

Point Beach Nuclear Plant
PLANT CHANGE INITIATION

PLANT MODIFICATION/MINOR PLANT CHANGE NO.: 99-029*C
WO# 0202509

INITIATION

Title: AUX FEED WATER PUMP 1P-29 MINIMUM FLOW RECIRC LINE ORIFICE

☒ QA ☐ AQ ☐ Non-QA ☒ SR ☐ Non-SR Unit 1 ☒ Unit 2 ☐ Common ☐

CHAMPS System Code: AF EWR: 99-031 CR: 99-1391

Project Objectives: Eliminate excessive noise and vibration that occurs when operating 1P-29 on recirculation flow.

Proposed Scope: Replace IRO-4003 with a better type that will prevent cavitation and reduce vibration in the minimum recirculation piping for 1P-29.

Initiated By: Alex Foltynowicz

Date: 7/16/1999

CHANGE DETERMINATION

	YES	NO	
Is the change Temporary?	<u> </u>	<u>X</u>	If YES go to NP 7.3.1 Temp Mod
Is this a Setpoint Only change?	<u> </u>	<u>X</u>	If YES go to NP 7.3.8 Setpoints
Is this an Equivalent change?	<u> </u>	<u>X</u>	If YES go to NP 9.3.3 SPEED
Document change only?	<u> </u>	<u>X</u>	If YES determine if previously evaluated
Does previous evaluation encompass change?	<u> </u>	<u> </u>	If YES proceed with document changes
Commercial Facility Change?	<u> </u>	<u>X</u>	If YES, determine if document updates are required.
For Commercial Facility Change Only: Document Updates?	<u> </u>	<u> </u>	If YES contact design supervisor. If NO proceed outside of Engineering process controls. Document below.
Is this small scope?	<u>X</u>	<u> </u>	If YES perform Minor Plant Change If NO, it is a Plant Modification. Go to EAC for review and approval (NP 7.2.1)

If it is determined that this is not a Plant Change or Modification, document and/or attach justification. Also, attach document update checklist if necessary.

ENGINEERING CHANGE PROCESS TO USE:

Minor Plant Change

[Signature] 2-18-02
Prepared By: Date

[Signature] 2-18-02
Engineering Group Lead: Date

A/264

Point Beach Nuclear Plant
PLANT DESIGN CHANGE CHECKLIST

PLANT MODIFICATION/MINOR PLANT CHANGE NO.: 99-029*C

Title: AUX FEED WATER PUMP 1P-29 MINIMUM FLOW RECIRC LINE ORIFICE

DESIGN SUPERVISOR

Design Controls and Project Controls: (Ref. NP 7.2.1, Commentary, for completion of this section.)

Check Applicable Design Controls:

- ☒ Design Input Checklist (PBF-1584)
- ☒ DUC (PBF-1606)
- ☒ Design Verification Notice (PBF-1583)
- ☐ Calculations
- ☒ Design Documentation (PBF-1585), or equivalent
- ☒ Design Change In Progress DCN's
- ☒ Engineering Change Requests
- ☐ Specifications
- ☐ _____
- ☐ _____

Clarifications/Basis:

Check Applicable Project Controls:

- ☐ Modification Team Required (indicate minimum groups to request)
- ☐ Conceptual Design Package Required
- ☐ Budget Design Project (Impact) Number
- ☐ Detailed Project Schedule
- ☐ IWP Required

Clarifications/Basis:

Assigned Modification Engineer:

Rob Chapman

Design Supervisor:

RD Hornak

Date: 2-18-02

PLANT MODIFICATION/MINOR PLANT CHANGE NO.: 99-029*C

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Review conceptual design. Attach comments on NPSU Document Review Comment Sheet (PBF-1622 or equivalent)

<u>Group</u>	<u>Acceptance Signature</u>	<u>Date</u>	<u>Comments</u>
<u>Radiation Protection</u>			<input type="checkbox"/> None <input type="checkbox"/> Attached
<u>Fire Protection</u>			<input type="checkbox"/> None <input type="checkbox"/> Attached
<u>Installing Organization</u>			<input type="checkbox"/> None <input type="checkbox"/> Attached
			<input type="checkbox"/> None <input type="checkbox"/> Attached
			<input type="checkbox"/> None <input type="checkbox"/> Attached
			<input type="checkbox"/> None <input type="checkbox"/> Attached
			<input type="checkbox"/> None <input type="checkbox"/> Attached
<u>Design Supervisor</u>			<input type="checkbox"/> None <input type="checkbox"/> Attached

Point Beach Nuclear Plant
PLANT DESIGN CHANGE CHECKLIST

PLANT MODIFICATION/MINOR PLANT CHANGE NO.: 99-029*C

FINAL DESIGN REVIEWS

Review final design. Attach comments on Document Review Comment Sheet (PBF-1622 or equivalent)

Group	Acceptance Signature	Date	Comments
Radiation Protection	<i>Carl D. [Signature]</i>	3-12-2002	<input checked="" type="checkbox"/> None <input type="checkbox"/> Attached
Fire Protection Engineer	<i>[Signature]</i>	3-8-2002	<input type="checkbox"/> None <input type="checkbox"/> Attached
Mechanical Maintenance	<i>[Signature]</i>	03/13/02	<input checked="" type="checkbox"/> None <input type="checkbox"/> Attached
Operations	<i>M. Dasey</i>	3/14/02	<input checked="" type="checkbox"/> None <input type="checkbox"/> Attached
System Engineering	<i>[Signature]</i>	03/13/2002	<input checked="" type="checkbox"/> None <input type="checkbox"/> Attached
Site QA	<i>[Signature]</i>	3/13/2002	<input checked="" type="checkbox"/> None <input type="checkbox"/> Attached
SDM Technical Review	<i>[Signature]</i>	3/14/02	<input checked="" type="checkbox"/> None <input type="checkbox"/> Attached

INDEPENDENT REVIEW OF INSTALLATION DOCUMENTS (IWP or Work Order Plan) List all IWP's and WO's used for installation

IWP's/WO#(s) IWP 99-029*C (WO 0202509), WO 0202507 (Stub pieces), WO 0202508 (Prefab)

All design and licensing requirements have been incorporated in the installation and testing document(s).

Reviewer: *[Signature]*

Date: 3/14/02

RELEASE FOR INSTALLATION

All design controls have been properly implemented and the project has been appropriately reviewed. All necessary documents are approved. This design is released for installation. Comments regarding release of this design are noted below:

Design Supervisor: *[Signature]*

Date: 3/14/02

COMMENTS

Point Beach Nuclear Plant
PLANT DESIGN CHANGE CHECKLIST

PLANT MODIFICATION/MINOR PLANT CHANGE NO.: 99-029*C

ACCEPTANCE

Plant modification is installed, tested, and all documents required for acceptance are complete.

Modification Engineer:

Rob Chapman [Signature]

Date:

10-14-02

CLOSEOUT

Plant modification is complete, including submittal of all document updates in the Document Update Checklist (PBF-1606).
Reference change tracking numbers on PBF-1606 where appropriate (DCN numbers, FCR numbers, etc.).

Modification Engineer:

[Signature]

Date:

10-23-02

Design Supervisor:

[Signature]

Date:

10-23-02

NUCLEAR INFORMATION MANAGEMENT

Microfilm the entire modification package.

**AUX FEED WATER PUMP 1P-29 MINIMUM FLOW RECIRC LINE
ORIFICE
UNIT 1**Revision 0
March 13, 2002**PURPOSE**

The purpose of the proposed modification is to reduce piping line noise and vibration when operating the 1P-29 Turbine-Driven Auxiliary Feedwater Pump (TDAFP) in the recirculation mode. The existing minimum flow recirculation line generates excessive vibration and noise, which has resulted in several socket weld failures. This has been attributed to turbulence and cavitation resulting from the flow condition through restrictive orifice 1RO-4003. The reduction of piping line noise and vibration will be accomplished by implementation of the recommendations of root cause evaluation RCE 99-081 and EWR 99-031, which is to replace the existing flow restricting orifice with a different type that will prevent cavitation.

In addition, as recommended by RCE 99-081 and CR 99-1391, a portion of the AF piping associated with RO will be replaced to facilitate oversized socket welds due to multiple occurrences of pinhole leaks. The purpose for the oversized socket welds is to offer a significant high-cycle fatigue improvement over the standard ASME Code socket welds in this vibration critical application.

SCOPE

The scope of MR 99-029*C is to replace 1RO-4003 with a new pressure reducing orifice. The new orifice is a 600# class globe valve with a cavitation reducing cage. In addition, pipe from the 90° elbow just downstream of 1FE-4049 to the upstream socket-weld on 1AF-15 will be replaced. The replacement piping will be welded with socket welds that are oversized in a 2/1 configuration as described in EPRI technical reports TR-107455 and TR-111188.

This modification is classified as QA, Safety-Related (SR), seismic Class 1, although all piping downstream of 1RO-4003 is QA, non safety-related (AQ), seismic Class 1. The RO and modified piping are non-ASME Section XI class.

DESIGN INPUTS

- DG-M09, Revision 2, Design Requirements for Piping Stress Analysis, March 20, 2000.
- ASME B31.1 – 1992, Power Piping
- DG-M03, Revision 9, Bechtel Piping Class Summary, June 8, 2001.
- Wisconsin Electric Power Company, Drawing GLD M-217, Sheet 1, QA Classification Diagram Auxiliary Feedwater System QA Classification Diagram, Point Beach Nuclear Plant – Unit 1 & 2, Revision 11.
- Bechtel Drawing 6118 M-217 Sh. 1, Auxiliary Feedwater System, Revision 68.
- Bechtel Drawing P-159, Aux. F.W. From Heating Boiler Cnds. Return & Pump Recirc. To Cnds Stg. Tank 6" & 3" JG-4 Unit 1.
- Bechtel Pipe Class DB-3, Auxiliary Feedwater Piping
- Flowserve Pressure Reducing Orifice Drawing 94-16249, 2" 600# Globe Control Valve
- FSAR Section 10.2, Auxiliary Feedwater System.

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ORIFICE
UNIT 1**Revision 0
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- EWR 99-031, AF Pump Recirculation Noise In The Control Room
- CR 99-1391, SCAQ on Potential Common Mode Failure Mechanism Affecting Welds In AFW Pump Recirc. Line.
- RCE 99-081, Socket Weld Failures in AF Pump Recirc. Piping
- Wisconsin Electric Power Company, Point Beach Nuclear Plant – RCE 99-081, "Socket – Weld Failures In Auxiliary Feedwater Pump Recirculation Piping".
- Bechtel Specification No. 6118-M-6, Rev. 3, "Specification For Auxiliary Feedwater Pumps Point Beach Nuclear Plant Units 1 & 2 Wisconsin-Michigan Power Company, dated 10/28/68.
- EPRI TR-111188, "Vibration Fatigue Testing of Socket Welds". Interim Report, December 1998.
- EPRI TR-107455, "Vibration Fatigue of Small Bore Socket-Welded Pipe Joints", Final Report, June 1997.

DESIGN DESCRIPTION AND ANALYSIS

This modification will replace 1RO-4003 installed in the minimum recirculation line for AF pump 1P-29, with a new type of orifice. The presently installed RO was accredited with causing flow induced cavitation causing excessive noise and vibration in the Auxiliary Feedwater minimum recirculation piping system. The replacement RO will have the same function as the existing orifice, which is to provide pressure reduction and act as a pressure boundary for the AF system piping.

A comparison of the mechanical and flow performance characteristics of existing vs. new RO indicates that replacement RO is equal or better. The replacement RO will provide an improved anti-cavitation characteristics and thus will minimize hydrodynamic noise and vibration under liquid application. The original design requirements for the RO are specified in the Bechtel Specification No. 6118-M-6, Rev. 3, "Specification For Auxiliary Feedwater Pumps Point Beach Nuclear Plant Units 1 & 2 Wisconsin-Michigan Power Company, dated 10/28/68. This specification does not address design/construction specifics for this orifice. It specifies that, "Each pump shall be furnished with a pressure reducing orifice to be used in conjunction with the on-off control valve in the pump recirculation piping. The orifice shall be provided with ended weld connections for installation in AF piping. If the flow through the orifice may cause erosion, special materials, such as 316 stainless steel, shall be used."

The design of the new RO is different than the presently installed orifice. The existing RO uses inner orifice plates to control the flow and pressure drop across the orifice. The new RO works in a similar manner except that control of flow and pressure drop is accomplished by directing the flow through the series of close-fitting cylindrical stages, each constructed with expansion holes and intersecting circumferential channels that restrict the flow. This flow path of multiple restriction and enlargements reduces the pressure gradually across each trim cylinder, avoiding the sharp pressure drop typical to conventional, single-throttling orifice.

The orifices that were installed by MR 99-029*A/*B for the P-38A/B motor driven auxiliary feedwater pumps (RO-4008/4015) were not adjustable. After installation of one orifice, the flow was lower than expected, and additional holes needed to be drilled in the orifice inner cylindrical stage. It is for this reason that the orifices installed for the turbine driven auxiliary feedwater pumps have the capability of being adjusted.

In a letter dated 3/2/2001 from Flowserve, the stated minimum recirculation flow for 1P-29 is 75 gpm, but this requires the pump to be inspected after 60 hours of operation at this flow. If the pump is operated at 130 gpm, then

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ORIFICE
UNIT 1**Revision 0
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up to 1500 hours of service can be accumulated before maintenance is required. Based on calculation N-91-032 and stated in FSAR Section 10.2.3, the current maximum flow through the recirculation line with the control valve failed open is 126 gpm. The new orifice will be set to approximately the same flow rate (between 120 and 130 gpm), even though that this is below the 1500 hour limit. Increasing the flow would require additional analysis since it would reduce the available flow to the steam generators.

The replacement RO is contained in a 2"- 600# cast stainless steel globe valve body (ASME A 351 Type CF8M) and designed to the requirements of ASME B31.1 and ASME B16.34 - 1996 Edition. The working pressure is 1440 psig at 100 °F, meeting the Pipe Class 2"-DB-3 requirements. The flow rate of the RO can be adjusted during operation with the system pressurized. The RO will not be designed to shut-off flow. The adjusting device will be positively secured in its position using a lockwire attached to the stem and bonnet.

The currently installed RO, was designed and constructed by the Byron-Jackson Company (BJCO), and installed under MR 88-099. The replacement RO was procured from the Flowserve Company under P.O.# 4500xxxxx. Included is a design and seismic report qualifying the RO for use in this application. A hydrostatic pressure test of the replacement RO shell was performed at the Flowserve facility in accordance with ASME B16.34, except that the test pressure was maintained for at least 30 minutes.

In addition to RO replacement, some of the existing piping associated with RO will also be replaced. The piping to be replaced is shown on construction sketch SK-MR-99-029*C and includes a 90° piping elbow upstream of the IRO-4003 to the upstream socket weld on the isolation valve 1AF-15. This piping replacement is being done to simplify the installation and to allow for the installation oversized socket welds. The replacement piping and RO will be joined by socket welds which are oversized in a "2/1" configuration, with an axial dimension approximately twice that of the radial dimension, as recommended by the EPRI technical reports. The oversized socket weld detail is shown on construction sketch SK-MR-99-029*C. All welds in the recirculation line up to valve 1AF-15 will be oversized, with the exception of the butt welds at the 1FE-4049 flanges.

EPRI technical reports TR-107455 and TR-111188 address the issue of high-cycle fatigue failure of socket welds at nuclear power plants. Significant research was performed on the subject, and a large number of failed welds from plants were examined. It was discovered both through analysis and examination that fatigue failures were less likely to occur when the axial size of the socket weld is nearly twice that of the radial size. As a result, these reports recommend installing these "2/1" socket welds in applications that experience high-cycle fatigue. Although the vibrations in the recirculation piping will be reduced significantly due to the new RO design, these oversized welds will be installed to prevent any future weld failures.

The piping to be replaced is classified as Pipe Class 2"-DB-3. This Pipe Class specifies carbon steel materials, however due to corrosion concerns the recirculation line piping was installed as stainless steel (per MR 88-099). Thus, replacement piping and piping components will be also stainless steel.

The replacement piping material for the proposed modification is ASTM A-312 Grade TP 316. The replacement piping fittings material is ASTM A-182 Grade F 304. The replacement piping is 2" Schedule 80, and the fittings are 3000# class, which will meet the pressure and temperature ratings for Pipe Class 2"-DB-3 (1440 psig at 100 °F).

The replacement RO is heavier than existing one, and it will add approximately 40 lbs to the existing AF piping system. In addition, the replacement piping assembly will have a slightly different internal length of piping than the existing piping layout. However, face-to-face length of the replacement pipe spool piece will be exactly the same as the existing one. These differences between the existing and proposed piping configurations have been addressed by an addendum to Piping System Qualification Report WE-100070 which will demonstrate ASME B31.1 compliance of the modified piping.

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In addition, the flow characteristic of the replacement RO and its affect on the associated plant calculations was evaluated. This evaluation was documented in Addendum N-91-031-00-A to Calculation No. N-91-031, "1 & 2 P-29 Mini - Recirc Line System Characteristics", Rev.0 and Addendum N-91-032-00-A to Calculation No. N-91-032, "Comparison of Nominal Flow Rates from 2P-29 to 2HX-1A and 2HX-1B with the Recirc Line Open", Rev. 0. The results of this evaluation found that the slight differences in the flow characteristic between existing and replacement pressure reducing orifices is acceptable and does not significantly alter the above calculations results.

None of the above changes is introducing a new, unknown equipment to PBNP. Furthermore, replacement components are passive in nature when the system is operational and will be designed, installed and tested in accordance with existing procedures and controls.

To implement this modification, the portion of the AF piping will be cut at the socket weld at valve 1AF-15 and disconnected at the 1FE-4049 flange. This disassembly is shown on Sketch SK-MR-99-029*C. Piping, and pipe components removed will not be reused for this modification. The only exception is the 1FE-4049 flange and its associated pipe stub up to the first 90° elbow. This assembly will be inspected and then reused. To assure high quality of socket welds, a replacement piping spool piece (containing the new RO) will be fabricated in the shop in accordance with details provided by Construction Sketch SK-MR-99-029*C.

Implementation of this modification will reduce the possibility for line noise and vibration when operating this line in the recirculation mode.

Design pressure, operating pressure, design temperature and other pertinent design parameters for RO are specified in the Data Sheet attached to purchase order P003467.

No procedure changes result from this modification. This is a physical replacement of a RO and associated portion of the auxiliary feedwater system. There will be no additional components added or operating modes changes that will require operating procedure changes.

Welding for this modification will be performed in accordance with welding procedure WPM 2.P1-8-GT and WPM 2.P8-GT.

The RO will be tested at a calibrated flow test facility. The RO will be adjusted accordingly during this test to pass a flow of between 120 and 130 gpm at conditions that are identical to those when the 1P-29 AFP is running. After installation, flow will be verified by other multiple flow instruments, and the orifice can be adjusted accordingly, if necessary.

NDE requirements for the Pipe Class affected by the proposed modification are specified in DG-M02 and the original code of construction, USAS B31.1 - 1967. They require the finished socket welds to receive a Visual Examination (VT). The affected existing welds have a history of failure, therefore, in addition to VT of the final socket welds, root welds will receive VT and Liquid Penetrant Examination (PT). Piping socket welds shall be examined utilizing the acceptance criteria of ASME B31.1 - 1992.

As required by ASME B31.1, an initial service leakage test will be performed at normal operating pressure and temperature (with the 1P-29 auxiliary feedwater pump running).

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ORIFICE
UNIT 1**

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DESIGN OUTPUT

The Installation Work Plan IWP 99-029*C will be prepared to identify installation requirements including pre-operational conditions, installation testing and post installation testing requirements. In addition, a 10 CFR 50.59 Safety Review (SCR 2001-0981) has been prepared to evaluate the proposed change to PBNP.

