

Nuclear Power Business Unit
TEMPORARY CHANGE REVIEW AND APPROVAL

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

I - INITIATION

Doc Number IT 10 Current Rev 45 Unit PB0 Temp Change No. 2002-0851
 Document Title Test of Electric-Driven Auxiliary Feed Pumps and Valves (quarterly)
 Existing Effective Temporary Changes _____
 Brief Description Add P&L and Cautions associated with AFW minimum Flow
(Identify specific changes on Form PBF-0026c, Document Review and Approval Continuation, and include with the package)

Initiate PBF-0026h and include with the change.
 Other documents required to be effective concurrently with the temporary change: _____
 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 it should be processed as a revision?	<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 checked="" type="checkbox"/>	<input 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 purposes?	<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 *[Signature]* Date 11/01/2002

II - INITIAL APPROVAL

This change is correct and complete, can be performed as written, and does not adversely affect personnel or nuclear safety, or Plant operating conditions.

Group Supervisor (print/sign) K Soika *[Signature]* Date 11/1/02
(Cannot be the Initiator)

This change does not adversely affect Plant operating conditions. (Safety Related procedures only)

Senior Reactor Operator (print/sign) Ron Harper *[Signature]* Date 11/1/02
(Cannot be the Initiator or Group Supervisor)

III - PROCEDURE OWNER REVIEW

Permanent One-time Use Expiration Date, Event or Condition: _____
 Hold change until procedure completed (final review and approval still required within 14 days of initial approval)
 QR/MSS Review NOT Required (Admin/NNSR only) QR Review Required MSS Review Required (Reference NP 1.6.5)

Procedure Owner (print/sign) K Soika *[Signature]* Date 11/1/02
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, OR and Approval Authority shall be independent from each other)

QR/MSS (print/sign) K Soika *[Signature]* Date 11/1/02
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.

MSS Meeting No. _____
 Approval Authority (print/sign) J Keil *[Signature]* Date 11/1/02

V - REVISION INFORMATION FOR PERMANENT CHANGES

Post Typing Review (print/sign) 1 Date 11/30/02
Indicates temporary change(s) incorporated exactly as approved and no other changes made to document.

Incorporated into Revision Number _____ Effective Date _____

TEMPORARY CHANGE AFFECTED MANUAL LOCATION

Procedure Number IT 10 Revision 45 Unit PB0
 Title Test Of Electrically-Driven Auxiliary Feed Pumps and Valves (Quarterly)
 Temporary Change Number 2002-0851

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 checked="" type="checkbox"/> Copy filed in Control Room temp change binder (Operations only).	11-1-02
<input checked="" type="checkbox"/> Original change package provided to <u>KGS</u> to obtain Procedure Owner Review (e.g., Owner review may be coordinated by In-Group OA II, Procedure Writer, Procedure Supervisor, etc.).	11-1-02
<input type="checkbox"/>	

Performed By (print and sign) Carol Schroeder / Carol Schroeder Date 11-1-02

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 sent to Document Control Distribution Lead for Master File. (Not required for one-time use change)	11-1-02
<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>JHK</u> to obtain Final Approvals (e.g., final approval may be coordinated by In-Group OA II, Procedure Writer, Procedure Supervisor, etc.)	11-1-02
<input checked="" type="checkbox"/> <u>Control Rm Drawer</u>	11-1-02
<input type="checkbox"/>	

Performed By (print and sign) Carol Schroeder / Carol Schroeder Date 11-1-02

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CCO Title of Proposed Activity: AFW minimum flow requirement change to AOP, EOP, CSP, ECA, SEP, OI-62 A/B procedures

Associated Reference(s) #: Removal of internals from AF-117 and upgrade open function of AFW pumps minirecirc valves to safety-related (MR 02-029); SCR 2002-005-01 EOP/ARP actions for AFW mini-recirc requirement ; 2002-0055, P-38A/B mini recirc flow orifice replacment (MR 99-029 *A, *B) ; Flowserve Corporation Pump Division letter dated March 2, 20012; CAP 29908; CAP 29952

Prepared by: Eric A. Schmidt / John P. Schroeder Eric Schmidt / John P. Schroeder Date: 10/24/02
Name (Print) Signature

Reviewed by: KCS 8161 KCS 8161 Date: 10/29/02
Name (Print) Signature

PART I (50.59/72.48) - DESCRIBE THE PROPOSED ACTIVITY AND SEARCH THE PLANT AND ISFSI LICENSING BASIS (Resource Manual 5.3.1)

NOTE: The "NMC 10 CFR 50.59 Resource Manual" (Resource Manual) and NEI 96-07, Appendix B, Guidelines for 10 CFR 72.48 Implementation should be used for guidance to determine the proper responses for 10 CFR 50.59 and 10 CFR 72.48 screenings.

I.1 Describe the proposed activity and the scope of the activity being covered by this screening. (The 10 CFR 50.59 / 72.48 review of other portions of the proposed activity may be documented via the applicability and pre-screening process requirements in NP 5.1.8.) Appropriate descriptive material may be attached.

This screening supports procedural upgrades to address the Auxiliary Feedwater (AFW) System issue as identified in CAP 29908 and CAP 29952. Procedural guidance for operation of AFW System will be changed such that the operator must ensure that discharge flow for P-38 A/B must be greater than 50 gpm and 1/2 P-29 discharge flow must be greater than 75 gpm. If pump flow cannot be maintained within these requirements, the pump must be secured.

I.2 Search the PBNP Current Licensing Basis (CLB) as follows: Final Safety Analysis Report (FSAR), FSAR Change Requests (FCRs) with assigned numbers, the Fire Protection Evaluation Report (FPER), the CLB (Regulatory) Commitment Database, the Technical Specifications, the Technical Specifications Bases, and the Technical Requirements Manual. Search the ISFSI licensing basis as follows: VSC-24 Safety Analysis Report, the VSC-24 Certificate of Compliance, the CLB (Regulatory) Commitment Database, and the VSC-24 10 CFR 72.212 Site Evaluation Report. Describe the pertinent design function(s), performance requirements, and methods of evaluation for both the plant and for the cask/ISFSI as appropriate. Identify where the pertinent information is described in the above documents (by document section number and title). (Resource Manual 5.3.1 and NEI 96-07, App. B, B.2)

FSAR 10.2 Auxiliary Feedwater System (AF) - The AFW system shall automatically start and deliver adequate AFW flow to maintain adequate steam generator levels during accidents which may result in main steam safety valve opening, such as: Loss of normal feedwater (LONF) and Loss of all AC power to the station auxiliaries (LOAC). AFW system shall also deliver sufficient flow to the steam generators supporting rapid cooldown during such accidents as: steam generator tube rupture (SGTR) and main steam line break (MSLB).

Each pump has an AOV controlled recirculation line back to the condensate storage tanks to ensure minimum flow to prevent hydraulic instabilities and dissipate pump heat.

TS 3.7.5 Auxiliary Feedwater (AFW) System

TS Bases B 3.7.5 Auxiliary Feedwater (AFW) System

FSAR 7.3.3.4 Manual AFW Flow Control During Plant Shutdown Manual control of steam generator water level using the AF pumps to remove reactor decay and sensible heat.

FPER 6.6.4 Auxiliary Feedwater System The Auxiliary Feedwater Pumps are provided with a mini-recirc line to ensure a minimum amount of flow is established to keep the pumps from dead heading.

FSAR 10.2 Auxiliary Feedwater System (AF)
TS 3.7.5 Auxiliary Feedwater (AFW) System
TS Bases B 3.7.5 Auxiliary Feedwater (AFW) System
FSAR 7.3.3.4 Manual AFW Flow Control During Plant Shutdown
FPER 6.6.4 Auxiliary Feedwater System

I.3 Does the proposed activity involve a change to any Technical Specification? Changes to Technical Specifications require a License Amendment Request (Resource Manual Section 5.3.1.2).

Technical Specification Change : Yes No

If a Technical Specification change is required, explain what the change should be and why it is required.

I.4 Does the proposed activity involve a change to the terms, conditions or specifications incorporated in any VSC-24 cask Certificate of Compliance (CoC)? Changes to a VSC-24 cask Certificate of Compliance require a CoC amendment request.

Yes No

If a storage cask Certificate of Compliance change is required, explain what the change should be and why it is required.

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PART II (50.59) - DETERMINE IF THE CHANGE INVOLVES A DESIGN FUNCTION (Resource Manual 5.3.2)

Compare the proposed activity to the relevant CLB descriptions, and answer the following questions:

YES	NO	QUESTION
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the proposed activity involve Safety Analyses or structures, systems and components (SSCs) credited in the Safety Analyses?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the proposed activity involve SSCs that support SSC(s) credited in the Safety Analyses?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the proposed activity involve SSCs whose failure could initiate a transient (e.g., reactor trip, loss of feedwater, etc.) or accident, <u>OR</u> whose failure could impact SSC(s) credited in the Safety Analyses?
<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the proposed activity involve CLB-described SSCs or procedural controls that perform functions that are required by, or otherwise necessary to comply with, regulations, license conditions, orders or technical specifications?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the activity involve a <i>method of evaluation</i> described in the FSAR?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is the activity a <i>test or experiment</i> ? (i.e., a non-passive activity which gathers data)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the activity exceed or potentially affect a <i>design basis limit for a fission product barrier (DBLFPB)</i> ? (NOTE: If <u>THIS</u> questions is answered <u>YES</u> , a 10 CFR 50.59 Evaluation is required.)

If the answers to ALL of these questions are NO, mark Part III as not applicable, document the 10 CFR 50.59 screening in the conclusion section (Part IV), then proceed directly to Part V - 10 CFR 72.48 Pre-screening Questions.

If any of the above questions are marked YES, identify below the specific design function(s), method of evaluation(s) or DBLFPB(s) involved.

MR-02-029 upgraded the open function of the AFW pumps mini-recirc AOV to safety-related. The safety-related boundary includes the recirc orifice and all associated upstream components and piping. It is postulated that a failure of the piping downstream of the recirc orifice will not have any adverse effects on the AFW system. The availability of the recirculation flowpath provides an additional flowpath to support minimum flow requirements. This procedure change will improve the reliability of the AFW pumps by not relying upon the recirc flow path for operability as it has been concluded that the restrictions in the recirc orifice may not be adequate for use. Whereas current guidance mandates that the operator verify the position of the recirc AOV and the status of the Instrument Air system, these procedural changes will only require the operator to monitor pump discharge flow.

PART III (50.59) - DETERMINE WHETHER THE ACTIVITY INVOLVES ADVERSE EFFECTS (Resource Manual 5.3.3)

If ALL the questions in Part II are answered NO, then Part III is NOT APPLICABLE.

Answer the following questions to determine if the activity has an *adverse effect* on a design function. Any YES answer means that a 10 CFR 50.59 Evaluation is required; EXCEPT where noted in Part III.3.

III.1 CHANGES TO THE FACILITY OR PROCEDURES

YES NO QUESTION

Does the activity adversely affect the *design function* of an SSC credited in safety analyses?

Does the activity adversely affect the method of performing or controlling the *design function* of an SSC credited in the safety analyses?

If any answer is YES, a 10 CFR 50.59 Evaluation is required. If both answers are NO, describe the basis for the conclusion (attach additional discussion as necessary):

Minimum flow requirements will be maintained within recommendations from the vendor by monitoring pump discharge flow and securing the pump as required. Starting and stopping of the AFW pumps has been previously evaluated in 50.59 Evaluation 2002-005, which addressed procedural changes to reduce the potential of pump damage as a result of the loss of the recirculation flow path.

III.2 CHANGES TO A METHOD OF EVALUATION

(If the activity does not involve a method of evaluation, these questions are NOT APPLICABLE.)

YES NO QUESTION

Does the activity use a revised or different method of evaluation for performing safety analyses than that described in the CLB?

