROCEDURE OWNER (title): Group Head

OWNER GROUP: Operations

Verified Current Copy: _____
Signature Date Time

List pages used for Partial Performance

Controlling Work Document Numbers

Completed Procedure Review:

Shift Supervision (Print)

Shift Supervision (Sign)

Date

Time

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

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TCN 2004-0471

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

1.0 PURPOSE

- 1.1 Define the reduced inventory condition of the Reactor Coolant System.
- 1.2 Define the various analyzed Reactor Coolant conditions possible when at reduced inventory.
- 1.3 Define the methods of makeup to the reactor core available when in each of the analyzed conditions of reduced inventory operation.
- 1.4 Provide directions for meeting various system requirements prior to entering a reduced inventory condition.
- 1.5 Provide plant operational requirements for installing and removing nozzle dams as specified in Generic Letter 88-17. (B-4)
- 1.6 Provide plant operational requirements when nozzle dams are installed.

2.0 PREREQUISITES

None

3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 Reduced inventory condition of the Reactor Coolant System is defined as Reactor Vessel level less than 55% as indicated on 1LI-447/447A. This level is approximately 3 feet below the Reactor Vessel flange.
- 3.2 Do NOT pump water from the CVCS Holdup Tanks until RCS draining has been completed.
- 3.3 The drain rate from the RCS shall be controlled to assure orderly level reduction. IF any doubts about level indication exist, THEN draining shall be stopped.
- 3.4 Since the inventory of reactor coolant is less than normal while in reduced inventory, boiling can occur in a very short amount of time (minutes). RHR flow for core heat removal shall be maintained at all times except when switching trains (which should be avoided if possible) as allowed by T.S. 3.4.8 RCS Loops-MODE 5, Loops not filled.
- 3.5 IF a loss of all AC power occurs while performing this procedure, THEN the actions of SEP-3.0, Loss of All AC Power to a Shutdown Unit, shall be performed.

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

- 3.6 IF a malfunction of the RIIR system occurs while performing this procedure, THEN the actions of SEP-1, Degraded RIIR System Capability, shall be performed.
- 3.7 RCS level indication may NOT be accurate in the event of a loss of decay heat removal while a large vent opening in the Pressurizer exists and the Steam Generator nozzle dams are installed.
- 3.8 IF the manway covers on the Steam Generators (primary side) are removed AND the nozzle dams are NOT installed, THEN extreme care shall be taken to prevent primary coolant from spilling out of the Steam Generator manways.
- 3.9 Other plant activities that may impact this evolution shall be suspended for the duration of reduced inventory operation.
- 3.10 The SI pumps shall be vented prior to operation, ~~per OI-163, SI, RHR and CS Pump Runs, and Venting SI Pump Casings if:~~
- 3.10.1 The RWST level has dropped below six (6) percent, OR
- 3.10.2 The SI System has undergone maintenance such that a portion of the suction piping to the pump(s) has been drained.
- 3.11 During Reduced Inventory, operations shall NOT be permitted that will cause perturbations to the RCS and/or to systems that are necessary to maintain the RCS in a stable and controlled condition. Items to be considered include (but are not limited to):
- 3.11.1 Potential leakage past primary system isolation valves
- 3.11.2 Removal of RCS or RHR monitoring equipment from service
- 3.11.3 Availability of Component Cooling Water and Service Water
- 3.11.4 Reliability of Safeguard pumps' power supplies
- 3.11.5 Large increase in Auxiliary Feedwater to the Steam Generators
- 3.12 The unit shall be in a stable condition (no RCS draining in progress) prior to turnover to the next shift.
- 3.13 When in reduced inventory, there shall be at least 2 available or operable means of adding inventory to the reactor coolant system in addition to the RHR system. One system shall be a SI pump available for upper plenum injection. The other shall be a Charging pump with suction from the RWST, OR the Refueling Water Circ pump with a suction from the RWST, OR one Spent Fuel Pool pump.

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REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

7EN 2004-0471

- 3.14 When in reduced inventory at least one Narrow Range RVLIS instrument shall remain available. (LI-496 or LI-497, R-1 RV Narrow Range Level Indicator)
- 3.15 RCS Loops-Mode 5, Loops Not Filled
 - 3.15.1 TS 3.4.8; Two Residual Heat Removal (RHR) loops shall be OPERABLE and one RHR loop shall be in operation:
 - 3.15.2 All RHR pumps may be NOT in operation for less than or equal to 15 minutes when switching from one loop to another provided:
 - a. The Core outlet temperature is maintained greater than 10°F below saturation temperature.
 - b. No operations are permitted that would cause reduction of the RCS boron concentration.
 - c. No draining operations to further reduce the RCS water volume are permitted.
 - 3.15.3 One RHR loop may be inoperable for less than or equal to two hours for surveillance testing provided that the other RHR loop is OPERABLE and in operation.