The following calculations were prepared to address the proposed modification:

- Addendum to WE Piping System Qualification Report WE-100070
- Addendum N-91-031-00-A to WE Calculation No. N-91-031, Rev. 0
- Addendum N-91-032-00-A to WE Calculation No. N-91-032, Rev. 0

The following Installation Work Plan is associated with this modification:

- IWP 99-029*C (WO 0202509), Aux Feed Water Pump 1P-29 Minimum Flow Recirc Line Orifice - Unit 1
- WO 0202507, Welding of stub pieces onto orifice for offsite flow testing
- WO 0202508, Prefab work for MR 99-029*C

The following construction sketch is associated with this modification:

- SK-MR-99-029*C, Auxiliary Feedwater System Orifice 1RO-4003 Replacement, Unit 1

Other documents:

- 10 CFR 50.59/72.48 Safety Review, SCR 2001-0981
- Document Update Checklist, PBF-1606
- Flowserve Design and Seismic Analysis Report TR 01.103
- Flowserve Drawing 94-16249
- Fire Protection Conformance Checklist, PBF-2060, PBF-2060e

DOCUMENT UPDATE CHECKLIST

Plant Modification/Minor Plant Change No. MR 99-029*C
Work Order No.:

DOCUMENTATION UPDATE SHEET AND CLOSEOUT CHECKLIST

Required For				
N/A	Release	Acceptance (Completion)	Closeout (Submittal)	
	X			A. TRAINING
	X			1. Copy Submitted to Training (Design Description)
X				2. TWR Generated (TWR # <u>00-046</u>) Ref. SIMGL C1.1
		X		3. Simulator Changes Initiated (SDR # _____)
				4. Plant Status Update/Just In Time Training
				B. FINAL DESIGN ORGANIZATION
X				1. Drawings
	X			a. Design Change In Progress DCN's Initiated
				b. Construction sketches Issued
X				c. Revised Drawings Issued for Priority 1 and 2 Control Room Drawings - Logics, P&IDs, 499 series elementaries.
X				d. Revised Drawings Issued for Work Control Center Drawings - P&IDs
X				e. Revised Drawings Issued for I&C Drawings - Reactor Protection and Safeguards Elementaries.
X				f. Master Data Book - Control Room, Work Control Center, and Local Panel - PBF-2093
X				g. DCN's released for incorporation
			X	h. Sketches Voided - PBF-1592
X				2. Specifications (Conformed at Closeout, ref NP 9.2.1)
			X	3. Component Instruction Manuals (for issue, revision, deletion) - PBF-1586
X				4. Cable and Raceway Data Schedule Revisions - PBF-0091
X				5. Environmental Qualification Documentation Updates - Ref. NP 7.7.1
X				6. Seismic Qualification Updates NP 7.7.2
		X		7. Calculations or engineering evaluations added/deleted / revised - PBF-1608
			X	8. DBD Revisions - PBF-1653
X				9. PSA Models and Documentation - PBF-1626
			X	10. EPIX Update - report Equipment changes/additions to the EPIX Coordinator.

A. TRAINING

- Copy Submitted to Training (Design Description)
- TWR Generated (TWR # 00-046) Ref. SMGL C1.1
- Simulator Changes Initiated (SDR # _____)
- Plant Status Update/Just In Time Training

B. FINAL DESIGN ORGANIZATION

- Drawings
 - Design Change In Progress DCN's Initiated
 - Construction sketches Issued
 - Revised Drawings Issued for Priority 1 and 2 Control Room Drawings - Logics, P&IDs, 499 series elementaries.
 - Revised Drawings Issued for Work Control Center Drawings - P&IDs
 - Revised Drawings Issued for I&C Drawings - Reactor Protection and Safeguards Elementaries.
 - Master Data Book - Control Room, Work Control Center, and Local Panel - PBF-2093
 - DCN's released for incorporation
 - Sketches Voided - PBF-1592
- Specifications (Conformed at Closeout, ref NP 9.2.1)
- Component Instruction Manuals (for issue, revision, deletion) - PBF-1586
- Cable and Raceway Data Schedule Revisions - PBF-0091
- Environmental Qualification Documentation Updates - Ref. NP 7.7.1
- Seismic Qualification Updates NP 7.7.2
- Calculations or engineering evaluations added/deleted / revised - PBF-1608
- DBD Revisions - PBF-1653
- PSA Models and Documentation - PBF-1626
- EPIX Update - report Equipment changes/additions to the EPIX Coordinator.

DOCUMENT UPDATE CHECKLIST

Plant Modification/Minor Plant Change No. MR 99-029*C
Work Order No.:

DOCUMENTATION UPDATE SHEET AND CLOSEOUT CHECKLIST

Required For			
N/A	Release	Acceptance (Completion)	Closeout (Submittal)
X			C. LICENSING (Conformed at Acceptance)
X			1. Technical Specification - change; specify section(s) affected and change request number.
X			2. Tech Spec Basis/Technical Requirements Manual
X			3. FSAR - change; NP 5.2.6. Report major changes to the containment aluminum inventory list with FSAR update.
X			4. FPER - FHAR - SSAR Revisions - NP 5.2.11
X			a. Safe Shutdown Analysis Management System Revisions - NP 7.2.9
X			5. Offsite Dose Calculation Manual (ODCM)
X			6. Radiological Effluent Control Manual (RECM)
X			7. Emergency Plan and EPIPs
X			8. Notification to Security for Security plan update
X			9. Report major changes to radwaste treatment systems with annual FSAR update per RECM 1.6.3
X			D. CHAMPS DATABASE
			1. Equipment Identification - additions assigned from CHAMPS
			2. Permanent Labeling - labels on new equipment; PBF-9900
		X	3. Temporary Labeling - labels on new equipment; PBF-2074
			4. Equipment Record - update to CHAMPS coordinator specify change(s); PBF-9922
X			5. Spare parts stocking and scrapping inputs into CHAMPS; PBF-9925, PBF-1023
X			6. Unused material removed from modification bin.
X			E. OPERATIONS
X			1. Abnormal Operating, Normal Operating, System Operating, and Refueling Procedures - PBF-0026a
X			2. Operating Instructions and Checklists - PBF-0026a
X			3. Alarm Response and RMS Alarm Setpoint and Response Books - PBF-0026a
X			4. Testing - TS, IT, ORT, other - PBF-0026a
X			5. EOPs, ECAs, CSPs, SAMG's - PBF-0026a
X			6. Periodic Surveillances - PBF-9920
X			7. Fire Protection Procedures - PBF-0026a
X			8. EOP Setpoints, EOP Instrument Uncertainty Calculations - PBF-8001
X			9. Tank Level Book - PBF-0026a

DOCUMENT UPDATE CHECKLIST

Plant Modification/Minor Plant Change No. MR 99-029*C
Work Order No.:

DOCUMENTATION UPDATE SHEET AND CLOSEOUT CHECKLIST

	Required For			
N/A	Release	Acceptance (Completion)	Closeout (Submittal)	
				F. MAINTENANCE/I&C
X				1. Maintenance Procedures/Instructions - PBF-0026a
X				2. ICPs - PBF-0026a
X				3. Setpoint Document - PBF-8001
X				4. Preventative Maintenance - initiate/revise CHAMPS callups; PBF-9921/9920
X				5. Ensure station batteries' load profile changes are incorporated into the appropriate discharge test RMPs.
X				6. Lubrication Manual (NP 7.3.11)
X				G. SECURITY
				1. Security Procedures
X				H. ENGINEERING/MISC.
X				1. ISI Program
X				2. IST Program
X				3. Miscellaneous HX ECT/Cleaning program
X				4. Reactor Engineering Instructions - change; specify section(s) affected.
X				5. Reactor Engineering Procedures - change; specify section(s) affected.
X				6. Software Control - specify system affected and software change request number.
X				7. Component maintenance programs.
		X		8. Governing calculations and models (e.g., SW model, DC loading, EDG loading, piping analysis, structural loading, etc.).
X				9. Design Guidelines (ref. NP 7.1.2)
			X	I. OTHER (CHEM, HP, ETC.)
				1. Other (Misc. Procedures, etc.)
				J. ECRs
				1. ECR Final Resolution completed and approved by Design Supervisor.
				2. ECR Implementation completed.

Section	Specific Updates Required	Prior to Release	Prior to Acceptance	Prior to Closeout	Change No. (if Applicable) / By / Date
A.1	Design description submitted to training.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Sent via email 3-14-02 RCC
A.2	TWR generated.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	TRK 00-0416 (Also for MR 99-029X46) 5-14-02 RCC
A.4	Plant Status Update / JIT training notified of modification.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Design description sent via email 4-8-02 RCC
B.1.b	SK-MR-99-029*C issued.	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Issued per transmittal 3-15-02 RCC
B.1.h	SK-MR-99-029*C voided.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Voided per transmittal 10-14-02 RCC
B.3	Update to FLOWCO CIM (01708).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	* Updated 5-28-02 RCC
B.7	Addendum to N-91-031.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	* Addendum A approved 4-30-02 RCC
B.7	Addendum to N-91-032.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	* Addendum A approved 4-30-02 RCC
B.7	TR 01.103 approved.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	* Approved 3-15-02 RCC
B.8	Revision to DBD-01, Auxiliary Feedwater.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	* Update submitted 9-13-02 RCC
B.10	Notify EPIX coordinator.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Notified via email 10-14-02 RCC
D.2	Permanent label for 1RO-4003.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	N/A per 7 RCC
D.3	Temporary label for 1RO-4003.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Permanent label installed 10-7-02 RCC
D.4	CHAMPS updated.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Update submitted 10-14-02 RCC
H.8	Addendum to WE-100070.	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Addendum D to Rev 1 approved 3-4-02 RCC
I.1	Draw New drawing FLOWCO 94-16249.	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	PCN 2002-1703 10-22-02 RCC
I.1	DCN to BECH P-103 (if necessary).	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	PCN 2002-1702 10-22-02 RCC
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	* Updates submitted for	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
	Closeout of MR 99-029X40	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	
		<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	

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Title of Proposed Activity: MR 99-029*C/*D - AUX. FEED WATER PUMP 1/2P-29 MINIMUM FLOW RECIRC. LINE

Associated Reference(s) #: MR 99-029*C/*D, EWR 99-031, CR 99-1391, ASME B31.1, RCE 99-081, MR 99-029*A/*B

Prepared by: Rob Chapman
Name (Print)

[Signature]
Signature

Date: 12-4-01

Reviewed by: John P. Schroeder
Name (Print)

[Signature]
Signature

Date: 12-4-01

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.

Engineering Work Request (EWR) 99-031 was initiated requesting the evaluation of high noise level and vibration present in the Auxiliary Feedwater (AF) pump recirculation lines during their operation in minimum recirculation mode. This evaluation had determined that the installed flow restricting orifices (ROs), are cavitating and causing excessive noise and vibration in the associated piping. In addition, Condition Report CR 99-1391 was initiated to address the issue of pinhole leaks in the socket welds which have developed at the existing ROs. To improve the socket weld's cycle fatigue response over standard ASME Code socket weld profile in vibration critical application the root cause evaluation RCE 99-081 recommended replacing the orifices to prevent cavitation, and increasing the size of the socket welds. This modification was already performed for the motor driven auxiliary feedwater pumps (P-38A/B) by MR 99-029*A/*B.

The purpose of the proposed modifications is to minimize piping line noise and vibration and preclude socket weld failure when operating the pump on minimum recirculation mode. MR 99-029*C and MR 99-029*D will replace the existing orifices 1RO-4003 and 2RO-4003 in the AF system with improved design orifices. In addition, portion of the AF piping associated with RO will be replaced to simplify the installation and to facilitate increasing the socket weld size. Piping will be replaced upstream of the orifice include some elbows up to and including the upstream weld on the AF pump recirculation line isolation valve 1AF-15 for pump 1P-29 and valve 2AF-53 for pump 2P-29.

The replacement ROs differ from presently installed ROs. The existing ROs have orifice plates to reduce the flow and pressure through the unit. The replacement ROs work in a similar manner except that control of flow and pressure drop is accomplished by directing the flow through the series of close-fitted cylindrical stages, each constructed with expansion holes and intersecting circumferential channels that restrict the flow. These cylinders are placed in a 600# class globe valve body with a valve stem and disk that allows adjustment of the flow setting after installation. This trim will not allow complete shutoff. The flow will be set to a nominal value of between 120 and 130 gpm, which is essentially the same as the existing orifice.

A seismic analysis and report, to determine that the orifice will operate during and after seismic event was determined by WE Seismic Qualification Group not to be required for these ROs. This determination was based on rugged design of the ROs body and pressure reducing component.

The proposed modifications will meet design, material and construction standards of the existing installation. The implementation of the proposed modifications, will not affect the overall performance of the AF system, operation or function of the AF pumps 1P-29 and 2P-29 and the ability of AF system to perform its intended safety functions.

Post modification testing will include a visual exam (VT) of all replaced piping socket welds. Piping welds will be examined in accordance with ASME B31.1 - 1992. Performance of this exam is required by both the original piping specification, Bechtel M-78, and the original code of construction, USAS B31.1- 1967. Additional NDE will be performed on the root welds for additional assurance of weld quality. B31.1 also requires that post modification testing include an initial service leak test at normal system operating pressure and temperature, which will be performed with the pump running. In addition, a functional test and verification of the flow through the replacement ROs will also be performed.

The proposed modification MR 99-029*D is scheduled to be installed during U2R25, and MR 99-029*C is scheduled to be installed during U1R27. These modifications will be installed while the unit is in Mode 4, 5 or 6, when the turbine driven AFW pumps 1P-29 and 2P-29 are not be required to be in service per LCO 3.7.5. Upon completion of each modification, the new installed RO will perform the same function as the existing orifices 1RO-4003 and 2RO-4003.

- L2 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 (both Custom and Improved), 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)

- *FPER, Auxiliary Feedwater System, Figure 6.6 - 4a.*
- *FSAR Section 1.3, General Design Criteria*
- *FSAR Section 10.1, Steam and Power Conversion System*
- *FSAR Section 10.2, Auxiliary Feedwater System*
- *FSAR Section 14.1.9, Loss of External Electric Load*
- *FSAR Section 14.1.10, Loss of Normal Feedwater*
- *FSAR Section 14.1.11, Loss of All AC Power to the Auxiliaries*
- *FSAR Section 14.2.4, Steam Generator Tube Rupture*
- *TS 3.7.5, AFW System*

The flow restricting orifices for the turbine driven auxiliary feedwater pumps (1/2RO-4003) have the following design functions, as described in FSAR Section 10.2.

- They serve to restrict the recirculation flow for the pumps to ensure adequate auxiliary feedwater flow to the steam generators in the event that the minimum flow recirculation control valve (1/2AF-4002) fails to close.
- They ensure adequate flow and pressure drop through the auxiliary feedwater pumps when they are operated in recirculation mode, thus preventing low flow instabilities and excessive fluid temperatures.
- They passively maintain the auxiliary feedwater system pressure boundary integrity.

- L3 Does the proposed activity involve a change to any Custom or Improved Technical Specification (TTS)? Changes to Technical Specifications require a License Amendment Request (Resource Manual Section 5.3.1.2).

Technical Specification Change : ☐ Yes ☒ No

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

- 1.4 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 checked="" type="checkbox"/>	<input 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> question 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.

The flow restricting orifices for the turbine driven auxiliary feedwater pumps (1/2RO-4003) have the following design functions that are affected by MR 99-029*C/*D:

- They serve to restrict the recirculation flow for the pumps to ensure adequate auxiliary feedwater flow to the steam generators in the event that the minimum flow recirculation control valve (1/2AF-4002) fails to close.
- They ensure adequate flow and pressure drop through the auxiliary feedwater pumps when they are operated in recirculation mode, thus preventing low flow instabilities and excessive fluid temperatures.
- They passively maintain the auxiliary feedwater system pressure boundary integrity.

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

- | | | |
|--------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Does the activity adversely affect the <i>design function</i> of an SSC credited in safety analyses? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Does the activity adversely affect the method of performing or controlling the <i>design function</i> 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):

The replacement of flow restricting orifices 1/2RO-4003 by MR 99-029*C/*D will not adversely affect their design functions. Although the new orifices are of a different type, they will perform the same functions to allow flow to maintain TDAFP operability when in recirculation mode and to restrict flow if the recirculation control valve fails open. The method of performing these functions is slightly different, and the capability will be added to adjust the flow, but this will not adversely affect these design functions. The new orifices will provide essentially identical flow through the recirculation line, but with improved flow characteristics that will prevent cavitation. The orifice bodies are designed to ASME standards and have ratings that exceed that of the auxiliary feedwater piping. Non-destructive examination of the new welds and functional testing of the orifice will ensure that all design basis requirements are met.

These orifices are not explicitly required in an accident analysis to be able to pass service water, since the recirculation control valve would be closed when the pump is aligned to the steam generator. However, it is possible that when the pump is aligned to the service water system supply after the condensate storage tanks have been drained, service water could be pumped through the recirculation lines. To preclude the chance of clogging the orifice trim, the flow is directed from the outside of the stages inward. The holes in the outer stage are the smallest, and they get progressively larger in the inner stages. This causes the largest differential pressure to exist at the outer stages at locations with the smallest holes, which will reduce the potential for debris accumulation inside the orifice.

in service

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

- | | | |
|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | Does the activity use a revised or different method of evaluation for performing safety analyses than that described in the CLB? |
| <input type="checkbox"/> | <input type="checkbox"/> | 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).

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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 |
|--------------------------|-------------------------------------|--|
| <input type="checkbox"/> | <input checked="" 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? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Does the proposed activity involve <u>IN ANY MANNER</u> 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? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Does the proposed activity involve <u>IN ANY MANNER</u> 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? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Does the proposed activity involve a change to <u>Point Beach CLB</u> design criteria for external events such as earthquakes, tornadoes, high winds, flooding, etc.? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | Does the activity involve plant heavy load requirements or procedures for areas of the plant used to support cask loading/unloading activities? |
| <input type="checkbox"/> | <input checked="" type="checkbox"/> | 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 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 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 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 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 type="checkbox"/> | Does the activity involve a <i>method of evaluation</i> described in the ISFSI licensing basis? |
| <input type="checkbox"/> | <input type="checkbox"/> | Is the activity a <i>test or experiment</i> ? (i.e., a non-passive activity which gathers data) |

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☐ ☐ Does the activity exceed or potentially affect a cask *design basis limit for a fission product barrier (DBLFPB)*?
(NOTE: If THIS question is answered YES, 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):

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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
<input type="checkbox"/>	<input type="checkbox"/>	Is the proposed test or experiment bounded by other tests or experiments that are described in the cask ISFSI licensing basis?
<input type="checkbox"/>	<input type="checkbox"/>	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:

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.

NUCLEAR POWER BUSINESS UNIT
DESIGN VERIFICATION NOTICE

Title of Document AUX FEED WATER PUMP 1P-29 MINIMUM FLOW RECIRC LINE ORIFICE

Document No. MR 99-029*C

Rev. 0

Date 2-18-02

Design Verification Method: ☒ Design Review

☐ Alternate Calcs

☐ Qualification Testing

UPDATES TO THIS FORM COVERED BY EXISTING SCR 97-410

REVIEWER CHECKLIST CONSIDERATIONS:

	Yes	No	N/A
1. Were the inputs correctly selected and incorporated into design?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Are assumptions necessary to perform the design activity adequately described and reasonable? Where necessary, are the assumptions identified for subsequent reverifications when the detailed design activities are completed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Are the appropriate quality and quality assurance requirements specified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. Are the applicable codes, standards, and regulatory requirements including issue and addends properly identified and are their requirements for design met?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Have applicable construction and operating experience been considered?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Have the design interface requirements been satisfied?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Was an appropriate design method used?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Is the output reasonable compared to inputs?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Are the specified parts, equipment and processes suitable for the required application?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Are the specified materials compatible with each other and the design environmental conditions to which the material will be exposed?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11. Have adequate maintenance features and requirements been specified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12. Are accessibility and other design provisions adequate for performance of needed maintenance and repair?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13. Has adequate accessibility been provided to perform the in-service inspection expected to be required during the plant life?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14. Has the design properly considered radiation exposure to the public and plant personnel?	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Are the acceptance criteria incorporated in the design documents sufficient to allow verification that design requirements have been satisfactorily accomplished?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
16. Have adequate pre-operational (IST, PMT, ISI, snubber, etc.), subsequent periodic test, and inspection requirements been appropriately specified, including acceptance criteria?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
17. Are adequate handling, storage, cleaning, and shipping requirements specified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
18. Are adequate identification requirements specified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
19. Are requirements for records adequately specified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
20. Will the change remain within the analyzed or specified capabilities of any affected equipment?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
21. Has a field inspection been done?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
22. Have impacts on other systems been identified?	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

COMMENTS: ☒ None ☐ Attached (Use Form PBF-1633)

Design Prepared By: Rob Chapman

Date 3-14-02

Reviewed By: Jeff Novak

Date 3/14/02

Approval By: [Signature]

Date 3/15/02

Point Beach Nuclear Plant
DESIGN INPUT CHECKLIST

Modification or Temporary Modification Number: MR 99-029*C

Title: AUX FEED WATER PUMP 1P-29 MINIMUM FLOW RECIRC LINE ORIFICE

INSTRUCTIONS: Consider the basic functions of each structure, system, and component, (SSC), when answering the questions. The designer shall check the appropriate box for each design input or section. All inputs that apply to the design shall be explained. The explanation may be documented on this checklist or in the design summary. The reviewer shall review the checklist, and any differences between the designer and the reviewer should be addressed. This checklist addresses most design concerns, but is not all encompassing. Any additional concerns should be addressed in the design summary.