Does the activity use a revised or different method of evaluation for evaluating SSCs credited in safety analyses than that described in the CLB?

If any answer is YES, a 10 CFR 50.59 Evaluation is required. If both answers are NO, describe the basis for the conclusion (attach additional discussion, as necessary).

III.3 TESTS OR EXPERIMENTS

If the activity is not a test or experiment, the questions in III.3.a and III.3.b are NOT APPLICABLE.

a. Answer these two questions first:

YES NO QUESTION

Is the proposed test or experiment bounded by other tests or experiments that are described in the CLB?

Are the SSCs affected by the proposed test or experiment isolated from the facility?

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If the answer to BOTH questions in V.3.a is NO, continue to III.3.b. If the answer to EITHER question is YES, then describe the basis.

b. Answer these additional questions ONLY for tests or experiments which do NOT meet the criteria given in III.3.a above. If the answer to either question in III.3.a is YES, then these three questions are NOT APPLICABLE.

YES	NO	QUESTION
<input type="checkbox"/>	<input type="checkbox"/>	Does the activity utilize or control an SSC in a manner that is outside the reference bounds of the design bases as described in the CLB?
<input type="checkbox"/>	<input type="checkbox"/>	Does the activity utilize or control an SSC in a manner that is inconsistent with the analyses or descriptions in the CLB?
<input type="checkbox"/>	<input type="checkbox"/>	Does the activity place the facility in a condition not previously evaluated or that could affect the capability of an SSC to perform its intended functions?

If any answer in III.3.b is YES, a 10 CFR 50.59 Evaluation is required. If the answers in III.3.b are ALL NO, describe the basis for the conclusion (attach additional discussion as necessary):

Part IV - 10 CFR 50.59 SCREENING CONCLUSION (Resource Manual 5.3.4).

Check all that apply:

A 10 CFR 50.59 Evaluation is required or NOT required.

A Point Beach FSAR change is required or NOT required. If an FSAR change is required, then initiate an FSAR Change Request (FCR) per NP 5.2.6.

A Regulatory Commitment (CLB Commitment Database) change is required or NOT required. If a Regulatory Commitment Change is required, initiate a commitment change per NP 5.1.7.

A Technical Specification Bases change is required or NOT required. If a change to the Technical Specification Bases is required, then initiate a Technical Specification Bases change per NP 5.2.15.

A Technical Requirements Manual change is required or NOT required. If a change to the Technical Requirements Manual is required, then initiate a Technical Requirements Manual change per NP 5.2.15.

----- 10 CFR 72.48 SCREENING -----

NOTE: NEI 96-07, Appendix B, Guidelines for 10 CFR 72.48 Implementation should be used for guidance to determine the proper responses for 72.48 screenings.

PART V (72.48) - 10 CFR 72.48 INITIAL SCREENING QUESTIONS

Part V determines if a full 10 CFR 72.48 screening is required to be completed (Parts VI and VII) for the proposed activity.

YES	NO	QUESTION
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<input checked="" type="checkbox"/>	<input type="checkbox"/>	Does the proposed activity involve <u>IN ANY MANNER</u> the dry fuel storage cask(s), the cask transfer/transport equipment, any ISFSI facility SSC(s), or any ISFSI facility monitoring as follows: Multi-Assembly Sealed Basket (MSB), MSB Transfer Cask (MTC), MTC Lifting Yoke, Ventilated Concrete Cask (VCC), Ventilated Storage Cask (VSC), VSC Transporter (VCST), ISFSI Storage Pad Facility, ISFSI Storage Pad Data/Communication Links, or PPCS/ISFSI Continuous Temperature Monitoring System?
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- Does the proposed activity involve IN ANY MANNER SSC(s) installed in the plant specifically added to support cask loading/unloading activities, as follows: Cask Dewatering System (CDW), Cask Reflood System (CRF), or Hydrogen Monitoring System?
- Does the proposed activity involve IN ANY MANNER SSC(s) needed for plant operation which are also used to support cask loading/unloading activities, as follows: Spent Fuel Pool (SFP), SFP Cooling and Filtration (SF), Primary Auxiliary Building Ventilation System (VNPAB), Drumming Area Ventilation System (VNDRM), RE-105 (SFP Low Range Monitor), RE-135 (SFP High Range Monitor), RE-221 (Drumming Area Vent Gas Monitor), RE-325 (Drumming Area Exhaust Low-Range Gas Monitor), PAB Crane, SFP Platform Bridge, Truck Access Area, or Decon Area?
- Does the proposed activity involve a change to Point Beach CLB design criteria for external events such as earthquakes, tornadoes, high winds, flooding, etc.?
- Does the activity involve plant heavy load requirements or procedures for areas of the plant used to support cask loading/unloading activities?
- Does the activity involve any potential for fire or explosion where casks are loaded, unloaded, transported or stored?

If ANY of the Part V questions are answered YES, then a full 10 CFR 72.48 screening is required and answers to the questions in Part VI and Part VII are to be provided. If ALL the questions in Part V are answered NO, then check Parts VI and VII as not applicable. Complete Part VIII to document the conclusion that no 10 CFR 72.48 evaluation is required.

PART VI (72.48) - DETERMINE IF THE CHANGE INVOLVES A ISFSI LICENSING BASIS DESIGN FUNCTION

(If ALL the questions in Part V are NO, then Part VI is NOT APPLICABLE.)

Compare the proposed activity to the relevant portions of the ISFSI licensing basis and answer the following questions:

YES	NO	QUESTION
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the proposed activity involve cask/ISFSI Safety Analyses or plant/cask/ISFSI structures, systems and components (SSCs) credited in the Safety Analyses?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the proposed activity involve plant, cask or ISFSI SSCs that support SSC(s) credited in the Safety Analyses?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the proposed activity involve plant, cask or ISFSI SSCs whose function is relied upon for prevention of a radioactive release, <u>OR</u> whose failure could impact SSC(s) credited in the Safety Analyses?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the proposed activity involve cask/ISFSI described SSCs or procedural controls that perform functions that are required by, or otherwise necessary to comply with, regulations, license conditions, CoC conditions, or orders?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the activity involve a <i>method of evaluation</i> described in the ISFSI licensing basis?
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Is the activity a <i>test or experiment</i> ? (i.e., a non-passive activity which gathers data)
<input type="checkbox"/>	<input checked="" type="checkbox"/>	Does the activity exceed or potentially affect a cask <i>design basis limit for a fission product barrier (DBLFPB)</i> ? (NOTE: If <u>THIS</u> questions is answered <u>YES</u> , a 10 CFR 72.48 Evaluation is required.)

If the answers to ALL of these questions are NO, mark Parts VII as not applicable, and document the 10 CFR 72.48 screening in the conclusion section (Part VIII).

If any of the above questions are marked YES, identify below the specific design function(s), method of evaluation(s) or DBLFPB(s) involved.

PART VII (72.48) - DETERMINE WHETHER THE ACTIVITY INVOLVES ADVERSE EFFECTS (NEI 96-07, Appendix B, Section B.4.2.1)

(If ALL the questions in Part V or Part VI are answered NO, then Part VII is NOT APPLICABLE.)

Answer the following questions to determine if the activity has an *adverse effect* on a design function. Any YES answer means that a 10 CFR 72.48 Evaluation is required; EXCEPT where noted in Part VII.3.

VII.1 Changes to the Facility or Procedures

YES NO QUESTION

Does the activity adversely affect the *design function* of a plant, cask, or ISFSI SSC credited in safety analyses?

Does the activity adversely affect the method of performing or controlling the *design function* of a plant, cask, or ISFSI SSC credited in the safety analyses?

If any answer is YES, a 10 CFR 72.48 Evaluation is required. If both answers are NO, describe the basis for the conclusion (attach additional discussion, as necessary):

VII.2 Changes to a Method of Evaluation

(If the activity does not involve a method of evaluation, these questions are NOT APPLICABLE.)

YES NO QUESTION

Does the activity use a revised or different method of evaluation for performing safety analyses than that described in a cask SAR?

Does the activity use a revised or different method of evaluation for evaluating SSCs credited in safety analyses than that described in a cask SAR?

If any answer is YES, a 10 CFR 72.48 Evaluation is required. If both answers are NO, describe the basis for the conclusion (attach additional discussion, as necessary):

VII.3 Tests or Experiments

(If the activity is not a test or experiment, the questions in VII.3.a and VII.3.b are NOT APPLICABLE.)

a. Answer these two questions first:

YES NO QUESTION

Is the proposed test or experiment bounded by other tests or experiments that are described in the cask ISFSI licensing basis?

Are the SSCs affected by the proposed test or experiment isolated from the cask(s) or ISFSI facility?

If the answer to both questions is NO, continue to VII.3.b. If the answer to EITHER question is YES, then briefly describe the basis.

b. Answer these additional questions ONLY for tests or experiments which do not meet the criteria given in VII.3.a above. If the answer to either question in VII.3.a is YES, then these three questions are NOT APPLICABLE:

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YES	NO	QUESTION
<input type="checkbox"/>	<input type="checkbox"/>	Does the activity utilize or control an SSC in a manner that is outside the reference bounds of the design bases as described in the ISFSI licensing basis?
<input type="checkbox"/>	<input type="checkbox"/>	Does the activity utilize or control a plant, cask or ISFSI facility SSC in a manner that is inconsistent with the analyses or descriptions in the ISFSI licensing basis?
<input type="checkbox"/>	<input type="checkbox"/>	Does the activity place the cask or ISFSI facility in a condition not previously evaluated or that could affect the capability of a plant, cask, or ISFSI SSC to perform its intended functions?

If any answer in VII.3.b is YES, a 10 CFR 72.48 Evaluation is required. If the answers are all NO, describe the basis for the conclusion (attach additional discussion as necessary):

PART VIII - DOCUMENT THE CONCLUSION OF THE 10 CFR 72.48 SCREENING

Check all that apply:

A 10 CFR 72.48 Evaluation is required or NOT required. Obtain a screening number and provide the original to Records Management regardless of the conclusion of the 50.59 or 72.48 screening.

A VSC-24 cask Safety Analysis Report change is required or NOT required. If a VSC-24 cask SAR change is required, then contact the Point Beach Dry Fuel Storage group supervisor.

A Regulatory Commitment (CLB Commitment Database) change is required or NOT required. If a Regulatory Commitment Change is required, initiate a commitment change per NP 5.1.7.

A change to the VSC-24 10 CFR 72.212 Site Evaluation Report is required or NOT required. If a VSC-24 10 CFR 72.212 Site Evaluation Report change is required, then contact the Point Beach Dry Fuel Storage group supervisor.

IT 10

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED PUMPS AND VALVES (QUARTERLY)

DOCUMENT TYPE: Technical

CLASSIFICATION: Safety Related

REVISION: 45

EFFECTIVE DATE: September 9, 2002

REVIEWER: Qualified Reviewer

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

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

1.0 PURPOSE

1.1 This procedure partially satisfies Technical Specification 5.5.7 by conducting the following PBNP Inservice Testing Program tests in accordance with the ASME OM Code 95 Ed./96A. Successful performance of this test will satisfy SR 3.7.5.2.

1.1.1 Quarterly Comprehensive functional test of the electric-driven auxiliary feed pumps as required SR 3.7.5.2 and the ASME OM Code.