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

3.16 Low Temperature Overpressure Protection (LTOP) System

Applicability: Mode 4 when any RCS Cold Leg temperature is less than or equal to the LTOP enabling temperature (270°F) specified in the PTLR,
Mode 5,
Mode 6 when the Reactor Vessel Head is on.

3.16.1 TS 3.4.12; An LTOP System shall be OPERABLE with:

- a. A maximum of one Safety Injection (SI) pump capable of injecting into the RCS;
- The inoperable SI pump shall have its associated 4160 volt breaker racked out (Admin control),

OR

- Its discharge valve SHUT with operator power removed, its discharge cross-connect SHUT, AND the pump control switch in PULLOUT (Admin control)
- b. Each Accumulator isolated, whose pressure is greater than or equal to the maximum RCS pressure for the existing RCS cold leg temperature allowed by the P/T limit curves provided in the PTLR (TRM 2.2, Figures 1 and 2), and
- c. One of the following pressure relief capabilities:
- Two power operated relief valves with lift settings within the limits specified in the PTLR, or
 - The RCS depressurized and an RCS vent path with venting capability equivalent to or greater than a PORV.

3.17 Shutdown Margin (SDM); Applicability: Modes 4 and 5

- TS 3.1.1; TRM 2.1 (COLR); Shutdown Margin (SDM) shall be greater than or equal to 1% $\Delta K/K$.

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

3.18 Boron Dilution Alarm: Applicability: MODE 5

3.18.1 TS 3.3.6; Boron Dilution Alarm shall be OPERABLE.

- **IF** the Boron Dilution Alarm becomes inoperable in Mode 5.
THEN the unborated water source valve(s) must be closed within one hour. TS 3.3.6, Condition A, Required Action A.1.

NOTE: P&L 3.19 applies only when nozzle dams are installed.

3.19 Nozzle Dams (B-4)

3.19.1 Cold leg nozzle dams shall be installed prior to installing the last hot leg nozzle dam.

3.19.2 One hot leg nozzle dam shall be removed prior to any cold leg nozzle dam.

3.19.3 To prevent nozzle dam blowout, an adequate hot leg vent path must be established and maintained. Acceptable hot leg vent paths for nozzle dam installation are:

- a. The Reactor Vessel head raised to greater than or equal to 1 inch above the Reactor Vessel flange is acceptable.
- b. The Pressurizer manway opening is acceptable if the Reactor has been shut down for greater than or equal to 110 hours.
- c. Both Pressurizer code safeties removed is acceptable if the Reactor has been shut down for greater than or equal to 240 hours.

NOTE: A SI pump control switch may be removed from PULLOUT and the discharge valve opened for approved testing (e.g., IT 760), provided the Reactor Vessel head is removed. A SI pump control switch may also be removed from PULLOUT and the discharge valve opened if directed by an approved Shutdown Emergency Procedure (SEP).

3.19.4 To prevent nozzle dam blowout, BOTH SI pumps control switches shall be in PULLOUT **AND** associated discharge valves (1SI-866A and 1SI-866B) SHUT.

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

INITIALS

4.0 INITIAL CONDITIONS

NOTE: Section 4.1 does not apply if the reactor is defueled.

4.1 Initial Conditions for Entering Reduced Inventory (Section 5.1)

- 4.1.1 U1R28 in progress. _____
- 4.1.2 Unit 1 is in Mode 5 or Mode 6. _____
- 4.1.3 The Reactor Vessel upper internals are installed. _____
- 4.1.4 The Reactor Vessel upper head is in place. _____
- 4.1.5 At least two Core Exit Thermocouples are connected AND functional with readouts on the PPCS. _____
 - Ensure high alarms for each thermocouple set at 135 and 195 degrees Fahrenheit. _____
- 4.1.6 Review the Conditions and limitations of the RCS are met for entering reduced inventory as defined in Figure 1. _____
- 4.1.7 Two Residual Heat Removal (RHR) loops shall be operable and one RHR loop shall be in operation. _____
- 4.1.8 Post signage for protected equipment, per Attachment A, Protected Equipment for Unit 1 in Reduced Inventory. _____

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OPERATIONAL REQUIREMENTS UNIT 1

INITIALS

NOTE: Actual assignment of the additional personnel listed below will be directed by the procedure.

4.1.9 Notify Ops Planners and I&C Supervision of the following additional personnel support requirements while in Reduced Inventory:

- a. One (1) Control Operator shall be assigned for monitoring RCS inventory and decay heat removal operations.
- b. One (1) I&C technician shall be available to support venting of LT-447/447A and to assist Operations personnel with other reduced inventory instrumentation (e.g., RHR flow).
- c. One (1) Auxiliary Operator shall be available to monitor RHR pump operation.