(Updates to this form covered by SCR 97-411.)

APPLIES TO DESIGN

YES NO

A. General codes, standards, regulatory requirements, and design criteria.

1. Are any of the PBNP FSAR general design criteria applicable? (Reference FSAR, Section 1.3. Identify and address design criteria as appropriate.)

☒ ☐

GDC 1 – Quality Standards: This modification will be installed QA/SR, and all new components will be verified to be of sufficient quality to ensure the performance of their safety functions.

GDC 2 – Performance Standards: All components are installed seismic Class 1, and thus will perform their safety functions during a design basis earthquake.

GDC 3 – Fire Protection: The RO will perform its function to support the safe shutdown of Unit 1 in the Appendix R scenario.

GDC 5 – Records Requirement: This modification package will satisfy the records requirement.

GDC 37 – Engineered Safety Features Basis for Design: This RO was chosen with an appropriate C, to ensure that the 1P-29 auxiliary feedwater pump will provide sufficient flow to the Unit 1 steam generators as needed.

GDC 41 – Engineered Safety Features Performance Capability: This RO was chosen with an appropriate C, to ensure that the 1P-29 auxiliary feedwater pump will provide sufficient flow to the Unit 1 steam generators as needed. The RO will be tested after installation to verify appropriate flow.

GDC 42 – Engineered Safety Features Components Capability: This RO has design ratings that meet that of this portion of the auxiliary feedwater system, and has been designed to pass a certain flow. Non-destructive examination and pressure testing following modification installation will verify that all new welds were installed correctly. Flow testing will verify the flow setting.

2. Are any design requirements contained in commitments affected? (Reference CLB database and the Safety Evaluation/Screening associated with this change.)

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Reference 50.59 screening 2001-0981.

3. Meet State of Wisconsin Administrative Code requirements? (Refer to ILHR 41.42, PSC 114, and other sections as appropriate for requirements.)

☐ ☒

4. Meet existing DNR permits or require DNR approval? (Contact WE Environmental Department.)

☐ ☒

5. Consider the effect of design and accident conditions, such as pressure, temperature, fluid chemistry, and radiation on components, including internal elastomers and material coating compatibility.

☒ ☐

DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

YES

NO

(Changes in design parameters may impact Environmental Qualification.)

Replacement orifice, piping, and fittings all have design ratings that are adequate to ensure that the auxiliary feedwater system will perform its required safety function during a design basis accident.

- | | | |
|---|-------------------------------------|-------------------------------------|
| 6. Incorporate new types/models of equipment not presently used at PBNP? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 7. Affect accessibility of any equipment? Consider interim conditions, future maintenance, and in-service inspection. (Reference CIMs and drawings for manufacturer's clearance requirements.)

<i>IRO-4003 is very close to the auxiliary feedwater pump local instrumentation rack 1RK-38. The replacement RO, although larger, will not interfere with the observation of the indicators, or for opening the rack for calibration..</i> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 8. Require breaching a High Energy Line Break (HELB) barrier? (Reference NP 8.4.16) If yes, EQ engineer review required. | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| 9. Consider operating experience from PBNP and industry events. (Reference DG-G04 for operating experience reviews and NPRDS, NODIL, CHAMPS, INPO Keywords, or other databases.)

<i>Industry experience and EPRI research was considered when determining the appropriate actions to prevent future weld failures in the auxiliary feedwater minimum flow recirculation piping. EPRI has recommended welds with an axial size twice that of the radial size (2/1 configuration).</i> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| 10. Consider failure effects on structures, systems, and components: (Failure analysis is only required for maintenance rule systems. Contact the NSA-PSA group for guidance and scope.) | | <input checked="" type="checkbox"/> |
| a. The design discusses those events/accidents which the system/components are to withstand? | <input type="checkbox"/> | <input type="checkbox"/> |
| b. The failure effect of the system/components: (Reference the NSA-PSA Group, Operating Experience, & IEEE-352-1975.) | <input type="checkbox"/> | <input type="checkbox"/> |
| • How components may fail, and the effect of the failure on the system and related systems? | | |
| • What mechanisms might produce failures? | | |
| • How a failure would be detected? | | |
| • What provisions are included to compensate for the failure? | | |
| 11. Does the design add or remove components in containment? | | <input checked="" type="checkbox"/> |
| a. Change the amount of exposed aluminum in containment? (Reference DG-G07 and FSAR Section 5.6.) | <input type="checkbox"/> | <input type="checkbox"/> |
| b. Change the amount of exposed zinc in containment? (Reference DG-G07.) | <input type="checkbox"/> | <input type="checkbox"/> |
| c. Introduce materials into containment that could affect sump performance or lead to equipment degradation? (Reference DG-G07.) | <input type="checkbox"/> | <input type="checkbox"/> |
| d. Decrease free volume of containment? | <input type="checkbox"/> | <input type="checkbox"/> |
| e. Require addition or modification of a containment penetration boundary? (Consult the containment system engineer.) | <input type="checkbox"/> | <input type="checkbox"/> |

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
<input type="checkbox"/>	<input type="checkbox"/>	Is the proposed test or experiment bounded by other tests or experiments that are described in the CLB?
<input type="checkbox"/>	<input type="checkbox"/>	Are the SSCs affected by the proposed test or experiment isolated from the facility?

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.

DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

YES

NO

f. Require painting in containment? (Reference MI 36.3.)

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12. Consider potential for fuel failure?

a. Affect fuel handling equipment?

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b. Present the potential for introducing foreign material/debris into the RCS or connected systems?

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c. Affect core barrel flow patterns? ("Baffle jetting" concerns)

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13. Meet requirements to abandon equipment if applicable. (Reference NP 7.1.5)

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B. Mechanical requirements. (Contact Mechanical Design Engineering for guidance.)

1. Have applicable ASME Boiler & Pressure Vessel codes or other standards been identified? (Reference the applicable specification. In addition, safety-related components should be reconciled with DG-M16, and QA components should be reconciled with ANSI N45.2.)

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This modification is being designed and installed in accordance with ASME B31.1 - 1992. The replacement orifice body has been constructed to the standards of ASME B16.34 - 1996 (98 addenda).

2. Affect or add components/systems to ASME Section XI class 1, 2, or 3 equipment? (Reference PBNP CHAMPS, CBD drawings, and IST Coordinator. If YES, follow NP 7.2.5, Repair/Replacement Program.)

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3. Require State of Wisconsin Administrative Code permits/approvals? (Reference NP 7.4.9, Wisconsin Administrative Code for Boilers and Pressure Vessels or the Authorized Inspector.)

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4. Consider component performance requirements such as capacity, rating, output?

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The replacement orifice, piping, and fittings all have design ratings of 1440 psig at 100 °F or greater (ratings for pipe class DB-3).

5. Consider hydraulic requirements such as pump net positive suction heads, allowable pressure drops, allowable fluid velocities and pressures, valve trim requirements, packing/seal requirements?

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The replacement RO has been designed with a C_v range of 1.4 to 4.1 with a pressure drop of approximately 1400 psi to provide the desired flow through the recirculation line.

6. Provide vents, drains, and sample points to accommodate operational, maintenance and testing needs?

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7. Require service water? (Both essential and nonessential service water loads are modeled, and load changes must be evaluated. Contact the SWAP Coordinator.)

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8. Require the addition of check valves? (Reference DG-M13 for selection guidance.)

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DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

	<u>YES</u>	<u>NO</u>
9. Require and evaluate any additional loading on instrument or service air, circ, fire protection, or demineralized water, or other system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Evaluate any additional loading on HVAC systems or affect ventilation flow during or after installation? (This will require an EQ review for potential updates to EQSS, EQML & EQMR.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Affect ventilation barriers, including containment, primary auxiliary building, or control room?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Require insulation? (Reference WE specification PB-485 for insulation, and NP 1.9.10 for asbestos control.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Require lubrication? (Reference Lubrication Manual.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14. Require an independent means of pressure relief? (Reference B31.1.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Affect the assigned system design pressure or temperature?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>The replacement orifice, piping, and fittings all have design ratings that are equal to or greater than that for the pipe class (DB-3).</i>		
16. Involve cobalt-laden materials into the RCS or into systems that supply the RCS? (Reference NP 4.2.29, "Source Term Reduction Program.")	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. Are new materials and their coatings/plating compatible with system chemistry and disposal systems (NP 8.4.15)?	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<i>All new components are stainless steel, which is appropriate for use in the auxiliary feedwater system.</i>		
18. Affect embedded or buried piping?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
C. Electrical requirements. (Contact Electrical Design Engineering for guidance.)		
1. Consider design conditions such as ampacity, voltage drop?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Consider component and system performance requirements, such as current, voltage, or power?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Consider redundancy, diversity and separation requirements of structures, systems and components? (Reference DG-E07 for separation of electrical circuits.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Comply with protective relaying requirements of equipment and systems?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

	<u>YES</u>	<u>NO</u>
5. Selection of overcurrent devices for proper protection and coordination? (Reference DG-E04 for selection of molded case circuit breakers.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Affect available fault current at any bus?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Assure that all added cables meet fire retardancy requirements? (Reference FPER Section 4.1.8, IEEE 383.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Be compatible with existing electrical insulation and wiring?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Affect ampacity of existing cables?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Maintain UL (or equivalent) listings?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Alter the voltage harmonic distortion content or change the non-linear loading (i.e., the addition of switching power supplies, the alteration of the circuit's power factor, etc.) on a vital or sensitive instrument bus?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Add new raceways? (Reference DG-E03 for electrical raceway sizing and DG-E02.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Add cables to existing electrical raceways?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
14. Be routed through fire wrapped raceways?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
15. Affect the station grounding or lightning protection system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
16. Make any vital circuit susceptible to ground?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
17. Affect emergency diesel loading? (Reference DG-E06 for diesel load change evaluation.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
18. Add more station battery loading?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
19. Add load to a vital bus?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
20. Add load to a non-vital bus?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

	<u>YES</u>	<u>NO</u>
21. Be compatible with service transformer capacity?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
22. Consider electromagnetic interference between new/existing equipment and electromagnetic coupling interactions between circuits?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
23. Affect embedded conduits or buried cables, including the station grounding system?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
D. Instrumentation and control requirements. (Contact I&C Design Engineering for guidance.)		
1. Consider design conditions such as pressure, temperature, fluid chemistry, amperage, voltage?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2. Have the instruments been properly selected for the application?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
3. Have sufficient instruments for operators to monitor the process?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
4. Have appropriate instrument scales?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
5. Have the instruments, control switches, and indicating devices been appropriately located for human factors (both for operations and maintenance)? (Reference DG-G01.)	<input type="checkbox"/>	<input checked="" type="checkbox"/>
6. Have alarms for off-normal conditions?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
7. Be capable of or require remote and/or local operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
8. Be capable of or require manual and/or automatic operation?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
9. Require calibration and maintenance requirements for the instruments to be specified?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
10. Have specified the instruments with proper range and accuracy?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
11. Address solid state vulnerability to RFI?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
12. Consider software and programming/programmable settings of digital or electronic equipment?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
13. Affect logic circuits or associated GL 96-01 review/required testing? Contact I&C System Engineering group.	<input type="checkbox"/>	<input checked="" type="checkbox"/>

DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

YES

NO

Structural requirements. (Contact Civil Design Engineering for guidance.)

1. Affect or scope seismically qualified equipment (Class 1 or 2) and therefore require a seismic qualification evaluation? (Reference NP 7.7.2, "Seismic Qualification of Equipment.")

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All components are being installed seismic Class 1. An addendum to calculation WE-100007 will address the additional weight added, and ensure the seismic adequacy of the auxiliary feedwater piping.

2. Affect seismic boundaries?

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3. Affect stress calculations of pipe? (Reference DG-M09.)

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An addendum to WE-100007 will address the additional weight of the replacement orifice to ensure that all piping and support stresses are below the code allowable values.

4. Affect the loading or require changes to existing equipment foundations?

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5. Affect wall stress calculations for pressurized concrete cubicles or structures?

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6. Require analysis of non-seismic components placed over or adjacent to seismic components?

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7. Add items which span between two separate seismic areas/buildings? (The effect of the relative movement must be addressed.)

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8. Require clearance review for seismic movement or thermal expansion considerations?

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9. Require a floor or wall loading analysis? (Reference Bechtel C-dwgs.)

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10. Require the addition of new supports, hangers, or foundations or add weight to or between existing supports, hangers, embeds, or foundations during installation or post-installation? (Reference DG-M09 and DG-M10 for pipe support.)

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The replacement orifice is heavier than the original. An addendum to WE-100007 will address the additional weight on pipe supports.

11. Add new or add load to seismically qualified raceways? (Reference NP 7.7.2, "Seismic Qualification of Equipment.")

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12. Modify, attach to, or locate within the proximity of masonry block walls? (Reference IEB 80-11 Block Wall Program.)

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13. Require core drills, expansion anchors, or re-bar cuts? (Reference DG-C01 for expansion anchor design and installation.)

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14. Create an external or internal missile hazard?

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DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

YES

NO

15. Consider wind and storm loading on external structures?

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16. Require protection from high energy line break jet? (Refer to FSAR Appendix A.2.)

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17. Consider dynamic requirements such as live loading, vibration, and shock/impact?

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F. Programs

1. ASME Section XI and QA considerations:

a. Affect IST acceptance criteria or calculations? (Contact Component Engineering.)

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b. Require classification of new components? (Reference DG-G06 for system, component, and part classification.)

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c. Affect QA-scope systems or boundaries? (Contact Site Programs Engineering Support for Q-List.)

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The orifice is the boundary between a QA/SR portion of the system, and a QA/AQ portion of the system. However, all components are being installed as QA/SR. The boundary is not being moved.

d. Require special personnel/equipment qualifications not proceduralized at PBNP (i.e., underwater welding)?

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e. Require material certification or other certification to ensure quality equal to or better than the affected SSC? (These requirements need to be specified in the specification or purchase requisition.)

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All new components (orifice, piping, fittings) are QA/SR, and will be certified to be of quality construction.

f. Have all design requirements, such as pressure or current rating, been reviewed against lot descriptions or been specified on purchase requisitions/specifications?

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See Bill of Material for lot numbers / PO numbers. All components have been verified to have adequate design ratings.

2. Fire protection considerations:

a. Affect access to a fire zone, fire protection equipment or Appendix R safe shutdown equipment, including manual fire fighting activities? (Reference Section 5.2.1 of Design Guide DG-F01)

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b. Affect a fire barrier? (Reference NP 8.4.11 and Fire Barrier Drawings WE PBC-218 Sheets 1-20, Section 5.2.2 of Design Guide DG-F01)

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c. Affect a fire protection system or its performance? (Reference Section 5.2.3 of Design Guide

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DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

YES

NO

DG-F01)

- d. Increase or decrease permanent combustible loading in a room? (Reference Section 5.2.4 of Design Guide DG-F01) ☐ YES ☒ NO
- e. Based on Section 2 and Appendix A of the SSAR, will the change add to, delete from, or affect the performance of safe shutdown systems or equipment? (Reference Section 5.2.5.1 of Design Guide DG-F01) ☒ YES ☐ NO
This modification will affect a portion of the auxiliary feedwater system, which is a safe shutdown system described in Section 2 of the SSAR. The RO is in the flow path for safe shutdown shown on APPR M-217 Sh. 1.
- f. Based on Sections 3, 4, and Appendix C of the SSAR, will the change affect a cable associated with safe shutdown equipment, a safe shutdown power supply, or the physical location of a safe shutdown cable? (Reference Section 5.2.5.2 of Design Guide DG-F01) ☐ YES ☒ NO
- g. Based on Table 1-1, Section 5 and Appendix D of the SSAR, will the change affect fire area analysis and compliance with Appendix R separation criteria or the conditions of an approved Appendix R exemption for any PBNP Fire Area? (Reference Section 5.2.5.3 of Design Guide DG-F01, Table 3.2-2 of DBD T-40) ☐ YES ☒ NO
- h. Will the change add, remove, or affect the performance of any emergency lighting required for compliance with Section IIIJ of Appendix R? (Reference Section 5.2.6 of Design Guide DG-F01) ☐ YES ☒ NO
- i. Will the change add, remove, or affect the performance of any plant communications system relied upon for fire fighting or safe plant shutdown? (Reference Section 5.2.7 of Design Guide DG-F01) ☐ YES ☒ NO
- j. Will the change affect the Reactor Coolant Pump Oil Collection System? (Reference Section 5.2.8 of Design Guide DG-F01) ☐ YES ☒ NO
- k. Will the change affect the Fire Protection Manual? ☐ YES ☒ NO
- l. Will the change affect any of the Supporting Documents listed in the SSAR (Section 6.0) or the FHAR (Section 4.0)? ☐ YES ☒ NO

If any of the questions a through j are answered "yes", an evaluation must be performed using the applicable sections of the FPCC checklist, PBF-2060 per Section 5 of Design Guide DG-F01.

DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

YES

NO

3. Flooding protection considerations:

A flooding analysis should be performed if any of the following questions are applicable and answered yes. (Reference Section 4.3 of DG-C02.)

- | | | | |
|----|---|-------------------------------------|-------------------------------------|
| a. | Modify potential flooding sources or add new potential flooding sources to a flood zone and thereby increase the direct and/or indirect flooding vulnerability of essential equipment? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. | Degrade existing flood barriers or flood mitigation features providing unanalyzed pathway for flooding to propagate? (Reference Section 3.2 of DG-C02.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. | Involve the opening of potential flood sources anywhere at the station? (Installation procedures need to address inadvertent flooding. Reference DG-C02, Section 4.4.)
<i>Valve 1AF-15 will be isolating the condensate storage tanks from the auxiliary feedwater pump room during installation. The IWP for this modification will have appropriate caution steps to ensure that 1AF-15 is isolating properly, and that appropriate steps are taken if leakage past the valve is seen.</i> | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| d. | Reduce the capacity to isolate or cope with flooding? (Reference Sect. 4.2 of DG-C02.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. | Change plant drainage/backfill requirements? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f. | Locate essential equipment or supporting systems where it would be susceptible to flooding? (Flooding conditions may also impact Environmental Qualification.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

4. Environmental considerations:

- | | | | |
|----|--|--------------------------|-------------------------------------|
| a. | Be subject to adverse environmental conditions during storage or construction? (Reference NP 9.5.2.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. | Require freeze protection or affect existing freeze protection? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. | Locate safety-related or post accident monitoring equipment in a HARSH environment? (Reference NP 7.7.1.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. | Require Environmental Qualification (EQ)? (Reference NP 7.7.1 for EQ qualification.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. | Be attached to an EQ system/component? (This will require an EQ review for potential updates to EQSS, EQML & EQMR. Reference EQ master list.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f. | Change environmental parameters (e.g., pressure, temperature, radiation, humidity)? (Reference NP 7.7.1, "Environmental Qualification of Electrical Equipment.") | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

5. Radiation Protection (RP) and ALARA considerations: (Reference DG-G03, "ALARA Consideration

DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

YES

NO

Guideline for Design & Installation.)

The areas mentioned below are normally within the RCA, but radiological concerns should be considered for SSC outside the RCA also.

- | | | | |
|----|---|--------------------------|-------------------------------------|
| a. | Affect any SSC in an RWP required area, a contaminated area, or a radiation area, including opening of a system that may be a radiological concern? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. | Will the change generate excessive radwaste or highly radioactive/contaminated waste? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. | Remove any plant equipment from a potentially contaminated system (including BOP systems)? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. | Result in an anticipated increase in operational or maintenance exposures?
(Consider equipment rearrangement to reduce plant life dose?) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| e. | Result in an expected exposure of greater than 1 Rem for any individual during installation of the change? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| f. | Result in an anticipated collective exposure of greater than 2 Rem for the installation of the change? | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

If questions d, e, or f apply and are answered yes, then an ALARA review shall be performed. (Reference NP 4.2.3, "ALARA Review Procedure.")

6. Chemistry considerations:

- | | | | |
|----|--|--------------------------|-------------------------------------|
| a. | Require or affect established chemistry limits? (Contact system engineer and review chemistry procedures.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| b. | Require any routine chemical analyses? (Contact system engineer and review chemistry procedures.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| c. | Require chemical additives? (Contact PBNP Chemistry.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |
| d. | Do new fluids/chemicals need to be evaluated for TRI (Toxic Release Inventory), CHES, critical applications, or special disposal requirements? (Contact Chemistry/Chemical Engineering.) | <input type="checkbox"/> | <input checked="" type="checkbox"/> |

G. Installations

1. Installation requirements/plant conditions have been determined?

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Plant will be in Mode 4, 5, or 6 during installation, with the 1P-29 auxiliary feedwater pump out of service. See IWP 99-029 C.*

2. Consider test and inspection requirements, including the conditions under which they will be performed? (Reference NP 7.4.1 for pressure test requirements, NP 7.4.3 for post-maintenance and

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DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

YES

NO

modification NDE requirements, NP 1.2.5 for special test procedures, and OM 4.2.2 for in-service tests.)