1.1.2 Quarterly full-stroke open and shut, timing and position indication test of the auxiliary feed pump discharge valves as required by the ASME OM Code:

AF-4020, P-38B AFP Discharge to 2HX-1B Steam Generator
AF-4021, P-38B AFP Discharge to 1HX-1B Steam Generator
AF-4022, P-38A AFP Discharge to 2HX-1A Steam Generator
AF-4023, P-38A AFP Discharge to 1HX-1A Steam Generator

1.1.3 Quarterly stroke open, timing, and position indication test of the following as required by the ASME OM Code:

AF-4012, P-38A AFP Discharge Control
AF-4019, P-38B AFP Discharge Control

1.1.4 Quarterly stroke open and shut, timing, position indication, and fail safe test of the following as required by the ASME OM Code:

AF-4007, P-38A AFP Mini-Recirc Control
AF-4014, P-38B AFP Mini-Recirc Control

1.1.5 Quarterly full stroke open exercise tests for the following check valves, as required by the ASME OM Code.

1AF-102, P-38A AFP Discharge to 1HX-1A SG Check
2AF-103, P-38A AFP Discharge to 2HX-1A SG Check
1AF-104, P-38B AFP Discharge to 1HX-1B SG Check
2AF-105, P-38B AFP Discharge to 2HX-1B SG Check
AF-109, P-38A AFP Discharge Check
AF-110, P-38B AFP Discharge Check
AF-112, P38A Suction Check from CSTs
AF-113, P38B Suction Check from CSTs
AF-115, P-38A, Minimum Flow Check
AF-116, P-38B, Minimum Flow Check

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

1.1.6 Quarterly open and shut exercise tests for the following check valves, as required by the ASME OM Code.

AF-142, AF-4012 Backup N₂ Check
AF-145, AF-4012 Backup N₂ Check
AF-162, AF-4019 Backup N₂ Check
AF-165, AF-4019 Backup N₂ Check

1.1.7 Quarterly open and shut exercise tests for nitrogen backup first-off check valves as required by the ASME OM Code:

AF-133, P-38A AFP AF-4012 N₂ Backup First-off Isol
AF-153, P-38B AFP AF-4019 N₂ Backup First-off Isol

1.2 Verify auxiliary feedwater flow path operable to each steam generator following each cold shutdown of greater than 30 days and prior to exceeding 2% RTP, as required by TS SR 3.7.5.5.

2.0 PREREQUISITES

2.1 Assemble the following portable test instruments and log their ID numbers, as required.

2.1.1 Stop watch (2 required)

Control Room	ID No. _____
	Cal Due Date: _____
Local	ID No. _____
	Cal Due Date: _____

2.1.2 Vibration monitor, if required. ID No. _____
Cal Due Date: _____

2.2 IF it is desired to consider the equipment Available per the Maintenance Rule, THEN two Level 4 Dedicated Operators will be required, one for the Control Room and the second locally per OM 3.26, Use of Dedicated Operators, during the performance of this procedure.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

3.0 PRECAUTIONS AND LIMITATIONS

- 3.1 If there is any problem in performing this test, then immediately notify the duty shift superintendent. Operation of this equipment is a technical specification requirement.
- 3.2 Injection of auxiliary feed to steam generators at power will cause an increase in reactor power. RTO calculation does NOT account for auxiliary flow and is therefore unreliable. Use of DTP and Nuclear Instruments is mandatory during that time. (B-2)
- 3.3 Do NOT perform more than one portion of this test at a time.
- 3.4 Low suction pressure causes a common suction pressure alarm and a low suction pressure trip with an attendant alarm and a trip-enabled light. This trip is reset by placing the control switch to PULLOUT and then to the desired position. Reset is verified by the trip-enabled light being extinguished.
- 3.5 For the purpose of valve stroke testing, the stroke time is the time it takes the valve to go from full open to full shut or full shut to full open, by control board indication. Timing of valve operation will be from the moment of control switch actuation until the desired position is indicated. Local Position Indication Testing (PIT) requires at-valve observation.
- 3.6 The operability determination of a valve shall only be made in the direction which is required for the valve to perform its safety related functions. Valve stroking in a direction NOT required by the IST program is identified by "For Information Only" within the body of the step.
- 3.7 To test a given train or component of the train, the opposite trains normal off-site power is operable and standby emergency power is capable of supplying power.
- 3.8 If, at any time, pump suction pressure is less than the NPSH required (4.8 psig), then discontinue this test until the problem is corrected.
- 3.9 Fire rounds are NOT required during testing.
- 3.10 To prevent damage to P-38A and P-38B monitor and maintain AFW discharge and / or recirc flow greater than 50 GPM OR Stop respective AFW pump.

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TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

4.0 INITIAL CONDITIONS

4.1 This test is being done to satisfy:

_____ The normally scheduled callup. Task sheet No. _____.

NOTE: If this test is being performed to satisfy PMT or off-normal frequency requirements, Shift Management may N/A those portions of the procedure that are NOT applicable for the performance of the PMT. The use of N/A is NOT acceptable for Initial Conditions, Precautions and Limitations, or procedure steps that pertain to the equipment requiring PMT, nor is it acceptable for restoration of equipment/components unless the component has been declared inoperable.

_____ Post maintenance operability test
Equipment ID _____
WO No(s): _____
Task Sheet No.(s) _____
_____ Special test - no numbers.
Explain: _____

4.2 Auxiliary feed system lined up for critical operation per CL 13E, Part 2, Auxiliary Feedwater Valve Lineup Motor-Driven. _____

4.3 Standby emergency power shall be available to the 4160 V safeguards buses 1A05, 1A06, 2A05, 2A06, or the component(s) to be tested is/are in the same train that is out of service. _____

4.4 Chemistry notified about auxiliary feed injection. _____

4.5 Reactor power on both Units is reduced a minimum of 2% OR to a power level directed by DSS. (Mark step N/A if in TS Modes 3, 4, 5, 6, & defueled). _____

4.6 The IST Coordinator is available for PMT data review if the MDAFW pumps have been replaced, disassembled, realigned to the motor (motor replacement included) or the coupling has been disassembled. This review will establish new reference values and is performed prior to declaring the pump operable. (Mark N/A for oil changes and other minor maintenance which does NOT affect pump vibration or hydraulic performance). _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

4.7 The IST Coordinator is available for power operated valve reference value data review prior to declaring the valve operable. This step is not applicable if PBF-2114, "Return to Service Testing Reviews" does NOT specify performance of a reference value test.

4.8 **Permission to Perform Test**

The conditions required by this test are consistent with required plant conditions, including equipment operability. Permission is granted to perform this test.

DSS _____ TIME _____ DATE _____

NOTE: Attachment L shall be used to document performance of multiple step performance and to record data. A separate copy of Attachment L shall be prepared for each step series requiring multiple performance and all copies shall be attached to this procedure when the procedure is complete.

5.0 PROCEDURE

5.1 IF in Modes 5, 6, or defueled,
THEN verify the following:

- The Steam Generators are drained to a level sufficient to accept FW flows.
- The RCS is NOT solid.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

NOTE: When operability testing of Train A is NOT required, then N/A Steps 5.2 through 5.38.

5.2 TRAIN A TEST

5.2.1 IF performing Section 5.2,
THEN the following auxiliary feedwater pumps with their associated flow paths, are operable as applicable.
(N/A the step that is NOT applicable.)

a. For two-unit operation:

P-38B, 1P-29, and 2P-29 are operable. _____

b. For single-unit operation:

P-38B and 1P-29 are operable for Unit 1.

OR

P-38B and 2P-29 are operable for Unit 2. _____

5.2.2 IF sufficient qualified operators are NOT available on shift to support Step 5.2.3,
THEN consider the equipment unavailable per Maintenance Rule AND N/A Step 5.2.3. _____

5.2.3 Assign a Level 4 Dedicated Operator in the Control Room
AND a Level 4 Dedicated Operator in the field per OM 3.26, Use of Dedicated Operators, to perform the restoration steps of Attachment J, if required. (Otherwise mark this step as N/A) _____

5.3 Enter the appropriate TS Action Condition for P-38A.
(N/A this step if NOT required for current plant conditions per TS: 3.7.5)

TIME _____ DATE _____ _____

5.4 IF at any time during the performance of this test an Auxiliary Feedwater Initiation is required,
THEN immediately perform Attachment J to recover Train A.
(N/A this step if NOT required.) _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

NOTE: When performing operability checks of the pump only, then N/A Subsections of 5.5 through 5.9 and Steps 5.23 through 5.30.

NOTE: To prevent preconditioning a valve, the applicable Section steps shall be performed out of sequence to provide a recordable action for each valve manipulation. (i.e., If the initial position of the valve is shut and the first step is to shut and time the valve, then the opening stroke evolution shall be performed first.)

5.5 Perform Quarterly Full Stroke Open and Shut, Timing and Position Indication Test of AF-4022, P-38A AFP Discharge to 2HX-1A Steam Generator, as follows:

5.5.1 Open AND time AF-4022, P-38A AFP Discharge to 2HX-1A Steam Generator.

a. Record time to open on Attachment A. _____

b. Check local valve position indication and record on Attachment A. _____

5.5.2 Shut AND time AF-4022, P-38A AFP Discharge to 2HX-1A Steam Generator.

a. Record time to shut on Attachment A. _____

b. Check local valve position indication and record on Attachment A. _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.6 Perform Quarterly Full Stroke Open and Shut. Timing and Position Indication Test of AF-4023, P-38A AFP Discharge to 1HX-1A Steam Generator. as follows:

5.6.1 Open AND time AF-4023, P-38A AFP Discharge to 1HX-1A Steam Generator.

a. Record time to open on Attachment A. _____

b. Check local valve position indication and record on Attachment A. _____

5.6.2 Shut AND time AF-4023, P-38A AFP Discharge to 1HX-1A Steam Generator.

a. Record time to shut on Attachment A. _____

b. Check local valve position indication and record on Attachment A. _____

NOTE: The satisfactory performance of Step 5.7 also satisfies the exercise requirements in the open direction for AF-133, P-38A AFP AF-4012 N₂ Backup First-off Isol, as required by the ASME OM Code.

5.7 Perform Quarterly Stroke Open, Timing and Position Indication Test of AF-4012, P-38A AFP Discharge Control, and Forward Exercising of AF-133, P-38A AFP AF-4012 N₂ Backup First-off Isol, as follows:

5.7.1 Place PC-4012, P-38A AFP Discharge Pressure Controller, in MANUAL. _____

5.7.2 Shut AF-135, P-38A AFP AF-4012 Nitrogen Backup Second Off Isolation. _____

5.7.3 Open AND time AF-4012, P-38A AFP Discharge Control.

a. Record time to open on Attachment A. _____

b. Check local valve position indication and record on Attachment A. _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.7.4 Shut AND time AF-4012, P-38A AFP Discharge Control. (for information only)

a. Record time to shut on Attachment A.

b. Check local valve position indication and record on Attachment A.

5.7.5 Open AF-135, P-38A AFP AF-4012 Nitrogen Backup Second Off Isolation.

5.7.6 IF NOT continuing with the balance of this procedure, THEN continue with Step 5.29. (Otherwise mark this step as N/A)

NOTE: C01A 2-8 and 2-10, Auxiliary Feedwater System Disabled, annunciators will alarm when P-38A is placed in PULLOUT.

5.8 Place P-38A Motor Driven Aux Feed Pump control switch in PULLOUT.

NOTE: Use local indication for timing AF-4007, P-38A AFP Mini-Recirc Control. Stroke time to closed satisfies Fail Safe Test requirements.