4.1.10 RWST level is greater than 40%.

4.1.11 At least one Narrow Range RVLIS instrument available. (LI-496 or LI-497, R-1 RV Narrow Range Level Indicator.)

4.2 Initial Conditions for Installing the Last Nozzle Dam (Section 5.2)

4.2.1 ~~OP 4F, Section 5.1 is completed if required.~~

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OPERATIONAL REQUIREMENTS UNIT 1

INITIALS

5.0 PROCEDURE

CAUTION

When any RCS cold leg temperature is less than or equal to the LTOP enabling temperature (270°F) specified in the PTLR, only one Safety Injection Pump may be OPERABLE whenever the Reactor Vessel Head is on. TS 3.4.12

CAUTION

IF a malfunction of the RHR system occurs while performing this procedure, THEN the actions of SEP-1, Degraded RHR System Capability, shall be performed.

NOTE: Section 5.1 does not apply if the reactor is defueled.

5.1 Entering Reduced Inventory Conditions:

5.1.1 Align one Safety Injection Pump for Upper Plenum Injection, by performing Substep A OR B:

a. IF 1P-15A is the pump selected for Upper Plenum Injection, THEN ensure:

- (1) 1P-15A control switch on C-01 is in PULLOUT.
- (2) 1P-15B breaker 1A52-85 on 1A-06 is tagged in the Racked Out position.
- (3) 1P-15A breaker 1A52-59 on 1A-05 is Racked In.
- (4) 1SI-829D, Safety Injection Test Line Isolation, is LOCKED SHUT.

REACTOR COOLANT SYSTEM REDUCED
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INITIALS

NOTE: The remaining substeps of Step 5.1.1.a may be performed in any order.

(5) OPEN 1SI-829A, P-15A/B SI Pump Discharge Crossconnect. _____

(6) OPEN 1SI-829B, P-15A/B SI Pump Discharge Crossconnect. _____

(7) 1SI-888A, P-15A SI Pump Discharge, is LOCKED OPEN. _____

(8) Ensure a SI pump recirc flow path exists as follows:

- Ensure LOCKED OPEN, 1SI-876A, P-15A SI Pump Discharge Recirc To SI Test Line. _____

- Ensure OPEN with Air Off and Vented, 1SI-897A, SI Test Line Return. _____

- Ensure OPEN with Air Off and Vented, 1SI-897B, SI Test Line Return Second Off Isolation. _____

(9) SHUT 1SI-878E, P-15B SI Pump Loop A Injection. _____

(10) SHUT 1SI-878F, P-15B SI Pump Loop B Injection. _____

NOTE: Core deluge flow is always through 1P-15B discharge valve 1SI-866B regardless of which Safety Injection Pump is being used.

(11) 1SI-866B, Core Deluge Injection Line Isolation, is SHUT but OPERABLE. _____

(12) Suction from the RWST is available to 1P-15A. _____

(13) SHUT 1SI-878B, P-15A SI Pump Loop B Injection. _____

(14) SHUT 1SI-878D, P-15A SI Pump Loop A Injection _____

REACTOR COOLANT SYSTEM REDUCED
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INITIALS

(15) At least one Upper Plenum Injection valve is OPERABLE: (Mark valve NOT used N/A, if applicable)

- 1SI-878A, P-15B SI Pump R-1 Reactor Vessel Injection _____
- 1SI-878C, P-15B SI Pump R-1 Reactor Vessel Injection _____

b. **IF** 1P-15B is the pump selected for Upper Plenum Injection,
THEN ensure:

(1) 1P-15B control switch on C-01 is in PULLOUT. _____

(2) Either of the following conditions is met:

(a) 1P-15A breaker 1A52-59 on 1A-05 is tagged in the Racked Out position, _____

OR

(b) The following three (3) conditions are met:

(1) 1SI-866A, Cold Leg Injection Line Isolation, is tagged SHUT with power removed, _____

(2) 1SI-829A **OR** 1SI-829B, is tagged SHUT _____

(3) 1P-15A control switch is in PULLOUT. _____

(3) 1P-15B breaker 1A52-85 on 1A-06 is Racked In. _____

NOTE: The remaining substeps in Step 5.1.2.b may be performed in any order.

(4) 1SI-866B, Core Deluge Injection Line Isolation, is SHUT but OPERABLE. _____

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INITIALS

- (5) Suction from the RWST is available to 1P-15B. _____
- (6) SHUT 1SI-878E, P-15B SI Pump Loop A Injection. _____
- (7) SHUT 1SI-878F, P-15B SI Pump Loop B Injection. _____
- (8) 1SI-888B, P-15B SI Pump Discharge. is LOCKED OPEN. _____
- (9) Ensure a SI pump recirc flow path exists as follows:
 - Ensure LOCKED OPEN, 1SI-876B, P-15B SI Pump Discharge Recirc To SI Test Line. _____
 - Ensure OPEN with AIR OFF AND Vented, 1SI-897A, SI Test Line Return. _____
 - Ensure OPEN with AIR OFF AND Vented, 1SI-897B, SI Test Line Return Second Off Isolation. _____
- (10) At least one Upper Plenum Injection valve is operable: (Mark valve NOT used N/A, if applicable)
 - 1SI-878A, P-15B SI Pump R-1 Reactor Vessel Injection _____
 - 1SI-878C, P-15B SI Pump R-1 Reactor Vessel Injection _____