VT and PT examinations will be performed on the welds. An initial service leak test at normal operating pressure and temperature will be performed after the installation. Flow measurements will be taken to verify the correct setting of the RO.

3. Have post-installation acceptance criteria been properly specified to test the intended function of the component(s)/system?

☒
☐

*NDE acceptance criteria will be per ASME B31.1 – 1992. No visible leakage can be seen during the pressure test. Flow will be verified to be between 120 and 130 gpm. See IWP 99-029*C.*

4. Comply with all WE lifting and rigging requirements? (Reference WE Safety Manual, PBNP Safe Load Path procedures, and NP 8.4.7.)

☐
☒

5. Consider ALARA for installation activities? (i.e., shielding, monitoring water level, etc.)

☐
☒

6. Require special handling, shipping, or environmental conditions for storage or construction? (Reference NP 9.5.2 for material storage.)

☐
☒

7. Consider transportability requirements such as size and shipping weight limitations.

☐
☒

8. Require spare parts or special non-standard items or tools?

☐
☒

9. Will any added components introduce chemical contaminants to the system? (i.e., preservative coating on valves, coatings on weld rod can also introduce contaminants)

☐
☒

10. Consider personnel requirements and limitations, including the qualification and number of personnel available for plant operation, maintenance, testing and inspection, and permissible personnel radiation exposures?

☐
☒

11. Operational requirements under various conditions, such as plant startup, normal plant shutdown, plant emergency operation, special or infrequent operation, and system abnormal or emergency operation.

- a. Require new procedures or procedure changes? (Reference NP 1.2.5.)

☐
☒

- b. Potentially impact other systems, components, or structures during installation?

☐
☒

- c. Present installation impacts on plant operations (i.e., fire watches, etc.)?

☒
☐

Fire watches are required during welding in the auxiliary feedwater pump room.

12. Access and administrative requirements for plant security: If any security requirements are applicable, notify Security.

- a. Create an opening >96 in.² in any wall, ceiling, or other barrier?

☐
☒

DESIGN INPUT CHECKLIST

APPLIES TO DESIGN

YES

NO

b. Require work within 20' of fence?

☐
☒

c. Affect security equipment and documents, including those containing safeguards information?
(Contact Security for design development requirements and design concurrence.)

☐
☒

d. Affect access controls?

☐
☒

13. Safety requirements:

a. Affect safety equipment and thereby create personnel hazards (i.e., removal of handrails)?

☐
☒

b. Introduce hazardous material into the plant? (Reference NP 1.9.1.)

☐
☒

c. Affect evacuation routes or escape provisions from enclosures?

☐
☒

d. Meet OSHA regulations? (Reference Wisc. Electric Safety Manual and OSHA 29 CFR 1910.)

☒
☐

The installation will be performed in accordance with the WE and NMC safety manuals.

e. Move any energy sources? If yes, verify installation document covers move, including transferring danger tags.

☐
☒

Designed by: Rob Chapman

[Signature]

Date: 3-14-02

Reviewed by: Jeff Novak

[Signature]

Date: 3/14/02

Point Beach Nuclear Plant
FIRE PROTECTION CONFORMANCE CHECKLIST

MR Number MR 99-029*C Unit 1 X Unit 2 _____ Common Facilities _____
System Auxiliary Feedwater - AF Location Aux Feed Pump Room, 1P-29 Cubicle

AFFECTED FIRE ZONE(S)-FIRE AREAS
(see FPER Sect. 9)

Fire Zone 304S

PURPOSE

The Fire Protection Conformance Checklist (FPCC) was developed to help evaluate the impact of plant modifications, procedural changes, and tests on the plant fire protection program and safe shutdown capability for compliance with 10 CFR 50 Appendix R and other plant fire protection license commitments.

The FPCC also provides the screening criteria to ensure that a 10 CFR 50.59 safety evaluation is performed on activities that affect the design basis of fire protection equipment or plant's capability to achieve and maintain safe shutdown for any design basis fire. If the FPCC screening indicates the plant fire protection or safe shutdown design basis will be affected, a 10 CFR 50.59 screening shall be performed per NP 10.3.1, Authorization of Changes, Tests, and Experiments (10 CFR 50.59), with consideration of the FPCC information, to determine if an unreviewed safety question is involved. The design basis fire is the accident to be considered in the 10 CFR 50.59 evaluation. The FPCC becomes part of the documentation supporting the 10 CFR 50.59 screening and safety evaluation.

The FPCC is comprised of this main form, PBF-2060 and sub-forms, PBF-2060a through h that address different topical areas of the PBNP fire protection program. The intent of multiple sub-forms is to eliminate unnecessary burden in completing forms for areas of fire protection clearly not affected by a particular change. Based upon the nature of the change (as identified by answers to the questions on the Design Input Checklist PBF-1584), the applicable sections on the FPCC will be filled out. The appropriate sections on the FPCC to be filled out shall be indicated below on the FPCC Applicability Matrix. The applicable sections that are completed will be attached to the main form PBF-2060 and included with the plant change package.

INSTRUCTIONS

1. Complete the FPCC Applicability Matrix below, based on the nature of the change and answers to questions on the Design Input Checklist PBF-1584 for the applicable change.
2. Complete the appropriate sub-forms, based upon the nature of the change as defined on the FPCC applicability matrix. It is not necessary to complete sub-forms for areas of fire protection that are clearly not affected by the subject change.
3. Use the paragraphs in Section 5 of Design Guide DG-F01 that correspond to the FPCC sections for additional information and guidance when answering the questions in the checklist.
4. Consider requirements for a 10 CFR 50.59 screening by reviewing the RESULTS section below.
5. Ensure that the appropriate documents required for update (i.e., FPER, FHA, SSAR, SSAMS, FPDS, Calculations, FPEDs, etc.) are properly identified for future revision in the governing document update procedures. This includes documents that must be updated for changes that could potentially adversely affect fire protection conformance, as well as changes that are determined by the checklist not to adversely affect fire protection conformance (but still require document updates).
6. Sign and date the FPCC. If the NPSU Fire Protection Engineer is not the preparer of the FPCC, then the Fire Protection Engineer shall review, sign and date, the FPCC.

FIRE PROTECTION CONFORMANCE CHECKLIST

RESULTS

If the completion of any FPCC screening from Sections 1.0 - 10.0 on forms PBF-2060a through 2060h indicates the modification has potential adverse impact, then the plant fire protection or safe shutdown design basis may be affected. A 10 CFR 50.59 screening must be performed per NP 10.3.1, Authorization of Changes, Tests, and Experiments (10 CFR 50.59), with consideration of the FPCC information to determine if an unreviewed safety question is involved. The design basis fire is the accident to be considered in the 10 CFR 50.59 evaluation. The FPCC becomes part of the documentation supporting the 10 CFR 50.59 screening and safety evaluation.

Inform the NPSU Fire Protection Engineer if fire protection program commitments or compliance with 10 CFR 50, Appendix R will be affected.

Fire Protection Conformance Checklist Applicability Matrix

<u>Applicable?</u>		<u>Section</u>	<u>Topic</u>	<u>Design Input Checklist Section</u>	<u>Action</u>
Yes	No				
<input type="checkbox"/>	<input checked="" type="checkbox"/>	1.0	Plant Access	F.2.a	Complete & attach PBF-2060a
<input type="checkbox"/>	<input checked="" type="checkbox"/>	2.0	Fire Barriers	F.2.b	Complete & attach PBF-2060b
<input type="checkbox"/>	<input checked="" type="checkbox"/>	3.0	Fire Protection Systems	F.2.c	Complete & attach PBF-2060c
<input type="checkbox"/>	<input checked="" type="checkbox"/>	4.0	Combustible Loading/Fire Hazards	F.2.d	Complete & attach PBF-2060d
<input checked="" type="checkbox"/>	<input type="checkbox"/>	5.0	Safe Shutdown Systems and Equipment	F.2.e	Complete & attach PBF-2060e
<input type="checkbox"/>	<input checked="" type="checkbox"/>	6.0	Safe Shutdown Cables, Including Associated Circuits	F.2.f	Complete & attach PBF-2060e
<input type="checkbox"/>	<input checked="" type="checkbox"/>	7.0	Fire Area Analysis, Including Exemptions/Evaluations	F.2.g	Complete & attach PBF-2060e
<input type="checkbox"/>	<input checked="" type="checkbox"/>	8.0	Emergency Lighting	F.2.h	Complete & attach PBF-2060f
<input type="checkbox"/>	<input checked="" type="checkbox"/>	9.0	Plant Communications	F.2.i	Complete & attach PBF-2060g
<input type="checkbox"/>	<input checked="" type="checkbox"/>	10.0	Reactor Coolant Pump Oil Collection System	F.2.j	Complete & attach PBF-2060h

Conformance checklist (including all applicable attachments) completed.

Comments:

By: Rob Chapman & [Signature]
[Signature]

Date: 3-8-02
3-8-2002

Point Beach Nuclear Plant
FIRE PROTECTION CONFORMANCE CHECKLIST
SECTIONS 5, 6, & 7 - APPENDIX R SAFE SHUTDOWN EVALUATION

Complete the evaluation (Sections 5.0, 6.0, and 7.0) and attach to form PBF-2060.

APPENDIX R SAFE SHUTDOWN EVALUATION

5.0 SAFE SHUTDOWN SYSTEMS AND EQUIPMENT (Ref. Section 5.2.5.1 of Design Guide DG-F01)

- 5.1 Does the modification require addition of a safe shutdown component? Is the new component located within the Appendix R flowpath boundaries shown in the Appendix R Highlighted P&IDs, SSAMS Database, SSEL Module, or the SSAR Section 2, Safe Shutdown Logic Diagrams in Appendix B of SSAR.

- ☐ Yes, go to 5.11, complete actions and resume at 5.2
☒ No, go to 5.3

Comments: _____

- 5.2 Will the new component support other safe shutdown systems or component(s)? (Refer to SSAMS Database, SSEL Module, SSAR Section 2, Safe Shutdown Logic Diagrams in Appendix B of SSAR)

- ☐ Yes, go to 5.11, complete actions and resume at 5.3
☐ No, go to 5.3

Comments: _____

- 5.3 Does the modification require deletion of a safe shutdown component? (SSAMS Database, SSEL Module, SSAR Section 2)

- ☐ Yes, go to 5.11, complete actions and resume at 5.4.
☒ No, go to 5.4

Comments: _____

- 5.4 Does the modification require a design change to a safe shutdown component? (SSAMS Database, SSEL Module, SSAR Section 2)

- ☒ Yes, go to 5.11, complete actions and resume at 5.5
☐ No, go to 5.5

Comments: _____

FIRE PROTECTION CONFORMANCE CHECKLIST
SECTIONS 5, 6, & 7 - APPENDIX R SAFE SHUTDOWN EVALUATION

- 5.5 Does the modification add/delete/revise safe shutdown equipment to the system flow path or boundary isolation from interconnecting systems? (the Appendix R Highlighted P&IDs, SSAMS Database, SSEL Module, and the SSAR Section 2)

☐ Yes, go to 5.11, complete actions and resume at 5.6
☒ No, go to 5.6

Comments: _____

- 5.6 Does the modification affect the operation of a system relied upon for post-fire safe shutdown (e.g., changes in system flow rate, change in normal positions, etc. See SSAMS, SSEL Module, SSAR Section 2)?

☐ Yes, go to 5.11, complete actions and resume at 5.7
☒ No, go to 5.7

Comments: Operation of the auxiliary feedwater system will not be affected. The replacement RO will be set to the same flow rate as the current RO.

- 5.7 Does the modification violate the safe shutdown systems performance goals as presented in FPER Section 7.2 and SSAR Section 2?

☐ Yes, go to 5.11, complete actions and resume at 5.8
☒ No, go to 5.8

Comments: _____

- 5.8 Does the modification affect any mechanical sub- or support components of safe shutdown components not listed on the safe shutdown equipment list? (e.g., SOVs, check valves, etc.) (See CHAMPS Appendix R listing). If it is a support component for safe shutdown equipment, then it should be considered a safe shutdown component for the purposes of review for impact.

☐ Yes, go to 5.11, complete actions, resume at 5.9
☒ No, go to 5.10

Comments: _____

- 5.9 Does the modification to the sub- or support component affect the operability of its associated safe shutdown equipment? (i.e., Failure of a support component that results in failure of a safe shutdown component)

☐ Yes, go to 5.11, complete actions, resume at 5.10
☐ No, go to 5.10

Comments: _____

FIRE PROTECTION CONFORMANCE CHECKLIST
SECTIONS 5, 6, & 7 - APPENDIX R SAFE SHUTDOWN EVALUATION

- 5.10 Does the modification add/delete/revise any electrical sub or support components which support the identified safe shutdown component(s) (e.g., power supplies, relays, switches, motor operators)? (Ref. Associated Circuit Analysis – SSAR Section 3)

☐ Yes, go to 5.11
☒ No, go to 6.1

Comments: _____

- 5.11 The addition/deletion/revision of safe shutdown components, sub- or support components affects the safe shutdown analysis and must be evaluated for impact on Appendix R compliance and documentation impacts in Sections 6.0 and 7.0. List the equipment and the affected systems and refer to Section 5.2.5.1 of Design Guide DG-F01. RESUME checklist completion.

Safe Shutdown System(s), Components, Sub- or Support
Component(s): IRO-4003

6.0 SAFE SHUTDOWN CABLES, INCLUDING ASSOCIATED CIRCUITS (Ref. Section 5.2.5.2 of Design Guide DG-F01)

- 6.1 Does the modification require addition of a safe shutdown cable, including cables which could spurious operation of safe shutdown equipment (i.e., through interlocks and interfacing relays and contacts)? (Ref. Section 3 of the SSAR, Section 5.2.5.2 of Design Guide DG-F01)

☐ Yes, go to 6.10, complete actions and resume at 6.2
☒ No, go to 6.2

Comments: _____

- 6.2 Does the modification require deletion of a safe shutdown cable? (Ref. SSAMS Circuit Analysis Module, SSAR Sections 3, 4, and 5)

☐ Yes, go to 6.10, complete actions and resume at 6.3
☒ No, go to 6.3

Comments: _____

FIRE PROTECTION CONFORMANCE CHECKLIST
SECTIONS 5, 6, & 7 - APPENDIX R SAFE SHUTDOWN EVALUATION

- 6.3 Does the modification revise an existing safe shutdown cable, such that safe shutdown equipment functionality, either during normal/emergency equipment operation, or when subjected to a fire-induced circuit failure, could be impacted? This includes changes that could impact the ability to transfer equipment control from one operating location to another and changes which affect circuit protective device performance.

☐ Yes, go to 6.10, complete actions and resume at 6.4
☒ No, go to 6.4

Comments: _____

- 6.4 Does the modification require a change to the routing of an existing safe shutdown cable? This includes actual physical routing changes and changes in CARDS/SSAMS to correct routing discrepancies. This may involve changes to the cable endpoint, changes to the cable endpoint location, changes to the raceways in which a cable is routed, or changes to the fire zones through which a raceway is routed. (Ref. SSAMS Cable and Raceway Module, CARDS)

☐ Yes, go to 6.10, complete actions and resume at 6.5
☒ No, go to 6.5

Comments: _____

- 6.5 Does the modification require addition or revision of a circuit connected or to be connected to safe shutdown power supply? (Ref. Section 5.2.5.2 of Design Guide DG-F01, Appendix R Highlighted Single Line Drawings, SSAR Section 3)

☐ Yes, go to 6.6
☒ No, go to 6.7

Comments: _____

- 6.6 Will adequate electrical coordination between the safe shutdown power supply feeder breaker and the added or revised component breaker or fuse exist? (Ref. Section 5.2.5.2 of Design Guide DG-F01 and SSAR Section 3)

☐ Yes, go to 6.7
☐ No, go to 6.10, complete actions and resume at 6.7

Comments: _____

FIRE PROTECTION CONFORMANCE CHECKLIST
SECTIONS 5, 6, & 7 - APPENDIX R SAFE SHUTDOWN EVALUATION

6.7 Does the modification require addition or revision of any non-safe shutdown circuits?

- ☐ Yes, go to 6.8
☒ No, Safe Shutdown Cables Section Complete, go to 7.1

Comments: _____

6.8 Will the new or revised cables be equipped with properly designed circuit breakers, fuses or some kind of current limiting device? (Ref. SSAR Section 3)

- ☐ Yes, Safe Shutdown Cables Section Complete, go to 7.1
☐ No, go to 6.9

Comments: _____

6.9 Will the new or revised cables share a common enclosure (raceway, panel etc.) with safe shutdown cables? (Ref. Section 5.2.5.2 of Design Guide DG-F01 and SSAR Section 3)

- ☐ Yes, go to 6.10, complete actions
☐ No, Safe Shutdown Cables Section Complete, go to 7.1

Comments: _____

6.10 The modification impacts the safe shutdown circuit analysis and must be evaluated further in Section 7.0 for impact on Appendix R compliance and documentation updates. List the safe shutdown circuits and associated components and refer to Section 5.2.5.2 of Design Guide DG-F01. RESUME checklist completion.

Comments: _____

7.0 FIRE AREA ANALYSIS, INCLUDING EXEMPTIONS/EVALUATIONS (Ref. Section 5.2.5.3 of Design Guide DG-F01)

7.1 Do the changes to the safe shutdown systems/equipment (from Section 5.0 of the FPCC), safe shutdown circuits or the physical routing of the cables (from Section 6.0 of the FPCC) result in a change to the potential consequences of a fire in any plant fire area? This includes changes that could result in the addition/deletion/modification of a compliance strategy for a piece of safe shutdown equipment for any fire area (such as availability of redundant equipment outside of the fire area, separation in accordance with Section III.G.2 of Appendix R of Appendix R, local manual actions, repairs, etc.). (Ref. SSAR, Section 5)

- ☐ Yes, go to 7.5, complete actions and resume at 7.2
☒ No, go to 7.3

Comments: _____

FIRE PROTECTION CONFORMANCE CHECKLIST
SECTIONS 5, 6, & 7 - APPENDIX R SAFE SHUTDOWN EVALUATION

- 7.2 Is compliance with the separation criteria for redundant safe shutdown capability in Section III.G of Appendix R affected by the change? (Ref. SSAR Table DBD T-40, Table 3-2.2)

- ☐ Yes, go to 7.5, complete actions and resume at 7.3
☐ No, go to 7.3

Comments: _____

- 7.3 Is the modification proposed to be implemented in a fire zone/area for which an Appendix R Exemption or FPPE is in place (Ref. DBD T-40, Table 3-2.2, FHA, Table 1-1 of the SSAR)

- ☒ Yes, go to 7.4
☐ No, Fire Area Analysis Section is complete, go to Section 8 or next applicable Section.

Comments: Exemptions 6 and 18 for fire zone 304 (aux feed pump room).

- 7.4 Does the modification violate or potentially change the basis for the Appendix R exemption or FPPE? (Ref.: DBD T-40, Table 3.2-2, FHA, Table 1-1 of the SSAR)?

- ☐ Yes, go to 7.5
☒ No, Section 5, 6, and 7 checklists complete

Comments: _____

- 7.5 The modification impacts the Fire Area Analysis and potentially violates the basis for compliance with the separation requirements of Appendix R, the basis for an Approved Appendix R exemption, or technical evaluation such as a Fire Protection Engineering Evaluation. List the basis affected and refer to Section 5.2.5.3 of Design Guide DG-F01. RESUME checklist completion.

Bases: _____

IWP NUMBER: 99-029*C

Page 1 of 24

INSTALLATION WORK PLAN

PBNP MINOR PROCEDURE

☐

Check As
Applicable

WORK ORDER WORK PLAN

☒

FOR MODIFICATION # MR 99-029*C , WO # 0202509

INSTALLATION WORK PLAN TITLE

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW RECIRC LINE ORIFICE

IRO-4003

UNIT 1 ☒ QA-SCOPE ☐ NON QA-SCOPE

Originator Rob Chapman / [Signature] Date 3-12-02

Reviewer Jeff Nowak / [Signature] Date 3/14/02

Final Design
Group Head [Signature] Date 3/15/02

Quality Engineer [Signature] Date 3/13/2002

Installation
Group Head [Signature] Date 03/13/02

Manager -
Operations or DSS [Signature] Date 3/14/02

NOTE: Changes to this work plan must be done with the concurrence of the responsible or team engineer and the installation supervisor, or as delineated within the IWP.