5.9 Perform Quarterly Stroke Open and Shut, Timing, and Position Indication and Fail-Safe Test of AF-4007, P-38A AFP Mini-Recirc Control as follows:

5.9.1 Unlock AND shut AF-123A, P-38A AFP Mini Recirc AF-4007-S Outlet Isolation.

5.9.2 Unlock AF-123B, P-38A AFP Mini Recirc AF-4007-S Bypass Isolation.

5.9.3 Open AND time AF-4007, P-38A AFP Mini-Recirc Control, by opening AF-123B, P-38A AFP Mini Recirc AF-4007-S Bypass Isolation.

a. Record time to open on Attachment A.

b. Check local position indication and record on Attachment A.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

		<u>INITIALS</u>
5.9.4	Shut AF-123B, P-38A AFP Mini Recirc AF-4007-S Bypass Isolation.	_____
5.9.5	Shut AF-4007, P-38A AFP Mini-Recirc Control, by opening AF-123A, P-38A AFP Mini Recirc AF-4007-S Outlet Isolation.	_____
	a. Record time to shut on Attachment A.	_____
	b. Check local position indication and record on Attachment A.	_____
5.9.6	Red Lock OPEN AF-123A, P-38A AFP Mini Recirc AF-4007-S Outlet Isolation.	_____
		<u>IV</u>
5.9.7	Red Lock SHUT AF-123B, P-38A AFP Mini Recirc AF-4007-S Bypass Isolation.	_____
		<u>IV</u>
5.9.8	Verify P-38A LO suction pressure trip has reset.	_____
5.10	Verify P-38A AFP Discharge valves shut.	_____
	AF-4022, P-38A AFP Discharge to 2HX-1A Steam Generator	_____
	AF-4023, P-38A AFP Discharge to 1HX-1A Steam Generator.	_____
5.11	Check P-38A pump bearing oil level between the red lines on the glass.	_____
		Inboard
		Outboard
5.12	Perform the following to place PI-4010A, P-38A AFP Suction Pressure Indicator in service.	_____
5.12.1	Shut AF-36D, PI-4010A vent valve.	_____
5.12.2	Open AF-36C, PI-4010A isolation valve.	_____
5.12.3	Record suction pressure on Attachment B.	_____
5.13	Ensure PC-4012, P-38A AFP Discharge Control, is in <u>MANUAL AND SHUT</u> .	_____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

CAUTION

If, at any time, equipment operation appears abnormal, secure the pump.

NOTE: C01A 2-8 and 2-10, Auxiliary Feedwater System Disabled,
annunciator will clear when P-38A is removed from PULLOUT.

5.14 Start P-38A. Time Start _____

NOTE: P-38A suction pressure trip is set at 6.5 psig (with a 20 second time delay).

5.15 Verify P-38A suction pressure as read on PI-4010A is greater than the 7.0 psig low suction pressure alarm setpoint. Record on Attachment B.

5.16 Check AF-4007, P-38A AFP Mini-Recirc Control, mini-recirculation valve open.

NOTE: The following step satisfies full stroke exercising of AF-115, P-38A Minimum Flow Check Valve.

5.17 Check mini-recirculation flow equal to or greater than 70 gpm on FIT-4050A AND record on Attachment B.

5.18 Check the packing glands for excessive leakage or overheating.

5.19 Check pump and motor for unusual noise or overheating.

5.20 WHEN P-38A has run for two-minutes,
THEN record the following on Attachment B.

- PI-4011, Pump Discharge Pressure.
- PI-4010A, Pump Suction Pressure.
- Recirculation Flow Vibration Data.

CAUTION

To prevent damage to P-38A monitor and maintain AFW discharge and / or recirc flow greater than 50 GPM OR STOP P-38A.

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TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

NOTE: Injection of auxiliary feedwater to steam generators at power will cause an increase in reactor power. RTO calculation does NOT account for auxiliary feedwater flow and is therefore unreliable. Use of DTP and Nuclear Instruments is mandatory during that time. (B-2)

5.21 Perform Quarterly Full Stroke Open Exercise Test of Check Valves 1AF-102, AF-112, AF-109, and Full Flow Test of P-38A as follows:

5.21.1 Open AF-4023, P-38A AFP Discharge to 1HX-1A Steam Generator.

NOTE: Rapid Flow adjustments may cause Steam Generator Level deviation alarms to be generated.

5.21.2 Adjust PC-4012, P-38A AFP Discharge Pressure Controller, to establish approximately 115 gpm as read locally on DPIS-4007.

5.21.3 After at least 45 seconds of operation above 95 gpm, check AF-4007, P-38A AFP Mini-Recirc Control, SHUT

NOTE: Rapid Flow adjustments may cause Steam Generator Level deviation alarms to be generated.

5.21.4 Adjust PC-4012, P-38A AFP Discharge Pressure Controller, to establish 200 gpm as read locally on DPIS-4007.

5.21.5 WHEN P-38A has run for two-minutes with stable flow at 200 gpm, THEN record data on Attachment C and the IST required vibration points listed on Attachment C.

5.21.6 Shut PC-4012, P-38A AFP Discharge Pressure Controller.

5.21.7 Check AF-4007, P-38A AFP Mini-Recirc Control, OPEN.

5.21.8 Shut AF-4023, P-38A AFP Discharge to 1HX-1A Steam Generator.

CAUTION

To prevent damage to P-38A monitor and maintain AFW discharge and / or recirc flow greater than 50 GPM OR STOP P-38A.

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TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.22 Perform Quarterly Full Stroke Open Exercise Test of Check Valve
2AF-103 and Record P-38A Pump Bearing Temperature as follows:

5.22.1 Open AF-4022, P-38A AFP Discharge to 2HX-1A Steam
Generator.

NOTE: Rapid Flow adjustments may cause Steam Generator Level
deviation alarms to be generated.

5.22.2 Adjust PC-4012, P-38A AFP Discharge Pressure Controller, to
establish approximately 115 gpm as read locally on
DPIS-4007.

5.22.3 After at least 45 seconds of operation above 95 gpm, check
AF-4007, P-38A AFP Mini-Recirc Control, SHUT.

NOTE: Rapid Flow adjustments may cause Steam Generator Level
deviation alarms to be generated.

5.22.4 Adjust PC-4012, P-38A AFP Discharge Pressure Controller, to
establish greater than or equal to 200 gpm as read locally on
DPIS-4007.

5.22.5 WHEN P-38A has run for two-minutes with stable flow at
greater than or equal to 200 gpm,
THEN record data on Attachment C.

5.22.6 Shut PC-4012, P-38A AFP Discharge Pressure Controller.

5.22.7 Check AF-4007, P-38A AFP Mini-Recirc Control, OPEN.

5.22.8 Shut AF-4022, P-38A AFP Discharge to 2HX-1A Steam
Generator.

5.22.9 Perform the following to remove PI-4010A from service.

a. Shut AF-36C, PI-4010A

b. Open AF-36D, PI-4010A vent valve.

CAUTION

To prevent damage to P-38A monitor and maintain AFW discharge and / or
recirc flow greater than 50 GPM OR STOP P-38A.

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TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

NOTE: C01A 2-8 and 2-10, Auxiliary Feedwater System Disabled, annunciators will alarm when P-38A is placed in PULLOUT.

5.22.10 Place P-38A control switch in STOP, THEN PULLOUT.

Observe pump during coastdown for unusual noises, vibrations, or other abnormal conditions. Record results on Attachment C.

Time stop _____

5.22.11 Set PC-4012, P-38A AFP Discharge Pressure Controller, setpoint at 1200 psig.

5.22.12 Place PC-4012, P-38A AFP Discharge Pressure Controller, in AUTO.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.23 Perform Quarterly Shut Exercise Test (Pressure Drop Test) of Check Valve AF-133, P-38A AFP AF-4012 N₂ Backup First-off Isol as follows:

5.23.1 Make an entry into the SOMs log stating that P-38A is unavailable per IT 10. _____

5.23.2 Shut AF-130, AF-4012 AFP Discharge Control Pneumatic, valve. _____

5.23.3 Shut AF-184 P-38A AFP AF-4063 Upstream Isolation _____

5.23.4 Shut IA-354, I/P-4012 AFP Discharge Control Air Inlet. _____

5.23.5 Uncap AND open the following. _____

- IA-355, Instrument Air Vent _____

- AF-132, Intermediate Vent _____

5.23.6 Record PI-4051, AF-4012 AFP Disch Ctl AF-4053 N₂ Backup Reg Outlet PI, pressure on Attachment D. _____

NOTE: The Normal Alignment is one Nitrogen bottle valved in with its bottle stop open and one Nitrogen bottle isolated with its bottle stop shut. Pressure must be greater than 1850 psig as indicated on PI-4054, AF-4012 AFP Disch Ctl AF-4053 N₂ Backup Reg Inlet PI.

5.23.7 Shut the isolation valve for the in-service N₂ bottle, AF-146 or AF-143, AND begin timing. (Circle the valve isolated because it will be returned to service later in the procedure).

AF-146 \ AF-143 _____

NOTE: It is permissible to use 'snoop' to check for and tighten fittings within the test boundary if leakage appears to be excessive.

5.23.8 WHEN 15 minutes have elapsed, THEN record PI-4051, AF-4012 AFP Disch Ctl AF-4053 N₂ Backup Reg Outlet PI, pressure AND elapsed time on Attachment D. _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.23.9 Shut AND cap the following.

- IA-355, Instrument Air Vent.
- AF-132, Intermediate Vent.

IV

5.23.10 Open AF-130, AF-4012 AFP Discharge Control Pneumatic.

IV

5.23.11 Open AF-184 P-38A AFP AF-4063 Upstream Isolation

IV

IV

NOTE: The ability of AF-4012 to exercise by the South nitrogen bottle within the required acceptance criteria time limitations satisfies the stroke open test of check valve AF-145 and stroke shut test of AF-142.

5.24 Perform Quarterly Open Exercise Test of AF-145, P-38A AFP N₂ Backup South Bottle, Check Valve and Shut Exercise Test of AF-142, P-38A AFP N₂ backup North Bottle, Nitrogen Backup Check Valve, as follows:

5.24.1 Open AF-146, P-38A AFP AF-4012 N₂ Backup South Bottle Outlet Isolation Valve.

5.24.2 Ensure the south N₂ Bottle Stop Isolation Valve is OPEN.

5.24.3 Ensure the north N₂ Bottle Stop Isolation Valve is SHUT.

5.24.4 Open AF-143, P-38A AFP AF-4012 N₂ Backup North Bottle Outlet Isolation Valve.

5.24.5 Ensure AF-144, P-38A AFP AF-4012 N₂ Backup North Bottle Outlet Vent is SHUT

5.24.6 Remove vent cap downstream of AF-144 AND slowly Open AF-144.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

- | | | |
|---------|--|-------|
| 5.24.7 | Ensure PC-4012, P-38A AFP Discharge Pressure Controller, in MANUAL. | _____ |
| 5.24.8 | Open <u>AND</u> time AF-4012, P-38A AFP Discharge Control. | _____ |
| 5.24.9 | Record time to open on Attachment D. | _____ |
| 5.24.10 | Shut <u>AND</u> time AF-4012, P-38A AFP Discharge Control.
(for information only) | _____ |
| 5.24.11 | Record time to shut on Attachment D. | _____ |
| 5.24.12 | Shut AF-144, P-38A AFP AF-4012 N ₂ Backup North Bottle
Outlet Vent <u>AND</u> install downstream vent cap. | _____ |
| 5.24.13 | Shut AF-146, P-38A AFP AF-4012 N ₂ Backup South Bottle
Outlet Isolation Valve. | _____ |
| 5.24.14 | Shut AF-143, P-38A AFP AF-4012 N ₂ Backup North Bottle
Outlet Isolation Valve. | _____ |
| 5.24.15 | Shut the south N ₂ Bottle Stop Isolation Valve. | _____ |

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

NOTE: The ability of AF-4012 to exercise by the North nitrogen bottle within the required acceptance criteria time limitations satisfies the stroke open test of check valve AF-142 and stroke shut test of AF-145.