5.1.2 Ensure at least one of the following sources of makeup water to the Reactor Coolant System is available: (Mark unavailable source(s) N/A)

- a. P-33, Refueling Water Circ Pump, with a suction available from the RWST. _____
- b. One Spent Fuel Pool Cooling Pump (P-12A or P-12B). _____
- c. One Charging Pump (1P-2A, B, C) with a suction available from the RWST. _____

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INITIALS

5.1.3 Two RHR Loops are OPERABLE per the applicable TS 3.4.7
or 3.4.8.

5.1.4 The Equipment Hatch is installed.

5.1.5 The Transfer Tube Gate Valve is tagged SHUT.

NOTE: If the upper airlock inner personnel access door is to be placed in a condition where it cannot be closed, (for example, Maintenance on the door), then the mono-rail cannot be installed because the outer personnel access door cannot be closed with the mono-rail installed. However, if the mono-rail is to be installed into the upper airlock, then no other activity can be performed which would prevent the upper airlock inner personnel access door from being closed. This does not pertain to the hatch flange protectors.

5.1.6 At least one door of the 66 foot Personnel Access Hatch is capable of being closed.

a. The inner door is operable,

OR

b. The mono-rail is NOT installed,
AND the outer door is operable

5.1.7 At least one door of the 26 foot Personnel Access Hatch is capable of being closed.

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

INITIALS

5.1.8 Ensure at least one Containment Accident Fan Cooler Unit is available for immediate operation:

NOTE: 1SW-144, HX-15A-D Cont Recirc HX SW-2907/2908 Throttle Bypass, AND 1SW-176, RE-216 CLR Monitor FI-2888 Return Inlet are SHUT per OP 3C, Hot Standby to Cold Shutdown.

- a. Align Service Water for operation of the selected Containment Accident Fan Cooler Unit(s). _____
- b. Ensure the selected Containment Accident Fan Cooler Unit(s)' breaker(s) are racked in. _____
- c. Ensure selected Containment Accident Fan Cooler Units' control switches are in PULLOUT, AND NOT TAGGED. _____

5.1.9 Establish the following support personnel requirements for Reduced Inventory operations, AND track assigned personnel on Attachment C. Support Personnel for Reduced Inventory Operations:

- a. One (1) Control Operator shall be assigned for monitoring RCS inventory and decay heat removal operations. Shall NOT be the unit CO. ~~May have other duties assigned by Shift Manager.~~ _____
- b. One (1) I&C technician shall be available to support venting of LT-447/447A and to assist Operations personnel with other reduced inventory instrumentation (e.g., RHR flow). This person may have secondary duties that allow him to respond when called upon. _____
- c. One (1) Auxiliary Operator shall be available to periodically monitor RHR pump operation. This person shall NOT be the PAB Operator OR a member of the Fire Brigade. Individual will be stationed in the PAB and may have secondary duties assigned by Shift Manager. Those duties shall not prevent individual from responding when called upon (to check pump operation). _____

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REACTOR COOLANT SYSTEM REDUCED
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INITIALS

5.1.10 Place this procedure in the front of Containment Penetration
Closure Notebook. _____

5.1.11 Continue lowering level per one of the following procedures,
as applicable:

- OP 4D Part 1, Draining the Reactor Coolant System. _____
- OP 4D Part 3, Draining the Reactor Cavity and Reactor
Coolant System. _____
- OP 5A, Reactor Coolant Volume Control _____

NOTE: To install nozzle dams continue with procedure.

5.1.12 Initiate Attachment D, Shiftly Reduced Inventory Checks. _____

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INITIALS

5.2 Nozzle Dam Installation Requirements: ~~Ensure following operational requirements are met prior to installing last hot leg nozzle dam. (B-4)~~

5.2.1 One SI pump disabled for LTOP.

5.2.2 The available SI pump's control switch in PULLOUT.

5.2.3 Both SI pumps discharge valves SHUT.

a. 1SI-866A, Cold Leg Injection Line Isolation

b. 1SI-866B, Core Deluge Injection Line Isolation

5.2.4 One of the following vent paths established:

a. Reactor Vessel head raised to greater than or equal to 1 inch above reactor vessel flange, OR removed.

b. Pressurizer manway removed
AND Reactor shutdown for greater than 110 hours.

c. BOTH Pressurizer code safeties removed
AND Reactor shutdown for greater than 240 hours.

NOTE: The equipment listed on Attachment B shall be posted AND protected for the duration of time that nozzle dams are installed.

5.2.5 Ensure signage posted for protected equipment, per Attachment B, Protected Equipment While Steam Generator Nozzle Dams are Installed.

5.2.6 WHEN the above requirements are met,
THEN permission may be granted to install last hot leg nozzle dams.

5.2.7 WHEN installed,
THEN initiate monitoring nozzle dams in accordance with OI 11, Steam Generator Nozzle Dam Operation Guide.