DG-G02.5
Revision 1

BEST COPY AVAILABLE

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

1.0 SCOPE

- 1.1 The scope of this installation work plan is to replace a portion of the existing AF line 2"-DB-3, including pressure reducing orifice (1RO-4003). The replaced piping and new RO will be welded back utilizing oversized socket welds.
- 1.2 The purpose of this modification is to reduce piping line noise and vibration when operating Auxiliary Feedwater (AF) pump 1P-29 in the recirculation mode. The presently installed RO is cavitating, causing excessive noise and pipe vibration. The purpose for oversized socket welds is to offer a significant high cycle fatigue improvement over standard ASME Code socket welds.
- 1.3 The approach of this installation is as follows:
 - 1.3.1 Pre-fabricate new section of pipe as shown on sketch SK-MR-99-029*C (pre-fab work done under WO 0202508).
 - 1.3.2 Isolate and drain the affected piping.
 - 1.3.3 Remove portion of the existing AF line 2"-DB-3.
 - 1.3.4 Install new sections of AF line 2"-DB-3.
 - 1.3.5 Perform VT and PT exams on all new welds.
 - 1.3.6 Functionally test the mini-recirc. line to verify operability.
 - 1.3.7 Perform inservice leak check of new/modified piping and welds.
- 1.4 This installation is scoped as QA, safety-related work.

QA Scope Clarification:

The piping downstream of 1RO-4003 is QA, non safety-related (AQ) scope.
- 1.5 Installation of this IWP will be performed while Unit 2 is in Mode 4, 5, or 6. The 1P-29 auxiliary feedwater pump will be out of service.
- 1.6 This modification will not affect any ASME Section XI pressure boundaries. An R/R/M is not required.

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

1.7 Support Requirements

1.7.1 Operations: Support to install and remove danger tags, system draining, and post maintenance and operability testing.

1.7.2 NDE Group: Perform visual/penetrant (VT/PT) examinations and pipe thickness measurements where specified in this IWP.

1.7.3 Security: Performs fire watch duties as directed by Operations.

1.7.4 QC: Perform inspections as required.

1.7.5 Engineering: Support NDE evaluations and post maintenance testing.

RE: Rob Chapman x7636 pager 0114 Home Tel. 920-429-9146

1.7.6 Mechanical Maintenance: Perform removal and installation of orifice, piping, and supports.

2.0 PRE-INSTALLATION REQUIREMENTS

2.1 References:

2.1.1 Construction sketch:

- a. SK-MR-99-029*C, "Auxiliary Feedwater System Orifice 1RO-4003 Replacement, Units 1 & 2.

2.1.2 Vendor/Contractor drawing:

- a. Flowserve drawing 94-16249

2.1.3 Applicable Codes and Standards:

- a. USAS B31.1 - 1967
- b. ASME B31.1 - 1992

2.1.4 Supplemental Procedures:

- a. MI 32.1 Flange and Closure Bolting
- b. MI 32.8 Guidelines for Opening Piping Systems

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

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WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

- c. MI 32.11 Installation and Reuse of Swagelok Fittings
- d. NP 1.9.6 Plant Cleanliness, Storage, and Inspection Program
- e. NP 1.9.9 Transient Combustible Control
- f. NP 1.9.13 Ignition Control Procedure
- g. NP 1.9.15 Danger Tag Procedure
- h. NP 8.4.10 Exclusion of Foreign Material from Plant Components and Systems
- i. NP 8.5.2 CHAMPS Equipment Database Usage and Control
- j. OI 62B Turbine-Driven Auxiliary Feedwater System (2P-29)
- k. PBF-9142 Bolting-Torque And Loading
- l. WPM 2.P8-GT Welding Procedure for Stainless Steels Group P-8 GTAW-Pipe Diameters Over 1" OD
- m. WPM 2.P1-8-GT Carbon Steels ASME Group P-1 to Austenitic Stainless Steel ASME Group P-8 GTAW Pipe Diameters Over 1" OD

Responsible Engineer has assured that all references listed above are approved and the applicable requirements have been incorporated into the IWP. The references are either with the Installation Group, attached, or are readily available to the Installation Group.

RE



Date

9-28-02

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

2.2 Background References (those references not needed to perform work):

2.2.1 Drawings:

- a. Bechtel Drawing M-217, Sh. 1, P&ID of Auxiliary Feedwater System
- b. Bechtel Drawing P-103, Stress Isometric of Emergency Feedwater Pumps to Main Feedwater Lines 4" & 3"-DB-3

2.3 Installation Preparation Activities

- 2.3.1 A Bill of Material (BOM) is attached to this IWP or is included on the Construction sketch.
- 2.3.2 The Responsible Engineer has assured that all materials on the BOM are on site, available for the modification, and QA released.
- 2.3.3 The Responsible Engineer has verified that all calculation Addenda specified on PBF-1606 have been approved prior to the start of work.
- 2.3.4 New CHAMPS label for 1RO-4003 is required and has been requested.

The RE has assured that all of the above Installation Preparation Activities are complete.

RE [Signature] Date 9-28-02

2.4 Pre-Installation Discussions

- 2.4.1 A pre-installation discussion with the Installation Group representative, the Testing Group representative, and the Acceptance Group representative has been performed.

RE/IS [Signature] Date 9-28-02

- 2.4.2 A field walkdown has been performed, if necessary, to verify that all aspects of the procedure may be performed as intended.

IS [Signature] Date 9/28/02

- 2.4.3 A commitment has been obtained from Security to support fire watch requirements. Record the responsible group below.

Fire Watch Support Group CE NPS PW Date 9/28/02

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

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WORK PLAN

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RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

- 2.4.4 Foreign material exclusion (FME) shall be controlled per NP 8.4.10, Exclusion of Foreign Material from Plant Components and Systems, and PBF-9158, FME Checklist.

RE/IS

Date

2.5 Personnel Safety Concerns

The following precautionary personnel safety requirements are recommended for this IWP:

- 2.5.1 Caution should be exercised when lifting or rigging components.
- 2.5.2 This installation will take place in an area of increased fire awareness. Installation personnel shall take precautions against fire hazards. Care should be taken not to allow combustibles to extend from the 1P-29 cubicle to the adjacent AFP cubicles.
- 2.5.3 Care should be taken during welding to prevent the halon system in the auxiliary feedwater pump room from actuating. This may be accomplished by removing from service any fire sensors in the 1P-29 cubicle or in the area of the welding.
- 2.5.4 Aux. Feedwater pump 1P-29 minimum recirculation line does not have drain connections. To allow this line to drain, the downstream flange for metering orifice 1FE-4049 will be broken open. The safety cautions of MI 32.8, Guidelines for Opening Piping Systems shall be utilized.

The Installation Supervisor is aware of the above listed safety concerns.

IS

Date

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

2.6 Identification of Permits Required

- 2.6.1 Work Order 0202509 for this IWP has been written and submitted to CHAMPS. The Work Order number has been recorded on the IWP coversheet.
- 2.6.2 Ignition control permit is required for welding and shall be obtained by the Installation Supervisor when needed.

The Installation Supervisor has assured that all necessary permits for this installation will be obtained.

IS

Paul Wilson

Date

2/20/02

2.7 Pre-Installation Work

NOTE: The following work will be performed under other work orders.

- 2.7.1 Pre-fabricate piping assembly, including replacement orifice 1RO-4003, in accordance with the Construction sketch SK-MR-99-029*C under WO 0202508.

Paul Wilson
MT/Date

2.8 Operational Installation Prerequisites

- 2.8.1 This installation will be performed during the Unit 1 Reactor being in Hot Shutdown (Mode 4), Cold Shutdown (Mode 5) and/or Refueling (Mode 6) operating condition. If the installation is performed with Unit 1 in any other mode of operation, appropriate action statements per LCO 3.7.5 shall be performed.

NOTE: The following step indicates a **RECOMMENDED** Danger Tag Series. This may be altered depending on the plant conditions or other work being performed on the auxiliary feedwater system as determined by OPS.

- 2.8.2 Prepare a Danger Tag Series to isolate the 1P-29 minimum recirculation line from flow element 1FE-4049 to valve 1AF-15.

Recommended tag series:

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

- a. Valve 1AF-00015, Pump 1P-29 Mini Recirc Outlet,
CLOSED
- b. Valve 1AF-04002, Pump 1P-29 Mini Recirc Control,
CLOSED
- c. Valve 1MS-00126, P-29 AFP Steam Supply Inlet
CLOSED

DANGER TAG SERIES: 1AF P-29 min Recirc

2.8.3 Hang the Danger Tag Series prepared in Step 2.8.2.

OPS/Date

2.8.4 Release For Installation

All of the above operational installation prerequisites have
been met and it is acceptable to proceed with the installation.

DSS Date 2/23/02 Time 1800

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INSTALLATION WORK PLAN

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WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

3.0 INSTALLATION

3.1 Installation Description

NOTE: The following is a detailed step-by-step listing of the actions necessary to perform this IWP. The steps are to be performed in a logical work order. Work can be performed in an order other than as written at the discretion of the Responsible Engineer or the Installation Supervisor.

CAUTION

Aux. Feed. pump 1P-29 minimum recirculation line does not have a drain connections. To allow system to drain, downstream flange of metering orifice 1FE- 4049 shall be broken open. Safety caution of MI 32.8, Guidelines for Opening Piping Systems shall be observed.

3.1.1 Install temporary supports on recirc piping if necessary.

AW 9/8
MT/Date

3.1.2 Drain and vent Line 2"-DB-3 by breaking the flange at orifice 1FE-4049, IF necessary. Control drainage as well as possible by using hoses and catch basins.

*RCC
9-25-02*

*VERIFY no leakage past 1AF15 prior to cutting.
Note: System may have been adequately drained utilizing the 1FE-4049 instrument connections. If this is the case, then breaking the flange is not necessary.*

Note: Coordinate with Operations as required.

AW 9/8
MT/Date

CAUTION

If leakage past isolation valve 1AF-15 is seen, STOP work and contact the job supervisor or RE immediately. There is no isolation between 1AF-15 and the CSTs. Verify no leakage prior to cutting pipe.

*RCC
9-25-02*

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UNIT 1

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CAUTION

Take extreme care to apply all possible fire protection precautions in the AF pump 1P-29 cubicle.

- 3.1.3 Disconnect instrument tubing from 1FE-4049 downstream flange.

QML 9-28
MT/Date

NOTE: Note exact orientation of 1FE-4049 orifice plate before removing. Record any orientation information below, and retain the orifice for reinstallation later.

- 3.1.4 Remove the piping assembly, including orifice 1RO-4003, as required per Construction sketch SK-MR-99-029*C. Record orifice orientation information below.

Note: The U-bolt for the support just downstream of 1FE-4049 will have to be removed.

*inlet side of orifice plate faces
up stream. Col to the west*

QML 9-25-02
MT/Date

FME HOLD POINT

- 3.1.5 Perform FME cleanliness inspection and install temporary FME covers on all unattended open pipe ends. The guidelines of the FME "Checklist", PBF-9158, shall apply to this IWP.

QML 9-28-02
MT/Date

NUCLEAR POWER BUSINESS UNIT
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IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP, 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

- 3.1.6 Cut the 1FE-4049 flange and pipe stub from piping assembly removed in Step 3.1.4 at the elbow closest to the flange. Flange and stub piece can be re-used. Save all other pipe for examination by Engineering.

Jda 9-28-02
MT/Date

FME HOLD POINT

- 3.1.7 Prior to installation, perform FME cleanliness inspection of the 1FE-4049 flange with pipe stub, and the upstream piping.
- 3.1.8 Install the 1FE-4049 orifice and flange including pipe stub cut out in Step 3.2.4. Use new gaskets (BOM Item 4) Check orientation of orifice before installing.

Jda 9-28-02
MT/Date

Jda 9-28-02
MT/Date

QC HOLD POINT

- 3.1.9 Torque bolts using a staggered pattern. Torque the bolts to 255 Ft-Lbs (+/-) 12 Ft-Lbs in accordance with PBF-9142.

QC SHALL witness final torquing of bolts.

M&TE: MCTW -035 109 ^{MGB 4-30-02}

Cal. Due Date: 9-22-03 ^{MGB 7-30-02}

Final "As Left" torque value: 255 255

QC Steve Curry Date 9/29/02

AMW 9-29-02
MT/Date

CAUTION

1AF-15 is an isolation tagout boundary valve. It will not be possible to open this valve while welding. Take steps as necessary to keep the valve from getting too hot.

FME HOLD POINT

- 3.1.10 Prior to installation, perform FME cleanliness inspection of the piping assembly pre-fabricated in Step 2.7.1.

Jda 9-28-02
MT/Date

NUCLEAR POWER BUSINESS UNIT
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AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
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- 3.1.11 Install the piping assembly pre-fabricated in Step 2.7.1 in accordance with Construction sketch SK-MR-99-029*C and the weld map (Attachment C). Perform fitup only with tack welds, and check that fitup meets ASME B31.1 requirements.

(B31.1 allows an internal misalignment of 1/16")

Note: Some of the welds below will be fitup under WO 0202508.

Weld #1	By: <u>Jen Root only</u>	Date: <u>9-28-02</u>
Weld #2	By: <u>PGH</u>	Date: <u>9-28-02</u>
Weld #3	By: <u>PGH</u>	Date: <u>9-27-02</u>
Weld #4	By: <u>JJB</u>	Date: <u>9-9-02</u>
Weld #5	By: <u>Jen Root only</u>	Date: <u>9-28-02</u>

- 3.1.12 Perform root welds in accordance with Construction sketch SK-MR-99-029*C and the weld map (Attachment C).

Note: Some of the welds below will be welded under WO 0202508.

Weld #1	By: <u>Jen Root only</u>	Date: <u>9-28-02</u>
Weld #2	By: <u>PGH</u>	Date: <u>9-27-02</u>
Weld #3	By: <u>PGH</u>	Date: <u>9-27-02</u>
Weld #4	By: <u>JJB</u>	Date: <u>9-9-02</u>
Weld #5	By: <u>Jen Root only</u>	Date: <u>9-28-02</u>

welds 2,3,4
done under
prefab wo.
S. S. S. S.
9/30/02

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

NDE HOLD Point

- 3.1.13 Perform visual examination (VT) of all field root welds. The acceptance criteria for piping welds are ASME B31.1 - 1992 and Construction sketch SK-MR-99-029*C.

Note: Some of the welds below will be examined under WO 0202508.

Weld #1:	<input checked="" type="checkbox"/> Sat	<input type="checkbox"/> Unsat
Weld #2:	<input type="checkbox"/> Sat	<input type="checkbox"/> Unsat
Weld #3:	<input type="checkbox"/> Sat	<input type="checkbox"/> Unsat
Weld #4:	<input type="checkbox"/> Sat	<input type="checkbox"/> Unsat
Weld #5:	<input checked="" type="checkbox"/> Sat	<input type="checkbox"/> Unsat

welds 2, 3, 4 performed
under prefab
package
J. J. Joffe
9/20/02

Note: If an unsat inspection condition is identified, NDE will not sign off this step until the appropriate evaluation and /or rework along with re-inspection has been accomplished.

9-21-02
NDE/Date

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

NDE HOLD Point

- 3.1.14 Perform penetrant examination (PT) of all field root welds.
The acceptance criteria for piping welds are ASME B31.1 –
1992 and construction sketch SK-MR-99-029*C.

*Note: Some of the welds below will be examined under WO
0202508.*

Weld #1:	<input checked="" type="checkbox"/> Sat	<input type="checkbox"/> Unsat
Weld #2:	<input type="checkbox"/> Sat	<input type="checkbox"/> Unsat
Weld #3:	<input type="checkbox"/> Sat	<input type="checkbox"/> Unsat
Weld #4:	<input type="checkbox"/> Sat	<input type="checkbox"/> Unsat
Weld #5:	<input checked="" type="checkbox"/> Sat	<input type="checkbox"/> Unsat

*welds 2, 3, 4
performed on
prefab
8/30/02*

Note: If an unsat inspection condition is identified, NDE
will not sign off this step until the appropriate
evaluation and /or rework along with re-inspection
has been accomplished.

9-29-02
NDE/Date

- 3.1.15 Perform final welds in accordance with Construction sketch
SK-MR-99-029*C and the weld map (Attachment C).

*Note: Some of the welds below will be welded under WO
0202508.*

Weld #1	By: <i>PGH</i>	Date: <i>9-29-02</i>
Weld #2	By: _____	Date: _____
Weld #3	By: _____	Date: _____
Weld #4	By: _____	Date: _____
Weld #5	By: <i>PGH</i>	Date: <i>9-29-02</i>

*welds 2, 3, 4
performed on
prefab
8/30/02*

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

NDE HOLD Point

- 3.1.16 Perform visual examination (VT) of all field final welds. The acceptance criteria for piping welds are ASME B31.1 - 1992 and Construction sketch SK-MR-99-029*C.

Note: Some of the welds below will be examined under WO 0202508.

Weld #1: ☒ Sat
Weld #2: ☐ Sat
Weld #3: ☐ Sat
Weld #4: ☐ Sat
Weld #5: ☒ Sat

☐ Unsat
☐ Unsat
☐ Unsat
☐ Unsat
☐ Unsat

weld 2,3,4 done
on prefab 0202508
8 Feb 2002
9/30/02

Note: If an unsat inspection condition is identified, NDE will not sign off this step until the appropriate evaluation and /or rework along with re-inspection has been accomplished.

QA/H/9-29-0
NDE/Date

- 3.1.17 Torque bolts on pipe support next to 1FE-4049 to a nominal 6 ft-lbs.

M&TE: MCTW - 0.35

Cal. Due Date: 6-14-03

Final "As Left" torque value: 6 ft lbs

QML/9-29-0
MT/Date

- 3.1.18 Restore fire protection for AF system pump room as necessary and notify Construction to release fire watch.

OP/10/1/02
OPS/Date

- 3.1.19 Mark-up Construction sketch SK-MR-99-029*C to indicate new as-installed configuration of this modification.

REC/9-30-02
RE/Date

NUCLEAR POWER BUSINESS UNIT
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WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
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February 20, 2002

3.1.20 Hang new label on 1RO-4003.

Rec/9-30-02
RE/Date

3.2 Clean up

Remove all construction debris, tools, and material from the work area.
Ensure all work areas meet PBNP housekeeping expectation.

IS [Signature] Date 9.30.02

3.3 Installation Complete

3.3.1 As-Built Description

This IWP was installed
by: DZ NPS f. Hers Date 9.30.02

The installation was performed in accordance with this IWP
and drawings (list revisions):

ECR(s) No. None
CR(s) No. None
Other comments _____

Attach any additional documentation of the as-built description
to this IWP.

3.3.2 List all calibrated equipment used during installation of this
modification on the work order.

3.3.3 The installation of this IWP is complete. It has been installed in accordance
with this IWP and all associated ECRs.

RE [Signature] Date 9-30-02

IS [Signature] Date 9.30.02

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

4.0 TESTING

4.1 Testing Information

4.1.1 The acceptance tests for this modification are:

- a. Initial Service Leak Test performed at normal operating pressure and temperature (with pump running)
- b. Functional Test of new orifice 1RO-4003 to verify acceptable recirculation flow and reduced vibration.

4.1.2 The intent of the testing is to:

- a. Verify the functional performance of new orifice.
- b. Verify the integrity of the modified piping.
- c. Verify that all new welds associated with modified piping are leak tight.
- d. Satisfy the pressure testing requirements of NP 7.4.1.

4.1.3 Acceptance criteria for the testing is as follows:

- a. Piping and fittings within the modified piping boundary shall not show any evidence of structural distress (bulging or deformation) at normal AF system operating temperature and pressure.
- b. Piping and fittings within the modified piping boundary shall not show any evidence of through-wall leakage at any new welds at normal AF system operating temperature and pressure.
- c. New orifice 1RO-4003 flow reading must be between 120 and 130 gpm.
- d. With full flow through the orifice, there should not be excessive noise or vibration.

4.2 Pre-Test Requirements

4.2.1 Remove the Danger Tags that were hung in Step 2.8.3.

4.2.2 Fill and vent auxiliary feedwater system and prepare 1P-29 for operation as described in OI-62B.

4.2.2 Install ultrasonic flowmeters on the mini-recirc piping to

5 10/15/02
OPS/Date

5 10/15/02
OPS/Date

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

IWP 99-029*C.
WO 0202509
WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
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February 20, 2002

facilitate flow testing.