5.25 Perform Quarterly Open Exercise Test of AF-142, P-38A AFP N₂ Backup North Bottle, Nitrogen Backup Check Valve and Shut Exercise Test of AF-145, P-38A AFP N₂ Backup South Bottle Check Valve as follows:

5.25.1 Open AF-143, P-38A AFP AF-4012 N₂ backup North Bottle Outlet Isolation valve. _____

5.25.2 Open the north N₂ Bottle Stop Isolation Valve. _____

5.25.3 Ensure the south N₂ Bottle Stop Isolation Valve is SHUT. _____

5.25.4 Open AF-146, P-38A AFP AF-4012 N₂ Backup South Bottle Outlet Isolation Valve. _____

5.25.5 Ensure AF-147, P-38A AFP AF-4012 N₂ Backup South Bottle Outlet Vent is SHUT _____

5.25.6 Remove vent cap downstream of AF-147 AND slowly Open AF-147. _____

5.25.7 Ensure PC-4012, P-38A AFP Discharge Pressure Controller, in MANUAL. _____

5.25.8 Open AND time AF-4012, P-38A AFP Discharge Control. _____

5.25.9 Record time to open on Attachment D. _____

5.25.10 Shut AND time AF-4012, P-38A AFP Discharge Control. (for information only) _____

5.25.11 Record time to shut on Attachment D. _____

5.25.12 Shut AF-147, P-38A AFP AF-4012 N₂ Backup South Bottle Outlet Vent AND install downstream vent cap. _____

5.25.13 Shut AF-143, P-38A AFP AF-4012 N₂ Backup North Bottle Outlet Isolation Valve. _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

		<u>INITIALS</u>
5.25.14	Shut AF-146, P-38A AFP AF-4012 N ₂ Backup South Bottle Outlet Isolation Valve.	_____
5.25.15	Shut the north N ₂ Bottle Stop Isolation Valve.	_____
5.26	Open IA-354, IP-4012 AFP Discharge Control Air Inlet.	_____
		IV
5.27	Open Nitrogen bottle isolation valve closed in Step 5.23.7. AF-143 or AF-146.	_____
		IV
5.28	Ensure the associated north/south N ₂ Bottle Stop Isolation Valve is OPEN.	_____
		IV
5.29	Set PC-4012, P-38A AFP Discharge Pressure Controller, controller setpoint, at 1200 psig.	_____
5.30	Ensure PC-4012, P-38A AFP Discharge Pressure Controller, in AUTO.	_____
NOTE: C01A 2-8 and 2-10, Auxiliary Feedwater System Disabled, annunciators will clear when P-38A is placed in AUTO.		
5.31	Place P-38A control switch in AUTO.	_____
5.32	Make an entry into the SOMs log stating that P-38A is available per IT 10.	_____
5.33	Perform Independent Operator Verification.	_____

VALVE	DESCRIPTION	POSITION	INITIALS
PC-4012	P-38A AFP Discharge Pressure Controller	Auto-1200 psig	
AF-4022	P-38A AFP Discharge to 2HX-1A Steam Generator	SHUT*	
AF-4023	P-38A AFP Discharge to 1HX-1A Steam Generator	SHUT*	
AF-4007	P-38A Mini Recirc Control	UG/LH	
N/A	P-38A control switch	AUTO	
	* The pump discharge valve control switch for an operating unit must be in AUTO		

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

	<u>INITIALS</u>
5.34 <u>IF</u> Level 4 Dedicated Operators were assigned to positions in Step 5.2.3, <u>THEN</u> release them from their duties. (N/A if continuing with Train B)	_____
5.35 <u>IF</u> test is being performed as a post-maintenance operability pump test, <u>THEN</u> contact an IST Engineer or representative to verify measured ASME OM Code data is acceptable prior to declaring the pump operable. (Otherwise mark this step as N/A)	_____
5.36 Check operability by comparing the test data with pump and valve acceptance criteria in Attachments A, C, and D and sign the last page of each Attachment.	_____
5.37 <u>IF</u> test was satisfactory, <u>THEN</u> exit the TS Action Condition for P-38A. Otherwise, N/A this step and start fire rounds. Time _____ Date _____	_____
5.38 <u>IF</u> Train B has already been tested <u>OR</u> is <u>NOT</u> planned on being tested, <u>THEN</u> proceed to Step 5.76, Recovery.	_____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

NOTE: DSS permission is required to proceed with Step 5.39.

NOTE: When operability testing of Train B is NOT required, then N/A Steps 5.39 through 5.75.

5.39 TRAIN B TEST

5.39.1 IF performing Section 5.39,
THEN the following auxiliary feedwater pumps with their
associated flow paths, are operable as applicable.
(N/A the step that is NOT applicable.)

a. For two-unit operation:

P-38A, 1P-29, and 2P-29 are operable. _____

b. For single-unit operation:

P-38A and 1P-29 are operable for Unit 1.

OR

P-38A and 2P-29 are operable for Unit 2. _____

5.39.2 IF sufficient qualified operators are NOT available on shift to
support Step 5.39.3,
THEN consider the equipment unavailable per Maintenance Rule
AND N/A Step 5.39.3. _____

5.39.3 Assign a Level 4 Dedicated Operator in the Control Room
AND a Level 4 Dedicated Operator in the field per OM 3.26,
Use of Dedicated Operators, to perform the restoration steps of
Attachment K, if required. (Otherwise mark this step as N/A) _____

5.40 Enter the appropriate TS Action Condition for P-38B.
(N/A this step if NOT required for current plant conditions per TS: 3.7.5)
TIME _____ DATE _____

5.41 IF at any time during the performance of this test an Auxiliary Feedwater
Initiation is required,
THEN immediately perform Attachment K to recover Train B. (N/A this
step if NOT required.) _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

NOTE: When performing operability checks of the pump only, then N/A all Steps of 5.42 through 5.46 and Steps 5.60 through 5.67.

NOTE: To prevent preconditioning a valve, the applicable Section steps shall be performed out of sequence to provide a recordable action for each valve manipulation. (i.e., If the initial position of the valve is shut and the first step is to shut and time the valve, then the opening stroke evolution shall be performed first.)

5.42 Perform Quarterly Full Stroke Open and Shut, Timing, and Position Indication Test of AF-4020, P-38B AFP Discharge to 2HX-1B Steam Generator as follows:

5.42.1 Open AND time AF-4020, P-38B AFP Discharge to 2HX-1B Steam Generator.

a. Record time to open on Attachment E. _____

b. Check local valve position indication and record on Attachment E. _____

5.42.2 Shut AND time AF-4020, P-38B AFP Discharge to 2HX-1B Steam Generator, AND perform the following.

a. Record time to shut on Attachment E. _____

b. Check local valve position indication and record on Attachment E. _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.43 Perform Quarterly Full Stroke Open and Shut, Timing, and Position Indication Test of AF-4021, P-38B AFP Discharge to 1HX-1B Steam Generator as follows:

5.43.1 Open AND time AF-4021, P-38B AFP Discharge to 1HX-1B Steam Generator

- a. Record time to open on Attachment E.
- b. Check local valve position indication and record on Attachment E.

5.43.2 Shut AND time AF-4021, P-38B AFP Discharge to 1HX-1B Steam Generator, AND perform the following.

- a. Record time to shut on Attachment E.
- b. Check local valve position indication and record on Attachment E.

NOTE: The satisfactory performance of Step 5.44 also satisfies the exercise requirements in the open direction for AF-153, P-38B AFP AF-4019 N₂ Backup First-off Isol, as required by the ASME OM Code.

5.44 Perform Quarterly Stroke Open, Timing, and Position Indication Test of AF-4019, P-38B AFP Discharge Control, and Open (forward exercising) of Check Valve AF-153, P38B AFP AF-4019 N₂ Backup First-Off Iso as follows:

5.44.1 Place PC-4019, P-38B AFP Discharge Control, in MANUAL.

5.44.2 Shut AF-155, P-38B AFP AF-4019 Nitrogen Backup Second Off Isolation.

5.44.3 Open AND time AF-4019, P-38B AFP Discharge Control.

- a. Record time to open on Attachment E.
- b. Check local valve position indication and record on Attachment E

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.44.4 Shut AND time AF-4019, P-38B AFP Discharge Control. (For information only)

a. Record time to shut on Attachment E.

b. Check local valve position indication and record on Attachment E.

5.44.5 Open AF-155, P-38B AFP AF-4019 Nitrogen Backup Second Off Isolation.

5.44.6 IF NOT continuing with the balance of this procedure, THEN continue with Step 5.66. (Otherwise mark this step as N/A)

NOTE: C01A 2-8 and 2-10, Auxiliary Feedwater System Disabled, annunciators will alarm when P-38B is placed in PULLOUT.

5.45 Place P-38B Motor Driven Aux Feed Pump control switch in PULLOUT.

NOTE: Use local indication for timing of AF-4014, P-38B AFP Mini-Recirc Control. Stroke time to closed satisfies Fail Safe Test requirements.

5.46 Perform Quarterly Stroke Open and Shut, Timing, Position Indication and Fail-Safe Test of AF-4014, P-38B AFP Mini-Recirc Control, as follows:

5.46.1 Unlock AND shut AF-124A, P-38B AFP Mini Recirc AF-4014-S Outlet Isolation.

5.46.2 Unlock AF-124B, P-38B AFP Mini Recirc AF-4014-S Bypass Isolation.

5.46.3 Open AND time AF-4014, P-38B AFP Mini-Recirc Control, by opening AF-124B, P-38B AFP Mini Recirc AF-4014-S Bypass Isolation.

a. Record time to open on Attachment E.

b. Check local valve position indication and record on Attachment E

5.46.4 Shut AF-124B, P-38B AFP Mini Recirc AF-4014-S Bypass Isolation.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

		<u>INITIALS</u>
5.46.5	Shut <u>AND</u> time AF-4014, P-38B AFP Mini-Recirc Control, by opening AF-124A.	
	a. Record time to shut on Attachment E.	_____
	b. Check local valve position indication and record on Attachment E.	_____
5.46.6	Red Lock OPEN AF-124A, P-38B AFP Mini-Recirc AF-4014-S Outlet Isolation.	_____
		IV
5.46.7	Red Lock SHUT AF-124B, P-38B AFP Mini Recirc AF-4014-S Bypass Isolation.	_____
		IV
5.46.8	Verify P-38B LO Suction Pressure Trip has reset.	_____
5.47	Verify P-38B AFP Discharge valves shut.	_____
	AF-4020, P-38B AFP Discharge to 2HX-1B Steam Generator	_____
	AF-4021, P-38B Discharge to 1HX-1B Steam Generator.	_____
5.48	Check P-38B pump bearing oil level between the red line on the glass.	
	Inboard	_____
	Outboard	_____
5.49	Place PI-4017A, P-38B AFP Suction Pressure Indicator in service as follows.	
5.49.1	Shut AF-49D, PI-4017A vent valve.	_____
5.49.2	Open AF-49C, PI-4017A isolation valve.	_____
5.49.3	Record suction pressure on Attachment F.	_____
5.50	Ensure PC-4019, P-38B AFP Discharge Control, is in <u>MANUAL AND SHUT</u> .	_____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

CAUTION

If, at any time, equipment operation appears abnormal, secure the pump.

NOTE: C01A 2-8 and 2-10, Auxiliary Feedwater System Disabled,
annunciator will clear when P-38B is removed from PULLOUT.

5.51 Start P-38B. Time Start _____

NOTE: P-38B suction pressure trip is set at 6.5 psig (with a 20 second time delay).

5.52 Verify P-38B suction pressure as read on PI-4017A is greater than the
.7.0 psig low suction pressure alarm setpoint. Record on Attachment F. _____

5.53 Check AF-4014, P-38B AFP Mini-Recirc Control, mini-recirculation
valve open. _____

NOTE: The following step satisfies full stroke open exercising of AF-116,
P-38B Minimum Flow Check Valve.