5.2.8 Go to Section 5.3, Nozzle Dam Requirements While Installed.

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INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

INITIALS

5.3 Nozzle Dam Requirements While Installed: (B-4)

5.3.1 WHEN the RX Vessel head is on.
THEN the following conditions shall be met.

- a. One SI pump disabled for LTOP. _____
- b. The available SI pump's control switch in PULLOUT. _____
- c. BOTH SI pumps discharge valves SHUT.
 - 1SI-866A, Cold Leg Injection Line Isolation _____
 - 1SI-866B, Core Deluge Injection Line Isolation _____

5.3.2 WHEN the Reactor Vessel head is removed,
THEN the following conditions shall be met.

NOTE: The SI pump control switch may be removed from PULLOUT for approved testing (e.g., IT 760), provided the reactor vessel head is removed.

- a. BOTH SI pump control switches in PULLOUT.
 - 1P-15A-CS _____
 - 1P-15B-CS _____

NOTE: The SI pump discharge valve may be opened for approved testing (e.g., IT 760), provided the reactor vessel head is removed.

- b. BOTH SI pump discharge valves SHUT.
 - 1SI-866A, Cold Leg Injection Line Isolation. _____
 - 1SI-866B, Core Deluge Injection Line Isolation. _____

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REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
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INITIALS

- 5.3.3 One of the following vent paths maintained:
- a. Reactor Vessel head raised to greater than or equal to 1 inch above the reactor vessel flange, OR removed. _____
 - b. Pressurizer manway removed
AND Reactor shutdown for greater than 110 hours. _____
 - c. Both Pressurizer code safeties removed
AND Reactor shutdown for greater than 240 hours. _____

NOTE: The equipment listed on Attachment B shall be posted AND protected for the duration of time that nozzle dams are installed.

- 5.3.4 Continue requirements for maintaining protected equipment, per Attachment B, Protected Equipment While Steam Generator Nozzle Dams are Installed. _____
- 5.3.5 Continue monitoring nozzle dams in accordance with OI 11, Steam Generator Nozzle Dam Operation Guide. _____
- 5.3.6 Initiate Attachment E, Shiftly Nozzle Dam Checks. _____

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REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
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INITIALS

NOTE: An air leak , from a nozzle dam, into the cold leg could force water from the vertical section of the steam generator cold leg back to the vessel. Because of this, when either cold leg nozzle dam is depressurized for removal, the operator should be aware of the possibility of an inventory transfer to reflood the vertical section of the Pipe. This could be as much as 305 gallons per cold leg.

5.4 Nozzle Dam Removal

5.4.1 WHEN removing nozzle dams,
THEN perform the following:

- a. WHEN Equipment listed in Attachment B is no longer required to be protected for nozzle dams,
THEN remove protected equipment signage while continuing with this procedure.
- b. Ensure reactor vessel level at 22-25% on 1LI-447/447A.
- c. WHEN the above requirement is met,
THEN permission may be granted to remove a hot leg nozzle dam first.

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OPERATIONAL REQUIREMENTS UNIT 1

INITIALS

NOTE: Section 5.5 does NOT apply if the reactor is defueled.

5.5 Termination Of Reduced Inventory Condition

WHEN Reactor Vessel level has been raised to greater than 55%,
THEN perform the following to terminate Reduced Inventory condition:

NOTE: The SM may N/A any of the following steps based on plant conditions.

5.5.1 Release additional support personnel for Reduced Inventory operations,
AND terminate tracking assignments on Attachment C, Additional Support Personnel for Reduced Inventory Operations

5.5.2 Ensure Containment Accident Fan Cooler switches are in PULLOUT.

5.5.3 IF desired,
THEN SHUT Service Water valves for the Containment Accident Fan Coolers (refer to OP 3C, Hot Standby to Cold Shutdown):

- 1SW-144, HX-15A-D Cont Recirc HX SW-2907/2908 Throttle Bypass
- 1SW-176, RE-216 CLR Monitor FI-2888 Return Inlet

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INITIALS

NOTE: The following valves may have been repositioned during the initial conditions dependent upon which Safety Injection flow path was selected

- 1SI-829D, Safety Injection Test Line Isolation
- 1SI-829A, P-15A/B SI Pump Discharge Crossconnect
- 1SI-829B, P-15A/B SI Pump Discharge Crossconnect
- 1SI-888A, P-15A SI Pump Discharge
- 1SI-888B, P-15B SI Pump Discharge
- 1SI-878E, P-15B SI Pump Loop A Injection
- 1SI-878F, P-15B SI Pump Loop B Injection
- 1SI-878B, P-15A SI Pump Loop B Injection
- 1SI-878D, P-15A SI Pump Loop A Injection
- 1SI-866A, Cold Leg Injection Line Isolation
- 1SI-866B, Core Deluge Injection Line Isolation

5.5.4 Align the applicable portions of the Safety Injection System per CL 7B, Safety Injection System Checklist.

5.5.5 Remove protected equipment signage from equipment listed in Attachment A.

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INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