UT #1: MTE CEFM-004

Cal Due: 2-17-03

RCC
10-14-02 N/A

UT #2: MTE

Cal Due:

RCC 10-13-02
RE/Date

4.3 Release for Testing

4.3.1 The auxiliary feedwater pump 1P-29 is available as required to be started for testing. Testing can start.

DSS DR/mm Date 10/17/02 Time 0500

4.4 Testing

Note: Sound and vibration data may be collected as directed by the System Engineer while the pump is running during OI-62B.

4.4.1 Start 1P-29 per OI-62B (or other procedure).

10/17/02
OPS/Date

4.4.2 While pump is running, take flow readings below:

Flow Reading 1FIT-4049 126 gpm.

Flow Reading UT #1 139 gpm.

Flow Reading UT #2 N/A gpm.

RCC 10-14-02
ENG/Date

RCC 10-14-02
ENG/Date

RCC 10-14-02
ENG/Date

Acceptance criteria: The flow reading must be between 120 and 130 gpm. If 1RO-4003 Performance Test is unacceptable, manually adjust the 1RO-4003 per Attachment B.

No adjustment necessary, based on
1FIT-4049.

UT flow reading is likely high due to
flow conditions.

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AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
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February 20, 2002

4.4.3 When flow is acceptable, lock orifice with safety wire
(provided by vendor).

RCC 10-14-02

RE/Date

4.4.4 Mark orifice position using indicating plate.

RCC 10-14-02

RE/Date

CAUTION

Use caution when examining piping and welds. The
system operating pressure may be in excess of 1300 Psig.

4.4.5 Perform the Initial Service Leak Test of the new piping and
welds while the pump 1P-29 is running in recirculation mode.
Examine for leakage all new joints. A 10 minute hold time is
required. Record results of the Initial Service Leak Test below:

Leak Test:

☒ Sat

☐ Unsat

No leakage present.

Acceptance criteria: No visual evidence of weeping or leaking
at tested fittings and joints.

RE/OPS

[Signature]

Date 10-14-02

NUCLEAR POWER BUSINESS UNIT
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UNIT 1

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- 4.4.6 Evaluate the vibration and noise created by the orifice with full flow. Document results below.

No significant vibration.

Acceptance criteria: No excessive noise or vibration.

RE [Signature] Date 10-14-02

4.5 Testing Results

- 4.5.1 Attach any additional testing documentation to this IWP.

- 4.5.2 List all calibrated equipment used during testing of this modification.

CEFM-004

- 4.5.3 The testing is completed and all Acceptance Criteria have been met.

RE [Signature] Date 10-14-02

NUCLEAR POWER BUSINESS UNIT
INSTALLATION WORK PLAN

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WORK PLAN

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
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5.0 RESTORATION

5.1 Pre-Acceptance

5.1.1 The following items must be completed prior to acceptance:

- a. All ECRs have final approvals.
- b. All update items required prior to acceptance on PBF-1606 have been completed.
- c. All testing described above has been satisfactorily completed.

All of the above items have been completed.

RE [Signature] Date 10-14-02

5.2 System Restoration

5.2.1 Close out any remaining tagouts and permits for this IWP.

5.2.2 Aux Feedwater pump 1P-29 is ready for release for operation.

DSS [Signature] Date 10/14/02 Time 0604

6.0 ACCEPTANCE

6.1 Verify systems and components affected by this modification are placed in an appropriate condition for present plant configuration.

6.2 If fire rounds in progress, then discontinue fire rounds.

6.3 Final Acceptance

This installation and the associated modification have been installed and tested and are acceptable.

DSS [Signature] Date 10/14/02

[Signature] 10/14/02
OPS/Date
[Signature] 10/14/02
OPS/Date

Return completed IWP and modification to Responsible Engineer

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

ATTACHMENT A
BILL OF MATERIAL

Item	SR	Size	Description	Model Number	Qty	Stock ID No.	Comments
1	S	2"	Pipe, Sch. 80		5ft	901-7551	Seamless Stainless Steel, ASTM A-312, Type TP 316
2	S	2"	Elbow, 90 deg., 3000lb, socket weld		1	901-5019	ASTM A-182, Grade F-304
3	S	2"	Pressure Reducing Device	Flowserve 94-16249	1	100-1198	ASTM A-351 Type CF8M body, A-479 Type 316 bonnet, 600# class, Socket Weld ends
4	N	2"	Gasket, Flexitallic		2	915-4223	Flexitallic, 1500 Lb., Blue Asbestos and 304 S.S.

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AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

February 20, 2002

ATTACHMENT B

1RO-4003 Manual Adjustment Steps (Reference drawing 94-16249)

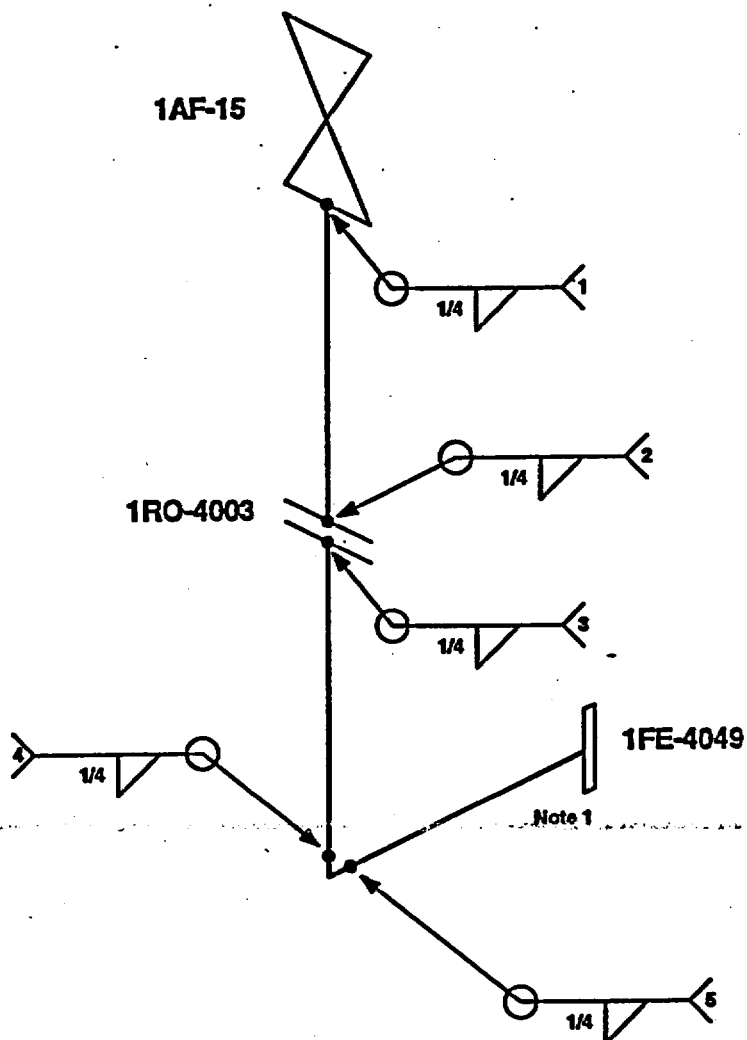
- B.1. Remove safety wire (Item 260).
- B.2. Loosen jam nut (Item 244).
- B.3. Rotate stem as necessary with the pin nut (Item 235P) to adjust flow – *clockwise will reduce flow.*
- B.4. Tighten jam nut (Item 244).
- B.5. Retest per Section 4.4.
- B.6. If test is satisfactory, then install safety wire (Item 260).

AUX FEED WATER PUMP 1P-29 MINIMUM FLOW
RECIRC LINE ORIFICE
UNIT 1

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ATTACHMENT C

WELD MAP



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Notes:

- 1 - No oversizing needed on butt weld at flange. Pipe section welded to flange may be re-used.
- 2 - Weld #1 is P1 to P8. All other welds are P-8 to P-8.
- 3 - All welds shall be oversized (2x1) per SK-MR-99-029*C.
- 4 - Add field weld flags to this weld map, based on how the piping was installed.

WO WORK PLAN

Work Control Document: 0202508

UNIT: PB 1

Equipment ID: RO-04003 PREFAB SHOPWORK

Equipment Description: 1P-29 AFP MINI RECIRC ORIFICE

Work Plan Originator: Mike Desroches X6919

Date: June 12, 2002

WORK SCOPE

WORK SCOPE and PURPOSE	Prefabricate piping, elbow, and orifice, to expedite outage-scheduled work.
INITIAL CONDITIONS	ANY Shop-work. RO-04003 Prefab.
DANGER TAG SCOPE	N/A
DANGER TAG REFERENCES	N/A
LIMITATIONS AND PRECAUTIONS	Qualified welder to WPM 2.P8-GT Store completed pre-fab under W.O.# 0202509
TOOLS AND MATERIALS	L/N 9017551 2" Pipe, Sch. 80 S.S. ASTM A-312 Type 316 L/N 9015019 2" Elbow, 90 deg., 3000#, Socket Weld P003467 RO-04003 new valve type orifice. SIR# 2856

SIR# 16473

QUALITY CONTROL

QC REVIEW OF WORK PLAN

(Independent QC review required on QA classified work order only) NA if non-QA work order

Any change in scope requires WO WP review by QC Inspector.


QC
INSP.

6.12.02

Date

SUPPORT

SUPPORT	<input type="checkbox"/> Chemistry
	<input type="checkbox"/> Engineering
	<input type="checkbox"/> HP
	<input type="checkbox"/> I&C
	<input type="checkbox"/> Maintenance
	<input checked="" type="checkbox"/> NDE VT Root pass PT Root pass VT all final welds
	<input type="checkbox"/> Operations
	<input type="checkbox"/> QC
	<input type="checkbox"/> Security
	<input type="checkbox"/> Crane <input type="checkbox"/> TB <input type="checkbox"/> PAB <input type="checkbox"/> Polar <input type="checkbox"/> Other
	<input type="checkbox"/> Other

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WO WORK PLAN

Work Control Document: 0202508

UNIT: PB-1

Equipment ID: RO-04003 PREFAB SHOPWORK

Equipment Description: 1P-29 AFP MINI RECIRC ORIFICE

Work Plan Originator: Mike Desroches X6919

Date: June 12, 2002

PRE-JOB BRIEF

Supervisor / Job Leader to conduct pre-job brief using PBF-9217 (Mtn and I&C) or OM 3.29 (OPs).

NOTE: Pre-job brief may require attendance of other workgroups involved in the work activity.

PRE-JOB BRIEF COMPLETED

Supervisor or Job Leader

Date

NOTES

NOTE: The steps in this work plan may be performed in any logical order.

FME: Tools and equipment shall be checked for loose parts and debris and temporary covers should be installed for foreign material exclusion (FME) of system/components per Exclusion of Foreign Material from Plant components and Systems, NP 8.4.10.

NOTE: IF inspections or discrepancies require modifications to Work Scope:

THEN STOP work,
place equipment in SAFE condition,
and NOTIFY Supervision.

NOTE: The Control Room / the Work Control Center / and the watchstander (as appropriate) shall be informed of the status of jobs which:

bring in alarms,
affect indications,
and other work being performed on operating equipment.

NOTE: All workers shall perform all Danger Tagging requirements as defined in NP 1.9.15

NOTE: When replacing parts, compare the old part to the new part to verify it is an acceptable replacement.

NOTE: If work scope changes, an R/R/M form may be required for parts replacement or repair.

NOTE: Any pen and ink change to work plan requires initial and date by the change.

NOTE: Write WO number on top/header of any supplemental pages added to work package, i.e., forms, procedures, checklists...

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WO WORK PLAN

Work Control Document: 0202508

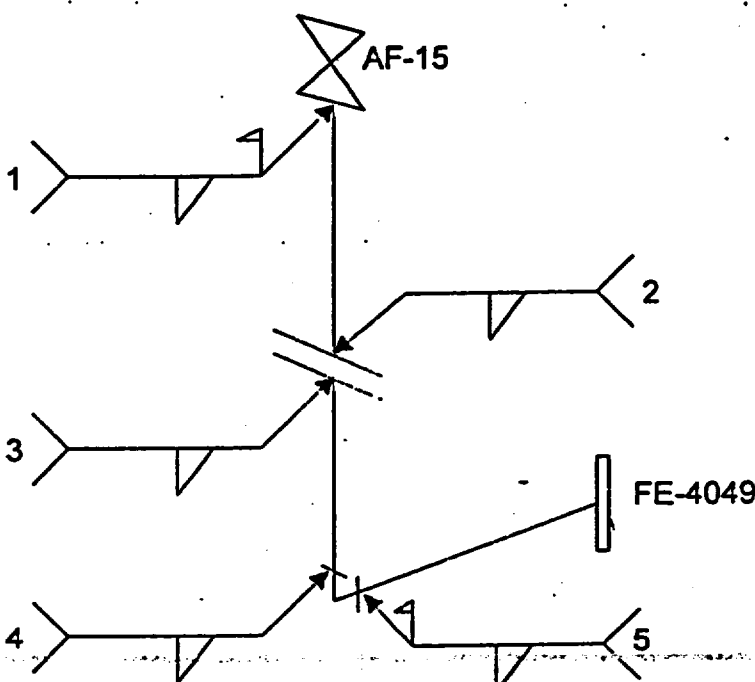
UNIT: PB 1

Equipment ID: RO-04003 PREFAB SHOPWORK

Equipment Description: 1P-29 AFP MINI RECIRC ORIFICE

Work Plan Originator: Mike Desroches X6919

Date: June 12, 2002

Hold Point	Step No	Work Plan Description	Worker	Date
CAUTION Weld sizes are not typical, reference SK dwg.				
Welder Caution: Weld sizes are not typical, reference SK dwg.	1.	<u>General Information Step</u> Reference weld map below and SK-MR-99-029-C to determine which portion of the piping can be prefabricated and inspected. Welds # 2, 3, & 4, can be made as prefabs. (Note: Weld 4 is being done to increase weld size).  NOTE : All welds to be oversized. The length of the weld shall be at least 1/2", which is 2X the thickness of 1/4" at the socket joints. See DETAIL 1 and Note of SK dwg. for clarification.	RCH MT	9-27-02 DATE
	2.	Obtain field measurements as required to allow prefab work on piping.	JML MT	9-27-02 DATE
CAUTION Root Pass VT & PT inspection is required after each root pass weld.				

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WO WORK PLAN

Work Control Document: 0202508

UNIT: PB_1

Equipment ID: RO-04003 PREFAB SHOPWORK

Equipment Description: 1P-29 AFP MINI RECIRC ORIFICE

Work Plan Originator: Mike Desroches X6919

Date: June 12, 2002

Hold Point	Step No	Work Plan Description	Worker	Date												
	3.	<p>Only a qualified welder to WPM 2.P8-GT to perform welds as per welders checklist, and dwg. SK-MR-99-029°C Detail 1 and Notes.</p> <p>Weld # 2 Welder I.D. <u>PGH</u> Root Pass <input checked="" type="checkbox"/></p> <p>Weld # 3 Welder I.D. <u>PGH</u> Root Pass <input checked="" type="checkbox"/></p> <p>Weld # 4 Welder I.D. <u>JTB</u> Root Pass <input checked="" type="checkbox"/></p>	<u>PGH</u> MT	<u>9-18-02</u> DATE												
	4.	<p>Perform a VT exam of root pass for any completed welds below. Reference weld map SK-MR-99-029°C for <u>weld sizes</u>.</p> <p>Applicable code per the following:</p> <p>VT - ASME B31.1 - 1992 Pipe Class: DB-3</p> <table border="0"> <tr> <td><u>Welds (Ref. Weld Map)</u></td> <td><u>VT EXAM</u></td> <td><u>NDE Examiner</u></td> </tr> <tr> <td>Weld #2</td> <td><input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat</td> <td><u>DAH 9/27/02</u></td> </tr> <tr> <td>Weld #3</td> <td><input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat</td> <td><u>DAH 9-27-02</u></td> </tr> <tr> <td>Weld #4</td> <td><input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat</td> <td><u>TD 9-8-02</u></td> </tr> </table>	<u>Welds (Ref. Weld Map)</u>	<u>VT EXAM</u>	<u>NDE Examiner</u>	Weld #2	<input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat	<u>DAH 9/27/02</u>	Weld #3	<input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat	<u>DAH 9-27-02</u>	Weld #4	<input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat	<u>TD 9-8-02</u>	<u>DAH</u> NDE	<u>9-27-02</u> DATE
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Weld #4	<input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat	<u>TD 9-8-02</u>														
	5.	<p>Perform a PT exam of root pass for any completed welds below.</p> <p>Applicable code per the following:</p> <p>PT - ASME B31.1 - 1992 Pipe Class: DB-3</p> <table border="0"> <tr> <td><u>Welds (Ref. Weld Map)</u></td> <td><u>PT EXAM</u></td> <td><u>NDE Examiner</u></td> </tr> <tr> <td>Weld #2</td> <td><input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat</td> <td><u>DAH 9/27/02</u></td> </tr> <tr> <td>Weld #3</td> <td><input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat</td> <td><u>DAH 9/27/02</u></td> </tr> <tr> <td>Weld #4</td> <td><input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat</td> <td><u>TD 9-8-02</u></td> </tr> </table>	<u>Welds (Ref. Weld Map)</u>	<u>PT EXAM</u>	<u>NDE Examiner</u>	Weld #2	<input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat	<u>DAH 9/27/02</u>	Weld #3	<input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat	<u>DAH 9/27/02</u>	Weld #4	<input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat	<u>TD 9-8-02</u>	<u>DAH</u> NDE	<u>9-27-02</u> DATE
<u>Welds (Ref. Weld Map)</u>	<u>PT EXAM</u>	<u>NDE Examiner</u>														
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Weld #3	<input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat	<u>DAH 9/27/02</u>														
Weld #4	<input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat	<u>TD 9-8-02</u>														
	6.	<p>A qualified welder to WPM 2.P8-GT to perform final welds as applicable, checking off welds as completed. Oversized socket welds are required.</p> <p>All welds to be performed as per welders checklist and dwg. SK-MR-99-029°C, DETAIL 1 and Notes.</p> <p>Weld # 2 Welder I.D. <u>PGH</u> Final Pass <input checked="" type="checkbox"/></p> <p>Weld # 3 Welder I.D. <u>KOM PGH</u> Final Pass <input checked="" type="checkbox"/></p> <p>Weld # 4 Welder I.D. <u>JTB</u> Final Pass <input checked="" type="checkbox"/></p>	<u>PGH</u> MT	<u>9-28-02</u> DATE												

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WO WORK PLAN

Work Control Document: 0202508

UNIT: PB 1

Equipment ID: RO-04003 PREFAB SHOPWORK

Equipment Description: 1P-29 AFP MINI RECIRC ORIFICE

Work Plan Originator: Mike Desroches X6919

Date: June 12, 2002

Hold Point	Step No	Work Plan Description	Worker	Date
	7.	Perform a VT exam of final pass for any completed welds below. Applicable code per the following: VT - ASME B31.1 - 1992 Pipe Class: DB-3 <u>Welds (Ref. Weld Map)</u> <u>VT EXAM</u> <u>NDE Examiner</u> - Weld #2 <input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat <u>AK 9-28-02</u> - Weld #3 <input type="checkbox"/> Sat <input type="checkbox"/> Unsat <u>AK 9-28-02</u> - Weld #4 <input checked="" type="checkbox"/> Sat <input type="checkbox"/> Unsat <u>MJK 9-10-02</u>	<u>AK</u> NDE	<u>9-28-02</u> DATE
FME	8.	Provide FME covers over completed section of prefabricated piping.	<u>PCH</u> MT	<u>9-28-02</u> DATE
	9.	Adequately label prefabbed section of piping and store in the QA cage. under W.O.# 0202509 component RO-04003. (U1R27 work) Caution: Do not use tape on piping.	<u>PCH</u> MT	<u>9-28-02</u> DATE
PMT will be performed on field installation work order, 0202509. No PMT required for this prefab work.				
OPERATIONS				
RETURN TO SERVICE TESTING	1	N/A Prefab work only.	<u>status 77</u> <u>N/A</u> OPS	<u>9/29/02</u> DATE
POST-JOB BRIEF				
Conduct post-job debrief using PBF-9218 (Mtn and I&C) or OM 3.29 (OPs). Document lessons learned, good practices, problems encountered, etc. on feedback form. Debrief should include all applicable work groups.				
POST-JOB DEBRIEF COMPLETED			<u>[Signature]</u> Supervisor or Job Leader <u>9-29-02</u> Date	
FEEDBACK				
Fill out feedback form attached to work package (maintenance group use PBF-9929)			<u>N/A</u> MT	<u>9/29/02</u> DATE

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WO 0202508:

Package planned by MM for work, but transferred to CE. DZ-NPS craft may sign for MT in this Work Order Work Plan.