5.54 Check mini-recirculation flow equal to or greater than 70 gpm on
FIT-4050B AND record on Attachment F. _____

5.55 Check packing glands for excessive leakage or overheating. _____

5.56 Check the pump and motor for unusual noise or overheating. _____

5.57 WHEN P-38B has run for two-minutes,
THEN record the following data on Attachment F.

- PI-4018, Pump Discharge Pressure
- PI-4017A, Pump Suction Pressure
- Recirculation Flow Vibration Data

CAUTION

To prevent damage to P-38B monitor and maintain AFW discharge and / or
recirc flow greater than 50 GPM OR STOP P-38B.

TCN 2002-0851

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

NOTE: Injection of auxiliary feedwater to steam generators at power will cause an increase in reactor power. RTO calculation does NOT account for auxiliary feedwater flow and is therefore unreliable. Use of DTP and Nuclear Instruments is mandatory during that time. (B-2)

5.58 Perform Full Stroke Open Exercise Test of Check Valves 1AF-104, AF-113, AF-110, and Full Flow Test of P-38B as follows:

5.58.1 Open AF-4021, P-38B Aux Feedwater Pump Disch to 1HX-1B Steam Generator.

NOTE: Rapid Flow adjustments may cause Steam Generator Level deviation alarms to be generated.

5.58.2 Adjust PC-4019, P-38B AFP Discharge Control, to establish approximately 115 gpm as read locally on DPIS-4014.

5.58.3 After at least 45 seconds of operation above 95 gpm, check AF-4014, P-38B AFP Mini-Recirc Control, shut.

NOTE: Rapid Flow adjustments may cause Steam Generator Level deviation alarms to be generated.

5.58.4 Adjust PC-4019, P-38B AFP Discharge Control, to establish 200 gpm as read locally on DPIS-4014.

5.58.5 WHEN P-38B has run for two-minutes with stable flow at 200 gpm, THEN record data on Attachment G and the IST required vibration points listed on Attachment G.

5.58.6 Shut PC-4019, P-38B AFP Discharge Control.

5.58.7 Check AF-4014, P-38B AFP Mini-Recirc Control, open.

5.58.8 Shut AF-4021, P-38B AFP Disch to Unit 1 SG B CV.

5.58.9 IF Unit 1 Reactor Power was reduced to perform this test, THEN power increase may be commenced as directed by the DSS. (Mark N/A if desired)

CAUTION
To prevent damage to P-38B monitor and maintain AFW discharge and / or recirc flow greater than 50 GPM OR STOP P-38B.

Tcn 2002-0851

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

- CAUTION**
To prevent damage to P-38B monitor and maintain AFW discharge and / or recirc flow greater than 50 GPM OR STOP P-38B.
- TCN 2002-0051
- 5.59 Perform Quarterly Full Stroke Open Exercise Test of 2AF-105. P-38B AFP Discharge to 2HX-1B SG Check. and Record P-38B Bearing Temperature as follows:
- 5.59.1 Open AF-4020, P-38B AFP Discharge to 2HX-1B Steam Generator.
- NOTE: Rapid Flow adjustments may cause Steam Generator Level deviation alarms to be generated.
- 5.59.2 Adjust PC-4019, P-38B AFP Discharge Control, to establish approximately 115 gpm as read locally on DPIS-4014.
- 5.59.3 After at least 45 seconds of operation above 95 gpm, check AF-4014, P-38B AFP Mini-Recirc Control, shut.
- NOTE: Rapid Flow adjustments may cause Steam Generator Level deviation alarms to be generated.
- 5.59.4 Adjust PC-4019, P-38B AFP Discharge Control, to establish 200 gpm as read locally on DPIS-4014.
- 5.59.5 WHEN P-38B has run for two-minutes with stable flow at 200 gpm, THEN record data on Attachment G.
- 5.59.6 Shut PC-4019, P-38B AFP Discharge Control.
- 5.59.7 Check AF-4014, P-38B AFP Mini-Recirc Control, open.
- 5.59.8 Shut AF-4020, P-38B AFP Discharge to 2HX-1B Steam Generator.
- 5.59.9 IF Unit 2 Reactor Power was reduced to perform this test, THEN power increase may be commenced as directed by the DSS. (Mark N/A if desired)
- 5.59.10 Perform the following to remove PI-4017A from service.
- a. Shut AF-49C, PI-4017A.
 - b. Open AF-49D, PI-4017A vent valve.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

September 9, 2002

INITIALS

NOTE: C01A 2-8 and 2-10, Auxiliary Feedwater System Disabled, annunciators will alarm when P-38B is placed in PULLOUT.

5.59.11 Place P-38B control switch in STOP, THEN PULLOUT.

Observe pump during coastdown for unusual noises, vibrations, or any other abnormal conditions. Record results on Attachment G.

Time Stop _____

5.59.12 Set PC-4019, P-38B AFP Discharge Control, controller setpoint, at 1200 psig.

5.59.13 Place PC-4019, P-38B AFP Discharge Control, in AUTO.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.60 Perform Quarterly Shut (Pressure Drop) Exercise Test of AF-153, P-38B
AFP AF-4019 N₂ Backup First-off Isol. as follows:

5.60.1 Make an entry into the SOMs log stating that P-38B is unavailable
per IT 10. _____

5.60.2 Shut AF-150, AF-4019 AFP Discharge Control Pneumatic. _____

5.60.3 Shut AF-185 P-38B AFP AF-4064 Upstream Isolation _____

5.60.4 Shut IA-356, Instrument Air Isolation valve. _____

5.60.5 Uncap AND open the following. _____

• IA-357, Instrument Air Vent _____

• AF-152, Intermediate Vent _____

5.60.6 Record PI-4056, downstream pressure indicator, pressure on
Attachment H. _____

NOTE: The Normal Alignment is one Nitrogen bottle valved in
with its bottle stop open and one Nitrogen bottle isolated
with its bottle stop shut. Pressure must be greater than
1850 psig as indicated on PI-4059, AF-4019 AFP Disch Ctl
AF-4058 N₂ Backup Reg Inlet PI.

5.60.7 Shut the isolation valve for the in-service N₂ bottle, AF-163 or
AF-166, AND begin timing. (Circle the valve isolated because
it will be returned to service later in the procedure). _____

AF-163 \ AF-166 _____

NOTE: It is permissible to use 'snoop' to check for and tighten
fittings within the test boundary if leakage appears to be
excessive.

5.60.8 WHEN 15 minutes have elapsed,
THEN record PI-4056 pressure and elapsed time
on Attachment H. _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.60.9 Shut AND cap the following.

- IA-357, Instrument Air Vent.
- AF-152, Intermediate Vent.

IV

5.60.10 Open AF-150, AF-4019 AFP Discharge Control Pneumatic.

IV

5.60.11 Open AF-185 P-38B AFP AF-4064 Upstream Isolation.

IV

NOTE: The ability of AF-4019 to exercise by the North nitrogen bottle within the required acceptance criteria time limitations satisfies the stroke open exercise test of check valve AF-165 and stroke shut exercise test of AF-162.

5.61 Perform Quarterly Open Exercise Test of AF-165, P-38B AFP AF-4019 N₂ Backup North Bottle Check Valve, and Shut Exercise Test of AF-162, P-38B AFP AF-4019 N₂ Backup South Bottle Check Valve as follows:

5.61.1 Open AF-166, P-38B AFP AF-4019 Backup North Bottle Outlet Isolation Valve.

5.61.2 Open the north N₂ Bottle Stop Isolation Valve.

5.61.3 Ensure the south N₂ Bottle Stop Isolation Valve is SHUT.

5.61.4 Open AF-163 P-38B AFP AF-4019 N₂ Backup South Bottle Outlet Isolation Valve.

5.61.5 Ensure AF-164, P-38B AFP AF-4019 N₂ Backup South Bottle Outlet Vent is SHUT

5.61.6 Remove vent cap downstream of AF-164 AND slowly Open AF-164.

5.61.7 Ensure PC-4019, P-38B AFP Discharge Pressure Controller, in MANUAL.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

		<u>INITIALS</u>
5.61.8	Open <u>AND</u> time AF-4019, P-38B AFP Discharge Control.	_____
5.61.9	Record time to open on Attachment H.	_____
5.61.10	Shut <u>AND</u> time AF-4019, P-38B AFP Discharge Control. (for information only)	_____
5.61.11	Record time to shut on Attachment H.	_____
5.61.12	Shut AF-164, P-38B AFP AF-4019 N ₂ Backup South Bottle Outlet Vent <u>AND</u> install downstream vent cap.	_____
5.61.13	Shut AF-166, P-38B AFP AF-4019 Backup North Bottle Outlet Isolation Valve.	_____
5.61.14	Shut AF-163 P-38B AFP AF-4019 N ₂ Backup South Bottle Outlet Isolation Valve.	_____
5.61.15	Shut the north N ₂ Bottle Stop Isolation Valve.	_____
NOTE:	The ability of AF-4019 to exercise by the South nitrogen bottle within the required acceptance criteria time limitations satisfies the stroke open test of check valve AF-162 and stroke shut test of AF-165.	
5.62	<u>Perform Quarterly Open Exercise Test of AF-162, P-38B AFP AF-4019 N₂ Backup South Bottle, Check Valve, and Shut Exercise Test of AF-165, P-38B AFP AF-4019 N₂ Backup North Bottle Check Valve as follows:</u>	
5.62.1	Open AF-163, P-38B AFP AF-4019 Backup South Bottle Outlet Isolation Valve.	_____
5.62.2	Open the associated south N ₂ Bottle Stop Isolation Valve.	_____
5.62.3	Ensure the north N ₂ Bottle Stop Isolation Valve is SHUT.	_____
5.62.4	Open AF-166 P-38B AFP AF-4019 N ₂ Backup North Bottle Outlet Isolation Valve.	_____
5.62.5	Ensure AF-167, P-38B AFP AF-4019 N ₂ Backup North Bottle Outlet Vent is SHUT	_____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

		<u>INITIALS</u>
5.62.6	Remove vent cap downstream of AF-167 <u>AND</u> slowly Open AF-167.	_____
5.62.7	Ensure PC-4019, P-38B AFP Discharge Pressure Controller, in MANUAL.	_____
5.62.8	Open <u>AND</u> time AF-4019, P-38B AFP Discharge Control.	_____
5.62.9	Record time to open on Attachment H.	_____
5.62.10	Shut <u>AND</u> time AF-4019, P-38B AFP Discharge Control. (for information only)	_____
5.62.11	Record time to shut on Attachment H.	_____
5.62.12	Shut AF-167, P-38B AFP AF-4019 N ₂ Backup North Bottle Outlet Vent <u>AND</u> install downstream vent cap.	_____
5.62.13	Shut AF-166, P-38B AFP AF-4019 Backup North Bottle Outlet Isolation Valve.	_____
5.62.14	Shut AF-163, P-38B AFP AF-4019 Backup South Bottle outlet Isolation Valve.	_____
5.62.15	Shut the south N ₂ Bottle Stop Isolation Valve.	_____
5.63	Open IA-356, Instrument Air Isolation valve.	_____
5.64	Open Nitrogen bottle isolation valve closed in Step 5.60.7. AF-163 or AF-166.	IV _____
5.65	Ensure the associated north/south N ₂ Bottle Stop Isolation Valve is OPEN.	IV _____
5.66	Set PC-4019, P-38B AFP Discharge Pressure Controller, controller setpoint, at 1200 psig.	IV _____
5.67	Ensure PC-4019, P-38B AFP Discharge Pressure Controller, in AUTO.	_____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

NOTE: C01A 2-8 and 2-10, Auxiliary Feedwater System Disabled, annunciators will clear when P-38B is placed in AUTO.

- 5.68 Place P-38B control switch in AUTO. _____
- 5.69 Make an entry into the SOMs log stating that P-38B is available per IT 10. _____
- 5.70 Perform Independent Operator Verification.