6.0 REFERENCES

6.1 Technical Specifications

- 6.1.1 3.1.1, Shutdown Margin (SDM)
- 6.1.2 3.3.6, Boron Dilution Alarm
- 6.1.3 3.4.8, RCS Loops-Mode 5, Loops Not Filled
- 6.1.4 3.4.12, Low Temperature Overpressure Protection (LTOP) System

6.2 Procedures

- 6.2.1 CL 7B, Safety Injection System Checklist
- 6.2.2 NP 10.3.6, Outage Safety Review and Safety Assessment
- 6.2.3 OI 11, Steam Generator Nozzle Dam Operation Guide
- 6.2.4 OI 163, SI, RHR and CS Pump Runs, and Venting SI Pump Casings
- 6.2.5 OP 3C, Hot Standby to Cold Shutdown
- 6.2.6 OP 4D Part 1, Draining the Reactor Coolant System
- 6.2.7 OP 4D Part 3, Draining the Reactor Cavity and Reactor Coolant System.
- 6.2.8 OP 5A, Reactor Coolant Volume Control
- 6.2.9 SEP-1, Degraded RHR System Capability
- 6.2.10 SEP-3.0, Loss of All AC Power to a Shutdown Unit

7.0 BASES

- B-1 Generic Letter 88-17, Loss of Decay Heat Removal.
- B-2 VPMPD-88-635, "Response to GL 88-17, Loss of Decay Heat Removal," dated 12/30/88
- B-3 VPMPD-89-061, "Response to GL 88-17, Loss of Decay Heat Removal," dated 2/2/89
- B-4 CAP055585, Improvement to Hot Leg Vent Path Controls Required

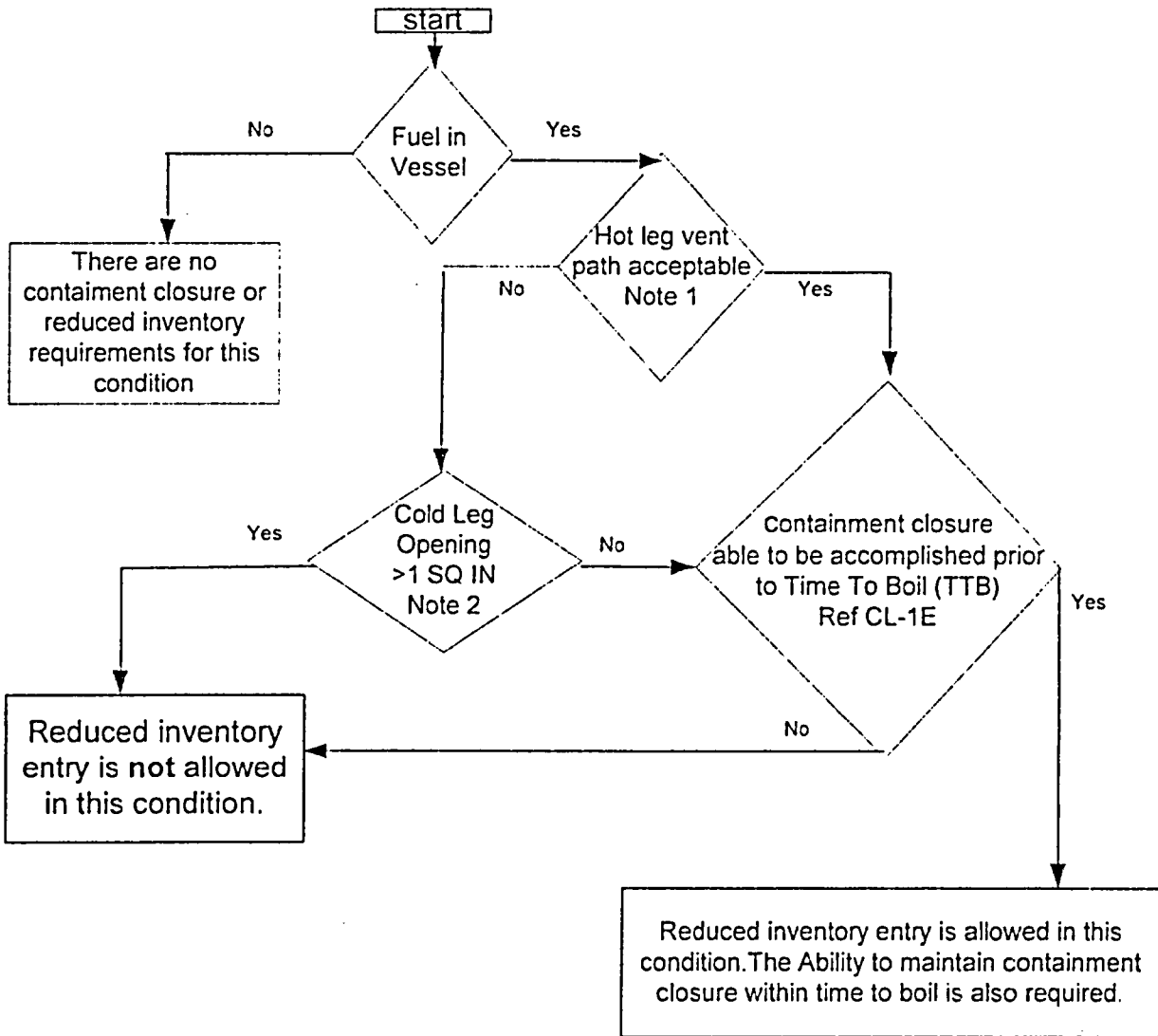
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OPERATIONAL REQUIREMENTS UNIT 1