Secret 8/22/02

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WISCONSIN ELECTRIC POWER COMPANY
POINT BEACH NUCLEAR PLANT
AUX. FEEDWATER SYSTEM
PRESSURE REDUCING DEVICE
DATA SHEET 1 OF 2

IDENT.	1	DESCRIPTION: ADJUSTABLE PRESSURE REDUCING DEVICE (APRD)		
	2	QUANTITY REQUIRED: 1	TAG NO.: 1RO-04003	P & ID NO: BECH. 6118 M-217 SH. 1
	3	CODE CLASS: ASME B16.34 – 1996 Edition (1998 Addenda)		
	4	SAFETY RELATED: YES (DEVICE BODY & WELDS-100% RT)		SEISMIC CLASS: YES – 1
SERVICE	5	FLUID: 1. NORMAL OPERATION: FILTERED & DEMINERALIZED WATER 2. EMERGENCY OPERATION: SERVICE WATER		
	6	PUMP DISCHARGE PRESSURE (PSIG):	DESIGN 1440	MINIFLOW 1370
	7	APRD INLET PRESSURE (PSIG):	1440	1350
	8	APRD OUTLET PRESSURE (PSIG):	50	15
	9	TEMPERATURE (°F)	32 - 120	32 - 120
	10	PREDICTED FLOW RATE: BY VENDOR		
	11	SERVICE CONDITION: FLOW CONTROL AND PRESSURE REDUCTION		
	12	PUMP RATED FLOW - APRD ASSOCIATED: 400 GPM		
	13	REQUIRED APRD FLOW (MIN/MAX): 120 / 130 GPM		
	14	PIPING & FITTINGS ΔP UP TO INLET OF APRD: 20 PSIG		
	16	MAX. ALLOWABLE SOUND LEVEL: 75 DBA (THREE FT AWAY FROM THE APRD-UNINSULATED)		
	BODY	15	APRD BODY SIZE: 2 INCH	
16		APRD DESIGN RATING (ANSI PRESSURE CLASS): 600#		
17		APRD BODY MATERIAL: A351 CF8M		
18		END CONNECTIONS: SOCKET WELD		
19		CONNECTING PIPE SIZE/SCHEDULE: 2 IN./ SCH. 80		
20		BODY LENGTH END-TO-END: BY VENDOR		WEIGHT: BY VENDOR
REVISION	PREPARED BY:	Rob Chapman <i>[Signature]</i>		DATE: 3-1-02
	REVIEWED BY:	Jeff Novak <i>[Signature]</i>		DATE: 3/1/02
	APPROVED BY:	<i>[Signature]</i> RFH		DATE: 3/1/02

WISCONSIN ELECTRIC POWER COMPANY
POINT BEACH NUCLEAR PLANT
AUX. FEEDWATER SYSTEM
PRESSURE REDUCING DEVICE
DATA SHEET 2 OF 2

ADDITIONAL REQUIREMENTS

1. Adjustable pressure reducing device (APRD) assembly shall be designed to withstand seismic loading equivalent to 3.0 g in the horizontal direction and 2.0 g in the vertical direction. When exposed to the above loading the APRD shall be capable of performing all its functions. Vendor shall furnish seismic analysis and design report for Purchaser's review.
2. Hydrostatic testing of the APRD body shall be conducted in accordance with ASME/ANSI B16.34 except that the test pressure shall be maintained for at least 30 minutes.
3. All materials in contact with the working fluid shall be austenitic stainless steel.
4. Castings and wrought materials procured for the manufacture of valve body and trim shall be in accordance with applicable ASTM and ASME specifications and Certified Material Test Reports shall be furnished.
5. All welding shall be in accordance with ASME Section IX requirements.
6. Examination requirements for pressure retaining parts of the APRD shall be in accordance with ASME/ANSI B16.34, Section 8.0. In addition, radiographic examination shall be performed in accordance with ASME Section V, Article 2.
7. The APRD flow rate adjusting device shall be equipped with means to secure APRD position using a lockwire attached to the stem and bonnet.
8. Fabrication drawing, indicating APRD parts list and their associated ASME/ANSI standards, shall be submitted for NMC approval prior to APRD fabrication.
9. Provide Certificate of Compliance attesting that the APRD is designed in accordance with P.O. specified requirements.
10. Provide eight (8) copies of Instruction Manuals for APRD including Parts List and Part Numbers.

REVISION	PREPARED BY:	Rob Chapma <i>[Signature]</i>	DATE:	3-1-02
	REVIEWED BY:	Jeff Nowak <i>[Signature]</i>	DATE:	3/1/02
	APPROVED BY:	RFH/ <i>[Signature]</i>	DATE:	3/1/02

Chapman, Rob

From: VanderVelde, Brian
Sent: Monday, March 04, 2002 11:11 AM
To: Chapman, Rob
Subject: MR 99-029°C/D MM Comments

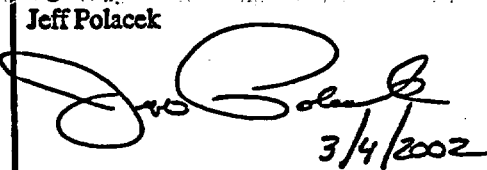
1. Do we have all the parts on site for this mod? Are they QA receipted already and released with QAR numbers?
2. Who in the planning department will get the work package statused and released? CHAMPS indicates 0202509 is still status 10. There is also the pre-fab package 0202508 that is still status 10. The pre-fab package should be scheduled in the 12-week process several months in advance of the Unit 1 outage.
3. Will the piping be completely drained? Will there be an issue of water leaking through a valve and interfering with welding?
4. Are you submitting CHAMPS updates for any valves, equipment, etc. that will be different than what is stated for the specific equipment IDs?
5. For your information: WP-7 and WP-8 now have a complimentary procedure that is in the new Welding Program Manual format. WP-7 and WP-8 will be maintained for an indefinite period of time. We can still reference them. The new procedures are WPM 2.P1-8-GT and WPM 2.P1-GT.
6. Will the orifice come ready to install, or is there any pre-installation testing involved for the orifice?
7. The note after Step 3.2.5 noting the exact orientation of 1FE-4049, should be moved to just prior to Step 3.2.5. The second sentence of the note is an action statement and should have a signoff step itself or incorporated into another sign off step.
8. Work with the planner to develop a Welder's Checklist.

Otherwise, it looks workable.

Should I hold on to the copy you gave me or toss it?

Thanks,
Brian

Point Beach Nuclear Plant
RECORD REVIEW – REQUEST FOR COMMENTS

Record Type: MR 99-029*C	
Record ID:	
Unit: <input type="checkbox"/> 0 <input checked="" type="checkbox"/> 1 <input type="checkbox"/> 2	
Record Date: Draft	
COMMENTS (INCLUDE SIGNATURE & DATE)	RESOLUTION (INCLUDE SIGNATURE & DATE)
<p>Step 3.2.9 Consider having QC also verify orientation of the orifice</p> <p>Step 3.2.10 1AF-15 QC taking Temp Stick readings on the valve? How are we going to satisfy the caution? What temp do we have to keep the valve under?</p> <p>3.2.12 B31.1 internal misalignment is 1/16", easier for the welder and planner if they do not have to look this up.</p> <p>3.2.13 Root portion of fillets? Are we using code case N-416? If not, I am unsure of the need to call-out roots for all welds. (Butt welds only? – specify which welds receive a root inspection)</p> <p>SK-MR-99-029*C It would help to predetermine the weld size and place it on the sketch for the welder and NDE inspector to follow,</p> <p>Jeff Polacek</p>  <p>3/4/2002</p>	<p>Disputed. It was decided that a QC hold point is not warranted.</p> <p>Caution statement will be kept qualitative. No specific temperature will be listed. It is not expected that the valve will get very hot.</p> <p>Added.</p> <p>Calling out roots so that root NDE (VT, PT) can be performed.</p> <p>Added.</p> <p>LLC 3-13-02</p>

ROUTE COMPLETED FORM TO NP-FILE / RECORDS MANAGEMENT

Chapman, Rob

From: Chapman, Rob
Sent: Monday, October 14, 2002 12:25 AM
To: Glaser, Jill
Cc: Chapman, Rob
Subject: EPIX update for MR 99-029°C

MR 99-029°C replaced the Unit 1 turbine driven AFP (1P-29) mini flow recirculation orifice (1RO-4003).

The new orifice is a Valtek Mark I pressure reducing device, and is essentially a globe valve without a handwheel and some cavitation control trim inside.

If you need any more info for EPIX, please let me know.

Thanks.

Rob

Rob Chapman
Mechanical Design Engineering
Point Beach Nuclear Plant
Ph 920-755-7636
Fax 920-755-7410

April 18, 2000
1300-1515 hrs.

Members: W. J. Herrman (Chairman)

R. F. Hornak (ENG)

B. J. O'Grady (OPS)

J. T. Flannagan (MTN)

G. A. Corell (CHEM)

Visitors/Guests:

A. B. Beach

M. Flynn*

M. B. Arnold

T. Cottengim*

D. desRochers*

C. M. Jilek*

J. Stanford*

A. Foltynowicz*

T. G. Malanowski*

J. P. Schroeder*

S. G. Gucwa*

*Part-time

1. In accordance with TS Amendments 190/195 and FCR #99-061 the MSS reviewed and approved the following procedures:

AOP-1B, Unit 1, Reactor Coolant Pump Malfunction, Revision 11. (Permanent)

AOP-1B, Unit 2, Reactor Coolant Pump Malfunction, Revision 11. (Permanent)

IT 80, Unit 1, Main and Radwaste Steam Valves (Quarterly), Revision 20. (Permanent)

IT 85, Unit 2, Main Steam Valves (Quarterly), Revision 19. (Permanent)

NP 1.9.15, Tagging Procedure, Revision 12. (Permanent)

Mr. Stanford presented the significant changes proposed to NP 1.9.15. A major change from past practice relates to the installation of padlocks when operating permits are used.

Mr. Flannagan noted the daily sign in and off requirement for the protected worker log (PWL). He questioned the feedback received from the Maintenance organization on this specific change. Mr. Stanford said the Maintenance department received training on this process. Everything is done through SOMS-NT. This is accomplished via various PCs throughout the plant. Only the supervisor will have to go to the Work Control Center; all others can sign in/out at any PC with SOMs capability. Mr. Flannagan voiced his concern with contractors working here during the outage and their access to a PC. He is concerned with lack of productivity because of waiting lines at PCs for people signing on and off jobs. Mr. Stanford said other options were evaluated including a link to the Security computers and also a link with personnel badges; however, these options were considered to be not as feasible as the selected method. Mr. Flannagan asked whether SOMS was in place at this time. Mr. Stanford said SOMS is scheduled for use on May 12, 2000, which is also when NP 1.9.15 will be issued.

The MSS concurred with the changes and approved the procedure. The MSS recommended that future revisions to this NP be reviewed by the tagging committee and not the MSS. Messrs. O'Grady, Hornak, Corell and Flannagan felt the formation of the tagging committee was positive and it should be utilized as the future review body of changes to the NP.

REC'D MAY 25 2000

Step 2.3 had been added in the past as the method to ensure MSS review occurred based on a request by the Operations manager who is now the plant manager. This recommendation will be made to the plant manager for his consideration. The step will remain as is until this is resolved by the plant manager.

OI 37, Shifting of Instrument Supply Bus Feeders, Revision 32. (Cancel)

Mr. Ettien said OI 37 is canceled and replaced by 1&2-SOP-Y-001. The MSS approved the cancellation.

1PT-MS-1, Unit 1, Main Steam System Pressure Test – Outside Containment, Revision 0. (New Procedure)

2PT-MS-1, Unit 2, Main Steam System Pressure Test – Outside Containment, Revision 0. (New Procedure)

1PT-MS-2, Unit 1, Main Steam System Pressure Test – Inside Containment, Revision 0. (New Procedure)

2PT-MS-2, Unit 2, Main Steam System Pressure Test – Inside Containment, Revision 0. (New Procedure)

Mr. O'Grady questioned the acceptance criteria for the new pressure tests (PTs). Mr. Cottengim said Section 6.0 contains this criteria and Steps 5.7 and 5.8 discuss the methodology for data reviews. Mr. O'Grady asked how packing leaks impact these tests. Mr. Cottengim said the tests still can be acceptable and repairs made if the leak is identified. The MSS had no further questions. The MSS approved the new PTs. Also, in accordance with NP 1.6.5, the MSS determined that future revisions to these four new PTs can be accomplished via a QR and not the MSS.

0-SOP-Y-001, 120 V Vital Instrument Inverters, Revision 0. (New Procedure)

The MSS approved the new procedure. Also, in accordance with NP 1.6.5, the MSS determined that future revisions to this procedure can be reviewed and approved by a QR, not the MSS.

1-SOP-Y-001, Shifting 120 V RPS/Safeguards Instrument Buses, Revision 0. (New Procedure)

The MSS approved the new procedure. Also, in accordance with NP 1.6.5, the MSS determined that future revisions to this procedure can be reviewed and approved by a QR, not the MSS.

2-SOP-Y-001, Shifting 120 V RPS/Safeguards Instrument Buses, Revision 0.
(New Procedure)

The MSS approved the new procedure. Also, in accordance with NP 1.6.5, the MSS determined that future revisions to this procedure can be reviewed and approved by a QR, not the MSS.

2. In accordance with NP 1.2.6, the following screenings were accepted as non-IPTE by the MSS:

1PT-MS-1, Unit 1, Main Steam System Pressure Test – Outside Containment, Revision 0.

2PT-MS-1, Unit 2, Main Steam System Pressure Test – Outside Containment, Revision 0.

1PT-MS-2, Unit 1, Main Steam System Pressure Test – Inside Containment, Revision 0.

2PT-MS-2, Unit 2, Main Steam System Pressure Test – Inside Containment, Revision 0.

0-SOP-Y-001, 120 V Vital Instrument Inverters, Revision 0.

1-SOP-Y-001, Shifting 120 V RPS/Safeguards Instrument Buses, Revision 0.

2-SOP-Y-001, Shifting 120 V RPS/Safeguards Instrument Buses, Revision 0.

3. In accordance with TS Amendments 190/195 and FCR #99-061 the MSS reviewed the following meeting minutes. Minor changes were recommended and incorporated and the minutes subsequently issued:

MSSM 2000-019, meeting held on March 21, 2000.

MSSM 2000-020, meeting held on March 28, 2000.

MSSM 2000-021, meeting held on April 4, 2000.

4. In accordance with TS Amendments 190/195 and FCR #99-061 the MSS reviewed and recommended approval of the following safety evaluations, unless otherwise noted. No unreviewed safety questions were identified during MSS review:

SE 2000-0003-02, MR 98-002*A, Safety Assessment System (SAS)/Plant Process Computer System (PPCS) Replacement Modification – Pre-Parallel Run Test on New PPCS.

Mr. desRochers presented the SE revision that addresses deenergizing RMS-CT1 and/or RMS-CT2. This is a change in design scope that is necessary to allow interface testing. Mr. Corell asked if compensatory measures exist for this circumstance. Mr. desRochers said RMSASRB 2.0 contains this information.

Mr. O'Grady noted the current problem between the old PPCS and the new Eberline server interface that isn't compatible. He asked if this MR corrects the interface communication issue. Mr. desRochers said this issue is being evaluated as part of this modification. We need to ensure the communication interface is working between the new PPCS and the Eberline server.

The MSS recommended approval of the SE revision without comment. Mr. Kaminskas approved the document in Mr. Mende's absence.

SE 2000-0045, CR 97-0968, Valve Lineup Changes for Instrument Air and Service Air to Fuel Transfer System.

The MSS recommended approval of the SE without comment. Mr. Kaminskas approved the document in Mr. Mende's absence.

SE 2000-0055, MR 99-029*A/*B, P-38A*B Auxiliary Feedwater Pump Minimum Flow Recirculation Line Flow Orifice Replacement.

Mr. Foltynowicz presented the SE for MR 99-029*A and *B that addresses EWR 99-031 and CR 99-1391. Mr. Herrman asked what constitutes the PMT for this MR. Mr. Foltynowicz said the testing consists of starting the applicable pump and measuring flow through the orifice.

Mr. Herrman questioned the following phrase contained in response to Question 5: "The AF pumps have 9 stages with 0.009" to 0.014" diametrical clearances and a minimum 0.4375" impeller vane path. Since the pumps have multiple stages and small clearances, they will reduce larger particles size contained in the SW to less than 0.015"." He did not feel the statement is entirely true because he felt that particles could go through the vane paths. Mr. Schroeder said the pump has 9 stages and the particles would have to clear all 9 clearances in order to pass through. This is very unlikely to occur. Mr. Foltynowicz subsequently removed that phrase and included a different discussion contained in the paragraph below.

Mr. Hornak said the discussion that could be included in response to Question 5 is that of plant configuration and the fact that SW is used. He also did not like the quantitative discussion and recommended discussing the recirculation line flow path. Mr. Foltynowicz removed the quantitative discussion and included the following in the SE: "In addition, the safety related function of the AF pumps P-38A and P-38B is to deliver sufficient flow for accidents that are time sensitive to AF system startup (LONF, LOOP), LOL, SGTR and MSLB accidents and provide sufficient flow for long term decay heat removal for accidents such as a SBLOCA. The recirculation line flow path is not required to support this function since the pump discharge valves will automatically open fully in response to the accident and provide a flowpath for the pump. The recirculation line AOV automatically closes approximately 95 gpm and increasing. Failure to pass flow through the recirculation orifice

during the 45 seconds would be conservative since flow to the SGs would be delivered sooner. The recirculation line AOV is also designed as a failed closed valve to ensure that recirculation flow is not diverted from the SG in the event of a loss of instrument air."

With the change made, the MSS recommended approval of the SE. Mr. O'Grady approved the document in Mr. Mende's absence.

SE 2000-0050, MR 98-002*D/*E, Safety Assessment System (SAS)/Plant Process Computer System (PPCS) Replacement Modification – Control Room Remodeling and Rewiring.

Mr. Flynn presented the SE and associated FCR that addresses MR 98-002 design packages D and E. Design package D addresses the control room modifications to the operator consoles (3 for each unit), new SAS alarm screens, new PCs, new work space and raised floor changes. A human factors evaluation was performed on the new design layout. Four activities will include the use of volatile organic chemicals (VOCs). Activities are: Touch up painting of file cabinets; silicone adhesives for solid surface countertop installation; pedestal adhesives; and carpet adhesives. Mr. Flynn said use of these VOCs will be observed and usage limited during this MR to assure personnel health is maintained. Mr. Flannagan asked if the area will have monitors to ensure safe levels are present at all times. Mr. Flynn said he is working with Ms. Sipiorski to ensure a safe work environment.

Design package E addresses the electrical portion of the work in the control room. The work includes providing vital power to non-vital circuits. Mr. Flynn said loads will be limited during the time the old and new PPCS are run in parallel. He said an HVAC evaluation was performed to ensure the 75°F temperature limit is not exceeded in the control room because of the load limitations. The temperature will not be exceeded.

Mr. Flynn noted that an extra operator will be available in the control room during periods when the work precludes a stationed operator from getting to the boards. Mr. O'Grady asked if a fire loading analysis was performed. Mr. Flynn responded that the carpeting, countertops and raised floor were procured as low flame and low smoke composition. Cables are kept in conduit runs. He noted the response to Question 2 addresses fire retardancy requirements. This was acceptable to the MSS. Mr. Hornak also asked if SQUG considerations were part of the MR planning process. Mr. Flynn responded that this was evaluated and no SQUG impacts were identified. The SE description addresses the SQUG aspects.

Mr. Hornak questioned the VOC usage and whether an acceptance range is known to assure the charcoal filters remain undamaged. Mr. Flynn said the industry references 3 lbs. VOC within a 24-hour period as being acceptable. This was confirmed with Mr. Moseman in RP. Mr. Flynn said even at this level, no impact would occur to the recirculation mode and TS are not challenged. He said if the recirculation mode is entered, the IWP instructs personnel to close up the VOC containers and halt work with the chemicals. Mr. Hornak asked whether the amount of vapor allowed for this MR is tolerable for all operators. Mr. Flynn said the use of VOCs will be limited throughout this work. A machine is brought in to draw out some of

the vapors from the control room to help minimize the fumes. A monitoring device may also be staged in the control room as validation of actual levels in various areas. Mr. Flynn said the PPCS project team is very sensitive to the VOC issue. Mr. O'Grady also questioned if this work impacts control room habitability and the life of the charcoal filters. Mr. Herrman asked whether spare filters are available. The filter availability was not known at this time.