VALVE	DESCRIPTION	POSITION	INITIALS
PC-4019	P-38B AFP Discharge Control	Auto-1200 psig	
AF-4020	P-38B AFP Discharge to 2HX-1B Steam Generator	SHUT*	
AF-4021	P-38B AFP Discharge to 2HX-1A Steam Generator	SHUT*	
AF-4014	P-38B Mini-Recirc Control	UG/LH	
	P-38B control switch	AUTO	
	* The pump discharge valve control switch for an operating unit must be in AUTO		

- 5.71 IF Level 4 Dedicated Operators were assigned to positions in Step 5.39.3, THEN release them from their duties. (N/A if continuing with Train A) _____
- 5.72 IF test is being performed as a post-maintenance operability pump test, THEN contact an IST Engineer or representative to verify measured ASME OM Code data is acceptable prior to declaring the pump operable. _____
- 5.73 Check operability by comparing the test data with pump and valve acceptance criteria in Attachments E, G, and H and sign the last page of the Attachment. (Attachment F is for information only). _____
- 5.74 IF test was satisfactory, THEN exit TS Action Condition for P-38B. Otherwise, N/A this step and start fire rounds.
Time _____ Date _____ _____
- 5.75 IF Train A has already been tested OR is NOT planned on being tested, THEN proceed to Step 5.76, Recovery. _____

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

5.76 RECOVERY

IF NOT already performed,
AND reactor power was reduced to perform this test,
THEN power increase may be commenced as directed by the DSS.

5.77 The SRO to perform Step 6.1 of Section 6.0, Analysis.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

6.0 ANALYSIS

6.1 Operations

6.1.1 Comparisons with allowable ranges of Acceptance Criteria test values complete.

SRO

Date/Time

6.1.2 Forward completed procedure to IST Coordinator

NOTE: To be completed within 96 hours of test completion by IST coordinator or his representative.

6.2 IST Coordinator

6.2.1 Comparisons with allowable ranges of test values and analysis of deviations complete. _____

6.2.2 Any requirements for corrective action? (If yes, give details in the IST Remarks section.) _____

(Circle one) YES NO

6.2.3 IF Acceptance Criteria needs updating, THEN initiate a procedure revision.

Data Analyzed By

Date/Time

IST Remarks:

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

7.0 REFERENCES

7.1 Technical Specifications:

7.1.1 3.7.5, Auxiliary Feedwater (AFW)

7.1.2 5.5.7, Inservice Testing Program

7.1.3 SR 3.7.5.5

7.1.4 SR 3.7.5.2

7.2 Procedures

7.2.1 CL 13E, Part 2, Auxiliary Feedwater Valve Lineup Motor-Driven

7.2.2 P&ID M-217, Auxiliary Feedwater System

7.2.3 STPT 14.11, Secondary Systems: Auxiliary Feedwater

7.2.4 OM 3.26, Use of Dedicated Operators

7.3 Other

7.3.1 ASME OM Code, 95Edition with 96 Addenda, Code for Operation and Maintenance of Nuclear Power Plants.

8.0 BASES

B-1 CR 98-0690, Surveillance procedures do not contain TS surveillance requirement references

B-2 Reference TS-RE-001, AOP-21

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

ATTACHMENT A

VALVE STROKE VERIFICATION

NOTE: Data that falls outside the listed Acceptance Criteria constitutes inoperability of the related equipment.

Quarterly Full Stroke Open and Shut, Timing and Position Indication of AF-4022, P-38A AFP Discharge to 2HX-1A Steam Generator						
Step No.	Parameter Measured	Instrument Used	Units	Reading	Acceptance Criteria	Initials
5.5.1	Time to OPEN	Stopwatch	sec.		15.27 - 20.67	
5.5.1	Local Position Indication	N/A	N/A		OPEN	
5.5.2	Time to SHUT	Stopwatch	sec.		15.76 - 21.32	
5.5.2	Local Position Indication	N/A	N/A		SHUT	

Quarterly Full Stroke Open and Shut, Timing and Position Indication of AF-4023, P-38A Discharge to 1HX-1A Steam Generator						
Step No.	Parameter Measured	Instrument Used	Units	Reading	Acceptance Criteria	Initials
5.6.1	Time to OPEN	Stopwatch	sec.		15.55 - 21.03	
5.6.1	Local Position Indication	N/A	N/A		OPEN	
5.6.2	Time to SHUT	Stopwatch	sec.		15.62 - 21.14	
5.6.2	Local Position Indication	N/A	N/A		SHUT	

Quarterly Stroke Open, Timing and Position Indication Test of AF-4012, P-38A AFP Discharge Control, and Forward Exercising of AF-133, P-38A AFP AF-4012 N ₂ Backup First-Off Isol						
Step No.	Parameter Measured	Instrument Used	Units	Reading	Acceptance Criteria	Initials
5.7.3	Time to OPEN	Stopwatch	sec.		4.8 - 14.4	
5.7.3	Local Position Indication	N/A	N/A		OPEN	
5.7.4	Time to SHUT (info only)	Stopwatch	sec.		N/A	
5.7.4	Local Position Indication	N/A	N/A		SHUT	

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

ATTACHMENT A - Continued
VALVE STROKE VERIFICATION

NOTE: Data that falls outside the listed Acceptance Criteria constitutes inoperability of the related equipment.

Quarterly Stroke Open and Shut, Timing, Position Indication , and Fail-Safe Test of AF-4007, P-38A AFP. Mini-Recirc Control						
Step No.	Parameter Measured	Instrument Used	Units	Reading	Acceptance Criteria	Initials
5.9.3	Time to OPEN	Stopwatch	sec.		1.9 - 5.68.	
5.9.3	Local Position Indication	N/A	N/A		OPEN	
5.9.5	Time to SHUT	Stopwatch	sec.		8.94 - 14.9	
5.9.5	Local Position Indication	N/A	N/A		SHUT	

Acceptance Criteria Satisfied for all tested valves in Attachment A: (Circle one) SAT UNSAT
Remarks:

_____/_____
Performer Date/Time

_____/_____
SRO Date/Time

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

ATTACHMENT B
P-38A, AFW PUMP PERFORMANCE DATA (RECIRCULATION FLOW)

NOTE 1: Data that falls outside the listed Acceptance Criteria constitutes inoperability of the related equipment.

NOTE 2: Vibration points which are shaded must be recorded by the Micro-logger but are NOT required to be transferred to the table. Only points marked A, B, C, D, and E must be transferred to the table and are required for ASME OM Code. See Figure 1 for locations.

Step No.	Parameter Measured	Units	Reading	Acceptance Criteria	Initials
5.12.3	PI-4010A, P-38A AFP Suction Pressure	psig		N/A	
5.15	PI-4010A, P-38A AFP Suction Pressure	psig		>7	
5.17	Full Stroke Open Test of AF-115 FIT-4050A, Mini-Recirc Flow	gpm		≥70	
5.20	PI-4011 Pump Discharge Pressure	psig		N/A	
5.20	PI-4010A, P-38A AFP Suction Pressure	psig		N/A	
5.20	Recirculation Flow Vibration Data	INSTRUMENT	UNITS	READINGS	
	P38A 1V ips	Micro-logger	IPS pk		
	P38A 1H ips	Micro-logger	IPS pk		
	P38A 1H ae	Micro-logger	G env		
	P38A 1H acc	Micro-logger	G pk		
	P38A 1A ips	Micro-logger	IPS pk		
	P38A 2V ips	Micro-logger	IPS pk		
	P38A 2H ips	Micro-logger	IPS pk		
	P38A 2H ae	Micro-logger	G env		
	P38A 2H acc	Micro-logger	G pk		
	P38A 2A ips	Micro-logger	IPS pk		
	P38A 3V ips	Micro-logger	IPS pk		
	P38A 3H ips	Micro-logger	IPS pk		
	P38A 3H ae	Micro-logger	G env		
	P38A 3H acc	Micro-logger	G pk		
	P38A 4V ips	Micro-logger	IPS pk		
	P38A 4H ips	Micro-logger	IPS pk		
	P38A 4H ae	Micro-logger	G env		
	P38A 4H acc	Micro-logger	G pk		
	P38A 4A ips	Micro-logger	IPS pk		

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

ATTACHMENT C

P-38A, AFW Pump Performance Data
1AF-102, AF-109, AF-112 and 2AF-103 Full Flow Test

NOTE: Data that falls outside the listed Acceptance Criteria constitutes inoperability of the related equipment.

Quarterly Full Stroke Open Exercise Test of 1AF-102, P-38A AFP Discharge To IHX-1A SG Check, AF-109, P-38A AFP Discharge Check, and AF-112, P-38A Suction Check From CSTs					
Step No.	Parameter Measured	Units	Reading	Acceptance Criteria	Initials
5.21.5	1PI-468, IHX-1A SG Pressure	psig		N/A	
5.21.5	1FI-4036, Flow to IHX-1A SG	gpm		≥200	

P-38A Full Flow IST Required Data (200 gpm)					
Step No.	Parameter Measured	Units	Reading	Acceptance Criteria	Initials
5.21.5	PI-4010A, P-38A AFP Suction Press	psig		N/A	
5.21.5	PI-4011, P-38A AFP Discharge Press	psig		N/A	
5.21.5	P-38A Delta P Note 1	psig		1186 - 1231	
5.21.5	FTT-4050A, Mini-Recirc Flow	gpm		N/A	
5.21.5	DPIS-4007, P-38A Flow	gpm		200	
5.21.5	P38A 3V ips (C) vibration	IPS pk		≤ 0.256	
5.21.5	P38A 3H ips (D) vibration	IPS pk		≤ 0.491	
5.21.5	P38A 4A ips (E) vibration	IPS pk		≤ 0.378	
5.21.5	P38A 4V ips (A) vibration	IPS pk		≤ 0.195	
5.21.5	P38A 4H ips (B) vibration	IPS pk		≤ 0.597	

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

ATTACHMENT E

VALVE STROKE VERIFICATION

NOTE: Data that falls outside the listed Acceptance Criteria constitutes inoperability of the related equipment.

Perform Quarterly Full Stroke Open and Shut, Timing, and Position Indication Test of AF-4020, P-38B AFP Discharge to 2HX-1B Steam Generator						
Step No.	Parameter Measured	Instrument Used	Units	Reading	Acceptance Criteria	Initials
5.42.1	Time to OPEN	Stopwatch	sec.		15.67 - 21.21	
5.42.1	Local Position Indication	N/A	N/A		OPEN	
5.42.2	Time to SHUT	Stopwatch	sec.		16.15 - 21.85	
5.42.2	Local Position Indication	N/A	N/A		SHUT	

Quarterly Full Stroke Open and Shut, Timing, and Position Indication Test of AF-4021, P-38B AFP Discharge to 1HX-1B Steam Generator						
Step No.	Parameter Measured	Instrument Used	Units	Reading	Acceptance Criteria	Initials
5.43.1	Time to OPEN	Stopwatch	sec.		15.84 - 21.44	
5.43.1	Local Position Indication	N/A	N/A		OPEN	
5.43.2	Time to SHUT	Stopwatch	sec.		16.01 - 21.65	
5.43.2	Local Position Indication	N/A	N/A		SHUT	

Quarterly Stroke Open, Timing, and Position Indication Test of AF-4019, P-38B AFP Discharge Control, and Open (forward exercising) of Check Valve AF-153, P38B AFP AF-4019 N ₂ Backup First-Off Isol						
Step No.	Parameter Measured	Instrument Used	Units	Reading	Acceptance Criteria	Initials
5.44.3	Time to OPEN	Stopwatch	sec.		4.62 - 13.84	
5.44.3	Local Position Indication	N/A	N/A		OPEN	
5.44.4	Time to SHUT (info only)	Stopwatch	sec.		N/A	
5.44.4	Local Position Indication	N/A	N/A		SHUT	

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

ATTACHMENT F
P-38B, AFW PUMP PERFORMANCE DATA (RECIRCULATION FLOW)

NOTE 1: Data that falls outside the listed Acceptance Criteria constitutes inoperability of the related equipment.