REMARKS:

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Figure 1
Reactor Coolant System Reduced Inventory Requirements

NOTE: Not applicable for nozzle dam requirements see appropriate sections for requirements.



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REACTOR COOLANT SYSTEM REDUCED
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OPERATIONAL REQUIREMENTS UNIT 1

Figure 1
Reactor Coolant System Reduced Inventory Requirements continued

NOTE 1: ACCEPTABLE HOT LEG VENT PATHS

- A steam generator hot leg manway opening is acceptable if its hot leg nozzle dam is not installed.
- A steam generator cold leg manway opening is acceptable if its hot leg nozzle dam is not installed and its tube bundle is drained.
- The Reactor Vessel head raised to greater than or equal to 1 inch above the Reactor Vessel Flange is acceptable.
- The Pressurizer manway opening is acceptable if the Reactor has been shut down for greater than or equal to 110 hours.
- Both Pressurizer code safeties removed is acceptable if the Reactor has been shut down for greater than or equal to 240 hours.

NOTE 2: COLD LEG OPENINGS

- A single pipe with an inside diameter of less than or equal to 1-1/8 inches has a cross-sectional area of less than 1 square inch.
- If a pipe with an inside diameter of less than or equal to 1-1/8 inches has a coupling or other fitting attached which has a cross-sectional area greater than 1 square inch, then the effective cross-sectional area is less than 1 square inch and is acceptable.
- Working the RCPs on their backseat without a hot leg vent is acceptable provided that the lab seal ΔP during previous normal operating conditions meets the following criteria (Data from previous logs during normal at power conditions):
 - To work one pump, its lab seal ΔP during normal operating conditions is required to have been greater than or equal to 5 inches water.
 - To work two pumps, their lab seal ΔP during normal operating conditions are required to have been greater than or equal to 20 inches water.
 - IF the above conditions are not met, THEN to work a RCP on its backseat without a hot leg opening requires further evaluation.

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REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

Attachment A
Protected Equipment For Unit 1 In Reduced Inventory

NOTE: Work on protected equipment is prohibited. Work prohibited on protected equipment is defined as those activities involving intrusive work on or external contact with the equipment. Activities performed by Operations to monitor the operation or condition of protected equipment is NOT work on protected equipment. (Refer to NP 10.3.6)

NOTE: The Shift Manager will determine if any activity can be performed on a piece of protected equipment- ~~NO work shall be performed on protected equipment unless the work will not affect its operation.~~ as long as this work doesn't render the equipment unavailable

Install Protected Equipment signs and/or restrictions at the following equipment:

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Protected Equipment	Initials
1P-10A, RHR pump cubicle	
1P-10B, RHR pump cubicle	
1P-11A and 1P-11B pump area	
Selected SI pump (Circle selected pump) 1P-15A <u>OR</u> 1P-15B	
Selected SI pump suction valve from RWST (Circle select valve) 1SI-896A <u>OR</u> 1SI-896B	
Either SI pump suction from RWST (Circle one) 1SI-825A <u>OR</u> 1SI-825B	
Selected SI pump discharge valve (Circle selected SI pump valve) 1SI-888A <u>OR</u> 1SI-888B	
SI pump discharge valve 1SI-866B	
CCW heat exchanger area	
Service Water pump area	
1A05, 4160V AC area	
1A06, G03 Switchgear Room	
1B03, Cable Spreading Room	
1B04, Cable Spreading Room	
1B32, 8' PAB	
1B42, 26" PAB	
EDG aligned to 1A05 (Circle One) G01 <u>OR</u> G02	
EDG aligned to 1A06 (Circle One) G03 <u>OR</u> G04	
1Y01 red instrument bus	
1Y02 blue instrument bus	
1Y04 yellow instrument bus	
Selected Containment Accident Fan (Circle One) 1W1A1 <u>OR</u> 1W1B1 <u>OR</u> 1W1C1 <u>OR</u> 1W1D1	
Selected makeup source (Circle One) P-33 <u>OR</u> 1P2A <u>OR</u> 1P2B <u>OR</u> 1P2C <u>OR</u> P-12	
Reactor Vessel Level Instruments 1LT-447 <u>AND</u> 1LT-447A	

REACTOR COOLANT SYSTEM REDUCED
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OPERATIONAL REQUIREMENTS UNIT 1

Attachment A
Protected Equipment For Unit 1
In Reduced Inventory

NOTE: The following equipment is "protected equipment" while in Reduced Inventory.