Mr. Hornak asked whether another AC mode of operation was considered during this MR. The MSS requested Engineering reevaluate contingencies with respect to the charcoal filters and control room habitability. Mr. Corell also noted that the chemical concentrations used for these installations may have some affect on the surface of the charcoal. He asked if this was evaluated. Mr. O'Grady also questioned the VOC impact on the charcoal filters. He is not comfortable with an engineering statement that 3 lbs. VOC is acceptable without having formal documentation supporting this number. Mr. Hornak also agreed that more justification is required. He gave an example of a problem that may develop during the MR work that would require an operability determination (OD). At this time there is insufficient data to support writing an OD. Messrs. Hornak and O'Grady requested additional justification be provided in the SE to support chemical usage without damage to the charcoal filters and affecting the control room habitability study. The MSS agreed with the request. Based on this issue, the MSS did not approve the SE. (See MSSM 2000-025 for additional discussions.)

5. 1999 Maintenance Rule Annual Report. In accordance with NP 7.7.7, Step 5.3, Ms. Jilek presented the 1999 Maintenance Rule annual report. (See NPM 2000-0325 dated March 30, 2000 for detailed report.)

The Maintenance Rule requires periodic review by management. This year's report contains an executive summary. Ms. Jilek said this report was reviewed by the Overview Expert Panel and discussed during the morning manager's meeting. The MSS asked the composition of the Overview Expert Panel. Ms. Jilek said she is on the panel as well as Maintenance, Operations, System Engineering and PSA representatives. Based on this, Mr. Herrman asked the MSS if they felt this should be reviewed during MSS meetings. Messrs. O'Grady, Hornak and Corell felt the executive summary should be provided to the MSS and discussed during a MSS meeting. They did not feel the entire report was necessary, only the summary. Based on this opinion, the MSS recommended the continuation of this review of the Maintenance Rule annual report.

Mr. Herrman questioned the reporting of the emergency diesel generators (EDGs). He gave an example of having one EDG out of service but having the other EDG aligned to the bus. Ms. Jilek said that is counted as downtime—each EDG is counted separately.

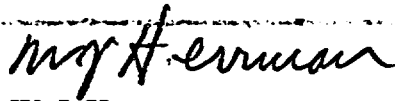
The MSS thanked Ms. Jilek for the presentation.

6. In accordance with NP 1.6.5, the following set of procedures was reviewed to determine the appropriate review/approval of future revisions.

SEM, Site Engineering Manual.

It was agreed that SEM 7.11.8 and SEM 7.11.9 would have future revisions approved by the MSS because the procedures are classified as IPTE. SEM 7.11.5 and SEM 7.11.6 are reclassified as administrative procedures. Other SEMs will be reviewed by a QR.


M. B. Arnold


W. J. Herrman
(Approved)

cc:	OSRC c/o B. J. Onesti	M. E. Reddemann
	M. B. Arnold	A. B. Beach
	G. M. Krieser	M. B. Sellman
	D. B. Black	J. J. Walsh
	File	

**INTERNAL
CORRESPONDENCE**

To: Manager's Supervisory Staff
From: Duane Schoon, Steve Gucwa
Date: April 3, 2000
Subject: Site Engineering Manual (SEM) Procedures Classification Review
Copy To: M. B. Koudelka

Attached is a listing of the Site Engineering Manual (SEM) procedures which were classified as "Minor" procedures, as well as identifying those which are designated as an Infrequently Performed Tests or Evolution (IPTE). This listing also includes recommendations to classifications as described in and in accordance with NP 1.1.2, "Procedure and Administrative Controls in NPB", and NP 1.1.3, "Procedure Preparation, Review and Approval".

The following is the decision making process employed in determining the recommended procedure classification:

- Documents were reviewed to the criteria of NP 1.1.2 to determine the document type; whether a Licensing Document, Policy, Guideline, Controlled Reference Document, Work Plan, or Procedure. The review concluded that the attached SEMs are procedures.
- Procedures were then reviewed to determine whether they were "Technical Procedures" or "Administrative Procedures". SEM 7.11.5, "RSC Leak Test for Unit 1", and SEM 7.11.6, "RSC Leak Test for Unit 2", were identified as "Administrative Procedures". These procedures are documentation tools (a commitment to the NRC to document findings when performing the Tech Spec required leak test). The leak tests are performed/controlled by IT 230, "Leak Test Of Class 1 Components Following A Refueling Shutdown Unit 1", IT 235, "Leak Test Of Class 1 Components Following A Refueling Shutdown Unit 2", and/or OI 119, "RCS Normal Leak Test". These Administrative types received the recommended classification of Admin.
- Technical Procedures were subsequently reviewed for Safety Related (SR) or Non-Nuclear Safety Related (NNSR) classifications. The following was employed for recommendations of SR Procedures:
 1. Procedures that are described in Unit 1 or 2 Technical Specifications, Section 15.6.8 (Plant Operating Procedures), or
 2. Activities are performed on equipment designated as SR on the Quality List (Q-List) or designated SR in CHAMPS, or
 3. Recommendations of typical Safety-Related activities per Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)", Appendix A, Typical Procedures for Pressurized Water Reactors and Boiling Water Reactors.

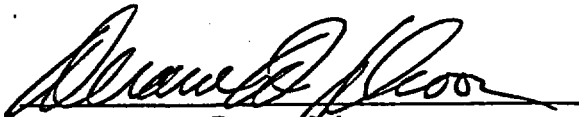
April 3, 2000
Page 2

SEMs were then examined to determine a recommended level of "Reviews" as described in and in accordance with NP 1.6.5, "Manager's Supervisory Staff and Qualified Reviewer".

- SEM 7.11.8, "Removal of Steam Generator Nozzle Dams Unit 2", and SEM 7.11.9, "Installation of Steam Generator Nozzle Dams Unit 2", received a MSS Review Required (MSS) recommendation based on the procedures being classified as IPTE.
- SEM 7.11.10, "Reactor Vessel Interior Inspection", and SEM 7.11.11, "Steam Generator Primary Channelhead Closeout Inspection", received a Qualified Reviewer (QR) recommendation based on the following:
 1. Procedure is not designated as IPTE
 2. Performance of procedure does not involve multiple (more than 2) groups
 3. Performance of the procedure does not directly challenge Nuclear Safety
 4. Performance of the procedure does not directly challenge Power Production

Based upon our reviews of the procedures, the attached recommendations are being provided for MSS consideration and approval.

Respectfully,



Duane Schoon
System Engineering Manager



Steve Gucwa
Procedures Group

~~000407~~

Manual: SEM

Manual Unit: 0

Document Type: Procedure

Unit	Document Number	Document Title	Old Classification	IPTE	New Classification	Safety Related Reviewer	MSS Meeting	Eval Complete
1	SEM 7.11.5	RCS Leak Test for Unit 1	Minor	<input type="checkbox"/>	NA	NA	MSSM 2000-023	<input checked="" type="checkbox"/>
2	SEM 7.11.6	RCS Leak Test for Unit 2	Minor	<input type="checkbox"/>	NA	NA	MSSM 2000-023	<input checked="" type="checkbox"/>
2	SEM 7.11.8	Removal of Steam Generator Nozzle Dams Unit 2	Minor	<input checked="" type="checkbox"/>	Safety Related	Managers Supervisory Staff	MSSM 2000-023	<input checked="" type="checkbox"/>
2	SEM 7.11.9	Installation of Steam Generator Nozzle Dams Unit 2	Minor	<input checked="" type="checkbox"/>	Safety Related	Managers Supervisory Staff	MSSM 2000-023	<input checked="" type="checkbox"/>
0	SEM 7.11.10	Reactor Vessel Interior Inspection	Minor	<input type="checkbox"/>	Safety Related	Qualified Reviewer	MSSM 2000-023	<input checked="" type="checkbox"/>
0	SEM 7.11.11	Steam Generator Primary Channelhead Closeout Inspection	Minor	<input type="checkbox"/>	Safety Related	Qualified Reviewer	MSSM 2000-023	<input checked="" type="checkbox"/>

MSSM 2000-023
Attachment
Page 73 of 73

*not for
rejection*

Point Beach Nuclear Power Plant Organizational Assessment Charter

Purpose

The purpose of this assessment is to identify processes, procedures, and organizational dynamics that have resulted in continued issues with Operational and Engineering performances at Point Beach Nuclear Power Plant (PBNPP) and barriers to improving plant and personnel performance.

Background

The success and long-term viability of Point Beach Nuclear Power Plant is dependent on the ability of the organization to identify issues and resolve them effectively to insure safe, reliable, cost effective operation.

Previous events at PBNPP indicate the organization has not been fully effective in timely resolution of plant issues. Although the station has run well and performance has improved, the pace of improvement is not sufficient to achieve Excellence in the time frame consistent with other NMC plants. Recent examples have occurred in several areas. The trend in maintenance and engineering related backlogs indicate progress has been lagging. Causes of equipment issues in the Spring 2002 Refueling Outage, related to human performance, have been evident in subsequent issues. Overall these are indications of a need to fully understand the processes and interactions that have hindered improvements.

The most recent PBNPP red finding on the Auxiliary Feedwater System identified similar potential problems. Resolution of this old design issue required the station to reevaluate the way previous portions of the system were treated. Subsequently Point Beach identified another potential failure mechanism on this system involving the same recirculation path. The issues associated with these modifications indicate insufficient Engineering rigor and Operational oversight. The processes, procedures and organizational dynamics leading to the recent issue need to be understood and a plan put in place for effective resolution.

The assessment team will accomplish this based on a review of procedures, processes, oversight committees, external communications, interviews with personnel and observation of station activities.

Scope

The scope of this assessment will include a review of a broad spectrum of processes that have the potential for identifying process and organizational weaknesses. In addition, to ensure a thorough understanding of past decisions and their completeness and impact on current plant operation several specific area reviews will be conducted. The following list of items will be included for review/observation.

SPECIFIC ANALYSIS AND REVIEW

Overall AFW System Adequacy – Identify and evaluate limiting performance areas

Modifications performed on AFW (Safety and Non-Safety) - Past 10 years

Modifications on other Safety Systems whether the modifications were safety related or not – Past 5 years

Previous 50.59s and 50.59 screenings – Past 5 years

Past MSS minutes – Past 5 years

Plant and Site Oversight Committee Minutes – Past 5 years

CAP/Action Requests- Past 5 years – non-lower level items that are system/problem related

Performance Indicators performance – persistent areas of slow improvement

Regulatory Submittals – Past 5 years

NRC Inspection Reports – Past 5 years

Last 3 INPO evaluations

Excellence Plan Action Areas and Completeness

DECISION MAKING AND PROCESS IMPLEMENTATION

Organizational Dynamics

- Accountability methods
- Culture Survey
- Teamwork methods

CAP Process

Root Cause Process

System Related Health Reporting

50.59 Process/50.59 Screening process

Work Planning/Scheduling process

Operability Determinations

Modification Process

Temporary Modification Process

MSS Process

Deliverable

The deliverable for this review will be a document that provides weaknesses and strengths identified during the review and will specifically evaluate the Auxiliary Feedwater System adequacy. From this input, the information will be overall Streamed and the Excellence Plan will be updated to provide the overall guidance for Station improvement

Point Beach Assessment and Organizational Assistance Team – General Areas for Review

Team Lead and Coordinator – Gary Van Middlesworth

Engineering/Regulatory Areas – Jim Taylor

Regulatory – Ed Weinkam

Operations and Organization – Warren Fujimoto

Culture Survey -Synergy (John Guibert)

Organization/Excellence Plan – Doug Cooper

Technical & Engineering – Mano Nazar

Operations/Work Planning – Jack Purkis

Technical and Engineering – Mark Reddemann

Organizational Dynamics – Dan and Beth Nilsson (Tall People)

Licensing/Root Cause/Operability Determination– Keith Young/Ed Weinkam

Lori Armstrong - Observer

Mentor – John Holden

INPO -TBD

DECISION MAKING AND PROCESS IMPLEMENTATION

**Organizational Dynamics – Doug Cooper
Warren Fujimoto
Nilsson's**

- Accountability methods
- Culture Survey – John Guibert
- Teamwork Methods

CAP Process – Jim Taylor & Mano Nazar

Root Cause Process – Keith Young

System related health reporting – Jim Taylor & Mano Nazar

MSS Process – Warren Fujimoto & Gary Van Middlesworth

50.59 Process/50/59 Screening process – Ed Weinkam

Modification Process – Mano Nazar

Temp Mod Process – Jack Purkis

Work Planning/Scheduling process – Jack Purkis

SPECIFIC ANALYSIS AND REVIEW AREAS

Overall AFW System Adequacy – Mano Nazar & Mark Reddemann

Modifications on AFW, Safety and non-safety – Jim Taylor & Mark Reddemann

Modifications, Safety Systems – Mano Nazar & Mark Reddemann

50.59's and 50.59 screenings – Ed Weinkam & Keith Young

MSS minutes – Warren Fujimoto & Gary Van Middlesworth

Plant and Site Oversight Committee Minutes – Jim Taylor

CAP/Action Requests – Warren Fujimoto, INPO

Performance Indicators – Doug Cooper & Gary Van Middlesworth

Regulatory Submittals – Ed Weinkam & Keith Young

NRC Inspection reports – Jack Purkis

Last 3 INPO Evals – Warren Fujimoto

Excellence Plan – Doug Cooper & Mano Nazar



**INTERNAL
CORRESPONDENCE**

NPM 2002-0642

To: A. J. Cayia

From: Ken Peveler

Date: December 5, 2002

Subject: **UPDATE ON POTENTIAL AFW COMMON MODE FAILURE EVENT
RESOLUTION TEAM ACTIONS**

Ref: CAP029952

Copy To: File

The purpose of this message is to provide an update on the subject team actions, to recommend adjustments at this time due to progress made and to address organizational changes. Overall, my recommendation is that this team be dissolved and the remaining actions remain with the responsible organizations and processes.

First, an update on the specific group tasks:

~~Incident Investigation~~ - Stu Thomas - Task completed.

~~On-line Work Risk Management~~ - John Anderson - This task is completed relative to AFW in-plant work activities impacting the schedule beyond the impacts of the potential common mode plugging issue (i.e., condensate storage tank inspection, service water system flush, AFW and recirculation orifice inspections completed, and AFW returned to service with compensatory actions in place). This places the station in a base level of risk of low "yellow" due to the AFW recirculation line remaining in a degraded condition due to the orifice design. Orifice design activities are in progress for replacement. In the mean time, plant risk assessment continues to manage station work while in this yellow condition. Resolution of this issue is expected to be extended into January, when the newly designed orifices will be available for installation and return the station to a "green" base line.

~~Interim Corrective Actions~~ - Duane Schoon - Task completed.

~~Issue Resolution Team and Root Cause Evaluation~~ - Jim Freels - Issues remain open in this area. Rich Flessner continues to work on the root cause under the management sponsorship of Jim Freels. Input from PII and PSA is required to complete the root cause. At this time, most if not all of the facts of the situation have been gathered and the first drafts of the root cause have been submitted for comment. Design resolution and risk assessment activities remain open (See attached).

At this time, I am recommending that I be relieved of my team leadership responsibilities for the AFW Common Mode Failure Event Resolution Team and the remaining activities be pursued in accordance with our normal processes. This will support my return to Nuclear Oversight and support preparations for my transition to Engineering Programs at Point Beach in January of 2003. Risk management and design resolution activities require close attention.

Attached is an update of the Charter and an action matrix to reflect status and remaining activities. Specific areas for attention going forward include:

- 1. Coordination of design and installation activities for the new orifices, including coordination of other AFW work to minimize unavailability time.**
- 2. Resolution of newly identified electrical design issues on AFW due to new CAP's**
- 3. Completion of risk analysis work at PII**
- 4. A decision on whether to perform testing on an orifice**
- 5. Completion of the root cause**
- 6. Response to regulatory issues**

/bjo

Attachments:

- 1. Team Charter, with status**
- 2. Action matrix**

Point Beach Auxiliary Feedwater Review Team Charter

Purpose: The purpose of the Point Beach Auxiliary Feedwater Review Team is to systematically investigate the design and licensing bases of the Auxiliary Feedwater System and to verify the as-built and tested conditions of the system satisfy those bases.

Objectives: The objectives of this review team are to revalidate the design bases by:

- ?? Determining if the Auxiliary Feedwater System is currently designed, constructed, operated, maintained and tested to meet the requirements of the design and licensing bases
- ?? Documenting any identified discrepancies in the corrective action program
- ?? Facilitating the resolution to any identified discrepancies
- ?? Ensuring the design bases documents accurately reflect their conclusions.

Scope: The scope of this review is to include, but not limited to, the Point Beach Operating License and Attachments, Updated Final Safety Analysis Report, applicable regulatory commitments and correspondence, applicable plant drawings, design bases documents, installed and pending system modifications, Operability Determinations, applicable normal operating and emergency procedures, component setpoints and bases, preventive/predictive maintenance task scope and frequency, system parameter monitoring and trending activities and bases, applicable maintenance and testing procedures, quality assurance requirements, applicable training lesson plans and simulator scenarios.

Deliverables: Deliverables from this team to include:

- ?? Identification and documentation of discrepancies via the corrective action program
- ?? Generation of Operability Determinations as applicable
- ?? Identification of Limiting system margin components and scenarios
- ?? Updated design bases documents
- ?? Revision packages to correct document weaknesses
- ?? Appropriateness of safety analysis assumptions and identification of margin in these analyses
- ?? Comprehensive report detailing team activities, findings and recommendations

Team Composition:

TBD based on final charter

Schedule:

Charter Approval:

A.J. Cayia
Site Vice President

Date

Point Beach Auxiliary Feedwater Plan

Action:

Review NUREG 1022 for reportability potential	Webb
Review licensing and design basis information for previous communication with NRC about Auxiliary Feedwater System	Webb/Kendall
Independently verify power supplies and instrumentation failure matrix	Miller
Verify Control Room tags are reviewed and revised as necessary	Schoon
Review and revise operational guidance as necessary	Schoon
Provide plan and basis for cross-connecting GO3/GO4 should one EDG become inoperable	Wood
Review PRA model to determine if impact of loss of D01 and D02 correct	Wood
Construct Auxiliary Feedwater assessment plan	Freels
Verify actuation time of 30 minutes is sat with Westinghouse	Kendall
What impact of manual actuation for SW from HEP perspective	Masterlark

OPEN ISSUES	WHO	WHEN	COMMENTS
Incident Investigation	S. Thomas	11/21/2002	CA026962 - completed 11/20/02
On-Line Work Risk Management	J. Anderson	Ongoing	CA026958 - Charter task
NP 10.3.7, Unplanned Yellow Actions	R. Wood	Ongoing	Ref CA27023 and CAP30052/Mod required for green
Interim Corrective Actions			
Charter Tracking Item	D. Schoon	11/27/2002	CA026908 - closed
Training Needs Analysis and Related Actions	P. Smith	2/2/2003	Ref CAP029999/CA026986- Trng Needs Analysis is completed
Condition Evaluation/further enhancements	M. Schug	12/6/2002	Ref CAP029999/CE10848
Independent Evaluation of Procedure changes	D. Schoon	11/27/2002	Ref CA026909 - completed
Independent Evaluation of briefings & training	D. Schoon	11/27/2002	Ref CA026910 - completed
Engineering Resolution Team and RCE			
Conduct Root Cause Evaluation - Draft Report	R. Flessner	11/18/2002	Ref RCE0000191 - first draft issued
Conduct Root Cause Evaluation - Final Report	R. Flessner	12/4/2002	Final requires PSA inputs
PRA/risk significance evaluation	J. Masterlark	1/29/2003	Ref CA026900/Also requires PII inputs
Hydraulic system response	T. Kendall	12/15/2002	CA026911- PII final report expected 12/20/02
Develop a test plan	T. Kendall	TBD	CA026912 - PII/PSA/Engr considerations - Not assigned
Analyze corrosion products	B. Zipp	1/20/2003	CA026913- PII final report expected 12/20/02
AFW sources and quantity of corrosion products	B. Zipp	1/20/2003	CA026914 - PII final report expected 12/20/02
Modifications to orifice design	J. McNamara	12/13/2002	Ref CA026918
Fabrication	J. McNamara	12/17/2002	5 weeks from 11/12 is December 17
Testing	J. McNamara	TBD	Coordination
Installation	J. McNamara	TBD	Planning for
Coordination of work schedule with station	J. McNamara	TBD	13 week schedule process - Input
OPR000031 Part II/Schedule for correction due	J. McNamara	11/27/2002	Complete Part II of OD 31
NEW - Electrical design modifications	M. Rosseau	TBD	Scope, schedule, etc (Clint Drescher as designer)

			Ref CAP030178, DPIS's - field vs dwgs - CA27128 due 3/10/03
			Ref CAP030209, OD Rev 4, D01 Power Supply
Regulatory Response		TBD	