NOTE 2: Vibration points which are shaded must be recorded by the Micro-logger but are NOT required to be transferred to the table. Only points marked A, B, C, D, and E must be transferred to the table and are required for ASME OM Code. See Figure 1 for Locations.

Step No.	Parameter Measured	Units	Reading	Acceptance Criteria	Initials
5.49.3	PI-4017A, P-38B AFP Suction Pressure	psig		N/A	
5.52	PI-4017A, P-38B AFP Suction Pressure	psig		>7	
5.54	Full Stroke Open Test of AF-116 FIT-4050B, Mini-Recirc Flow	gpm		≥70	
5.57	PI-4018 Pump Discharge Pressure	psig		N/A	
5.57	PI-4017A, P-38B AFP Suction Pressure	psig		N/A	
5.57	Recirculation Flow Vibration Data	INSTRUMENT	UNITS	READINGS	
	P38B 1V ips	Micro-logger	IPS pk		
	P38B 1H ips	Micro-logger	IPS pk		
	P38B 1H ae	Micro-logger	G env		
	P38B 1H acc	Micro-logger	G pk		
	P38B 1A ips	Micro-logger	IPS pk		
	P38B 2V ips	Micro-logger	IPS pk		
	P38B 2H ips	Micro-logger	IPS pk		
	P38B 2H ae	Micro-logger	G env		
	P38B 2H acc	Micro-logger	G pk		
	P38B 2A ips	Micro-logger	IPS pk		
	P38B 3V ips	Micro-logger	IPS pk		
	P38B 3H ips	Micro-logger	IPS pk		
	P38B 3H ae	Micro-logger	G env		
	P38B 3H acc	Micro-logger	G pk		
	P38B 4V ips	Micro-logger	IPS pk		
	P38B 4H ips	Micro-logger	IPS pk		
	P38B 4H ae	Micro-logger	G env		
	P38B 4H acc	Micro-logger	G pk		
	P38B 4A ips	Micro-logger	IPS pk		

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

ATTACHMENT G

P-38B, AFW Pump Full Flow Performance Test Data, and
Full Stroke Open Exercise Test of Check Valves
1AF-104, AF-110, AF-113 and 2AF-105

NOTE: Data that falls outside the listed Acceptance Criteria constitutes inoperability of the related equipment.

Quarterly Full Stroke Open Exercise Test Of Check Valves 1AF-104, AF-110, AF-113					
Step No.	Parameter Measured	Units	Reading	Acceptance Criteria	Initials
5.58.5	1PI-478; SG B Pressure	psig		N/A	
5.58.5	1FI-4037, SG B Total AF Flow	gpm		≥200	

P-38B Full Flow IST Required Data (200 gpm)

Step No.	Parameter Measured	Units	Reading	Acceptance Criteria	Initials
5.58.5	PI-4017A, P-38B AFP Suction Pressure	psig		N/A	
5.58.5	PI-4018, P-38B AFP Discharge Pressure	psig		N/A	
5.58.5	P-38B Delta P Note 1	psid		1182 - 1251.3	
5.58.5	FTT-4050B, Mini-Recirc Flow	gpm		N/A	
5.58.5	DPIS-4014, P-38B Flow	gpm		200	
5.58.5	P38B 3V ips (C) Vibration	IPS pk		≤ 0.383	
5.58.5	P38B 3H ips (D) Vibration	IPS pk		≤ 0.4938	
5.58.5	P38B 4A ips (E) Vibration	IPS pk		≤ 0.252	
5.58.5	P38B 4V ips (A) Vibration	IPS pk		≤ 0.635	
5.58.5	P38B 4H ips (B) Vibration	IPS pk		≤ 0.7	

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

ATTACHMENT G

Quarterly Full Stroke Open Exercise Test of 2AF-105, P-38B AFP Discharge to 2HX-1B SG Check					
Step No.	Parameter Measured	Units	Reading	Acceptance Criteria	Initials
5.59.5	2PI-478, 2HX-1B SG Pressure	psig		N/A	
5.59.5	2FI-4037, Flow to 2HX-1B SG	gpm		≥200	
5.59.5	1TR-2000B, Pump Bearing Inboard Temp. Note 2	°F		<160	
5.59.5	1TR-2000B, Pump Bearing Outboard Temp. Note 2	°F		<160	
5.59.11	Pump Coastdown Behavior: Check (√) if OK	N/A		N/A	

NOTE 1: Differential pressure = pump discharge pressure - pump suction pressure during test.

NOTE 2: Check recorded bearing temperatures are within the limits listed on Attachment I.

Acceptance Criteria Satisfied for all tested valves in Attachment G: (Circle one) SAT UNSAT
Remarks:

_____/_____/_____
Performer Date/Time

_____/_____/_____
SRO Date/Time

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

ATTACHMENT I
EVALUATION OF MOTOR DRIVEN AFP BEARING COOLING

- 1.0 Compare the bearing temperatures, as recorded on the Attachments C and G to the criteria below:

ACCEPTABLE RANGE

Pump inboard bearing temperature less than or equal to 120°F.

Pump outboard bearing temperature less than or equal to 120°F.

ALERT RANGE

Pump inboard bearing temperature greater than 120°F but less than 160°F.

Pump outboard bearing temperature greater than 120°F but less than 160°F.

ACTION REQUIRED (PUMP OOS) RANGE

Pump inboard bearing temperature greater than or equal to 160°F.

Pump outboard bearing temperature greater than or equal to 160°F

- 2.0 If a bearing temperature falls into the Alert range, then:

2.1 The pump is still operable.

2.2 A Work Order shall be written to perform an engineering evaluation of the pump.

- 3.0 If a bearing temperature falls into the Required Action range, then:

3.1 The pump is considered inoperable.

3.2 The TS: Action Condition remains in effect.

3.3 Notify the DCS and STA.

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

ATTACHMENT J

P-38A Train Recovery for AF Initiation

NOTE: Steps NOT required are marked as N/A and Independent verification steps may be performed after restoration is complete.

- | | | |
|-----|--|-------|
| 1.0 | Set PC-4012, P-38A AFP Discharge Pressure Controller, setpoint at 1200 psig. | _____ |
| 2.0 | Open AF-135, P-38A AFP 4012 Nitrogen Backup Second Off Isolation. | _____ |
| 3.0 | Place PC-4012, P-38A AFP Discharge Pressure Controller in AUTO. | _____ |
| 4.0 | Open AF-123A, P-38A AFP Mini Recirc AF-4007-S Outlet Isolation. | _____ |
| | | IV |
| 5.0 | Shut AF-123B, P-38A AFP Mini Recirc AF-4007-S Bypass Isolation. | _____ |
| | | IV |
| 6.0 | <u>IF</u> the AF-4012 Backup Nitrogen Supply Valves were in the process of being tested,
<u>THEN</u> perform the following: | |
| 6.1 | Shut IA-355, Instrument Air Vent. | _____ |
| 6.2 | Shut AF-132, Intermediate Vent. | _____ |
| 6.3 | Open IA-354, I/P-4012 AFP Discharge Control Air Inlet. | _____ |
| 6.4 | Open AF-130, AF-4012 AFP Discharge Control Pneumatic Valve. | _____ |
| | | IV |
| 6.5 | Open AF-143 or AF-146, AF-4012 Backup N ₂ Bottle Isolation Valves. | _____ |
| | | IV |
| 7.0 | Place P-38A control switch in AUTO. | _____ |
| | | IV |

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

INITIALS

ATTACHMENT K

P-38B Train Recovery for AF Initiation

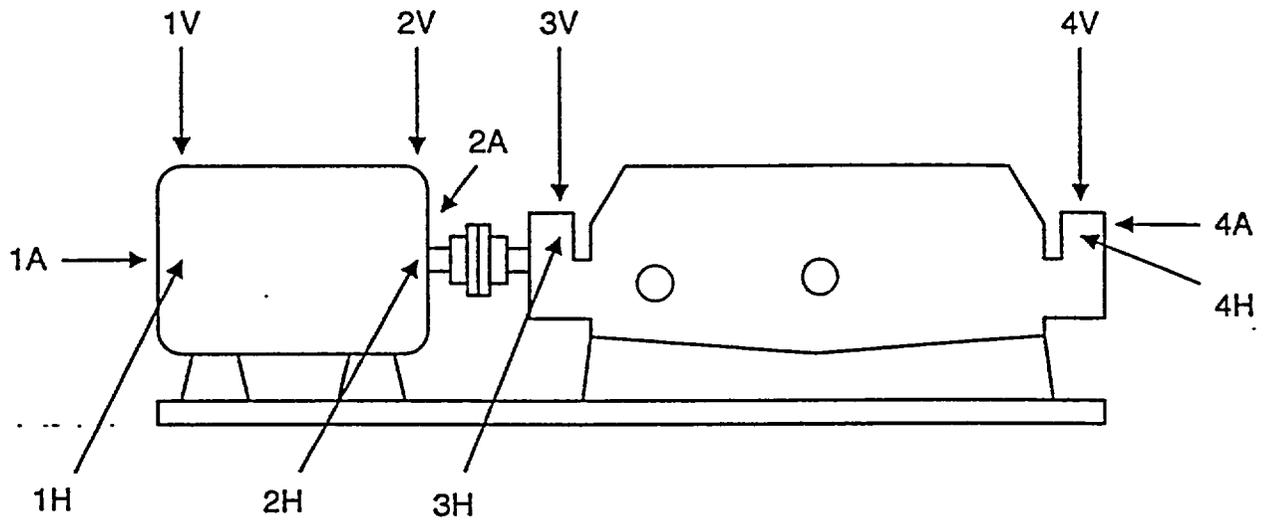
NOTE: Steps NOT required are marked as N/A and Independent verification steps may be performed after restoration is complete.

- | | | |
|-----|--|-------|
| 1.0 | Set PC-4019, P-38B AFP Discharge Pressure Controller, setpoint at 1200 psig. | _____ |
| 2.0 | Open AF-155, P-38B AFP 4019 Nitrogen Backup Second Off Isolation. | _____ |
| 3.0 | Place PC-4019, P-38B AFP Discharge Pressure Controller in AUTO. | _____ |
| 4.0 | Open AF-124A, P-38B AFP Mini Recirc AF-4014-S Outlet Isolation. | _____ |
| | | IV |
| 5.0 | Shut AF-124B, P-38B AFP Mini Recirc AF-4014-S Bypass Isolation. | _____ |
| | | IV |
| 6.0 | <u>IF</u> the AF-4019 Backup Nitrogen Supply Valves were in the process of being tested,
<u>THEN</u> perform the following: | |
| 6.1 | Shut IA-357, Instrument Air Vent. | _____ |
| 6.2 | Shut AF-152, Intermediate Vent. | _____ |
| 6.3 | Open IA-356, Instrument Air Isolation Valve. | _____ |
| 6.4 | Open AF-150, AF-4019 AFP Discharge Control Pneumatic Valve. | _____ |
| | | IV |
| 6.5 | Open AF-163 or AF-166, AF-4019 Backup N ₂ Bottle Isolation Valves. | _____ |
| | | IV |
| 7.0 | Place P-38B control switch in AUTO. | _____ |
| | | IV |

TEST OF ELECTRICALLY-DRIVEN AUXILIARY FEED
PUMPS AND VALVES (QUARTERLY)

FIGURE 1

Electric Motor Driven Auxiliary Feed Pump



General Layout Drawing - Refer to markings on machine for actual locations.

V = Vertical

H = Horizontal

A = Axial

1,2,3,4 = Standard bearing numbering (driver to driven)