Train A RHR

Train B RHR

Train A CCW including required CC HXs

Train B CCW including required CC HXs

1A05 4160 VAC bus

1A06 4160 VAC bus

1B03 480 VAC bus

1B04 480 VAC bus

1B32 480 VAC bus

1B42 480 VAC bus

5 Service water pumps

Service water piping which supplies CC HXs on 46' el. PAB

One train SI to establish Upper Plenum Injection with a suction from the RWST with level greater than 40%

1Y01 red instrument bus

1Y02 blue instrument bus

1Y04 yellow instrument bus

1LT-447 RV level transmitter

1LT-447A RV level transmitter

Train A EDG aligned to 1A05

Train B EDG aligned to 1A06

One containment accident fan with service water supply

One of the following makeup sources:

- P-33 refueling water circ pump with suction from the RWST with level greater than 16%
- 1P2A charging pump with suction from the RWST with level greater than 16%
- 1P2B charging pump with suction from the RWST with level greater than 16%
- 1P2C charging pump with suction from the RWST with level greater than 16%
- P-12 SFP cooling pump

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM
OPERATIONAL REQUIREMENTS UNIT 1

Attachment B

Protected Equipment While Steam Generator Nozzle Dams Are Installed

NOTE: The following equipment is "protected equipment" while Steam Generator Nozzle Dams are installed.

NOTE: Work on protected equipment is prohibited. Work prohibited on protected equipment is defined as those activities involving intrusive work on or external contact with the equipment. Activities performed by Operations to monitor the operation or condition of protected equipment is NOT work on protected equipment. (Refer to NP 10.3.6)

NOTE: The Shift Manager will determine if any activity can be performed on a piece of protected equipment. ~~NO work shall be performed on protected equipment unless the work will not affect its operation.~~ as long as this work doesn't render the equipment unavailable

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Install Protected Equipment signs and/or restrictions at the following equipment:

Protected Equipment			Initials
A	One of the following Hot Leg Vent Paths: (Mark non-applicable vent paths "N/A") (B-4)	Reactor Vessel Head raised greater than or equal to 1 inch, OR removed.	
		Pressurizer Manway Removed.	
		Both Pressurizer Code Safeties Removed.	
B	Unit 1 Steam Generator "A" Nozzle Dam Panel		
C	Unit 1 Steam Generator "B" Nozzle Dam Panel		
D	K-3A Service Air Compressor		
E	K-3B Service Air Compressor		

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM OPERATIONAL
REQUIREMENTS UNIT 1

Attachment D
Shiftly Reduced Inventory Checks

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Condition	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time
At least two core exit thermocouples are connected and functional with readouts on the PPCS.							
Two residual heat removal (RHR) loops shall be operable and one RHR loop shall be in operation.							
Reactor vessel upper head is in place.							
Reactor vessel upper internals are installed.							
Unit 1 RWST level is greater than 40%.							
Equipment hatch is installed							
Transfer tube gate valve is tagged SHUT							
At least one door of the 66 foot personnel access hatch is capable of being closed. (see note 1)							
At least one door of the 26 foot personnel access hatch is capable of being closed							
Ensure at least one containment accident fan cooler unit is available for immediate operation							
At least one Narrow Range RVLIS instrument available LI-496 or LI-497, R-1 RV Narrow Range Level Indicator							
Initials							

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM OPERATIONAL
REQUIREMENTS UNIT 1

Attachment D
Shiftly Reduced Inventory Checks

Condition	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time
Shift Management Review CL 1E for ability to meet containment closure prior to Time To Boil (TTB)							
Initials							

NOTE 1: If upper airlock inner personnel access door is to be placed in a condition where it cannot be closed, (for example, Maintenance on the door), then mono-rail cannot be installed because outer personnel access door cannot be closed with mono-rail installed. However, if mono-rail is to be installed into upper airlock, then NO other activity can be performed which would prevent upper airlock inner personnel access door from being closed. This does not pertain to hatch flange protectors.

REACTOR COOLANT SYSTEM REDUCED
INVENTORY REQUIREMENTS AND NOZZLE DAM OPERATIONAL
REQUIREMENTS UNIT 1

Attachment E
Shiftly Nozzle Dam Checks

Condition	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time	Date/Time
WHEN the Rx Vessel Head is ON, THEN the following conditions Shall be met:							
One SI Pump Disabled							
Available SI pump control switch in PULLOUT							
BOTH SI Pump discharge valves SHUT 1SI-866A 1SI-866B							
WHEN the Rx Vessel Head is removed, THEN the following conditions shall be met							
BOTH SI pump control switches in PULLOUT							
BOTH SI Pump discharge valves SHUT 1SI-866A 1SI-866B							
Initials							

NOTE: The SI pump control switch may be removed from PULLOUT for approved testing (e.g., IT 760), provided the reactor vessel head is removed.