NUCLEAR POWER BUSINESS UNIT
WO WORK PLAN

COPY

UNIT: PB_0_

Work Control Document:	0213471
Equipment ID:	RO-04015
Equipment Description:	P-38B AFP MINI RECIRC ORIFICE
Work Plan Originator:	Mike Desroches x6919/Dick Hughes @ 6967

Date: November 5, 2002

WORK SCOPE

WORK SCOPE and PURPOSE	Work Scope Open orifice. inspect associated piping with boroscope. as per workplan Purpose: Informational inspection.
INITIAL CONDITIONS	P-038B O O.S
DANGER TAG SCOPE	RO-04015 isolation valve danger tagged closed P-038B suction and discharge valves isolated. vented and drained Recommended tagged closed valves, AF-40. AF-52. AF-04019, AF-04016 AF-00048 and AF-00046 would drain suction and discharge lines. Motor breaker tagged out AF-00046A & B will be removed from the system, (cut weld) for boroscope inspection. Additionally, AF-00170A & AF-000170C swage caps removed to drain recirc line for boroscope inspection.
DANGER TAG REFERENCES	BECH 6118 M- 217 SH 1
LIMITATIONS AND PRECAUTIONS	Scaffolding may be needed to cut AF-00046A & B valve for boroscope inspection. and to make one field weld.
TOOLS AND MATERIALS	1-1/4" socket/combo wrenches, Torque wrench to 130 Ft-Lbs Open end wrenches for ½" NPT to ½" Swage fitting

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.	*(signature)* QC INSP.	11/5/02 Date

SUPPORT

SUPPORT		
	☐	Chemistry
	☒	**Engineering Technical Review Required on SR system. Eng /Init./Date** ___ *A* 11/5/02
	☒	NDE
	☒	Operations (danger tag)
	☒	QC
	☐	Security
	☐	Crane ☐TB ☐ PAB ☐ Polar ☐ Other
	☐	Other

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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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Hold Point	Step No	Work Plan Description	Worker	Date
	1	Prior to cutting at the joint upstream of af-0046A, erect a scaffolding IAW "MI-32 9". Ensure to complete the stationary scaffold final inspection checklist, form PBF-9114, and attach PBF-9146 to the scaffolding Ensure the working platform allows for total access to the valve Per CHAMPS, this is a safe shutdown area	MT	DATE
	2.	Establish FME requirements IAW NP 8 4 10 and PBF 9158	MT	DATE
	3	*The following is to allow a boroscope inspection:* Disconnect swagelok fitting upstream of AF-00049 valve. Remove ½" NPT to ½" Swage fitting, **leaving the reducing insert intact in the pump suction piping.**	MT	DATE
	4.	*The following is to allow a boroscope inspection:* Disconnect swagelok fitting upstream of AF-00047 valve. Remove ½" NPT to ½" Swage fitting, **leaving the reducing insert intact in the pump suction piping**	MT	DATE
Exercise caution when cutting on the weldolet, not to decrease socket minimum depth requirement of ½".			
	5.	Cut the weld as indicated by FW-1 on the attached weld map, at the base of AF-00046A *(This is to allow boroscope inspection).* Clean and prep weldolet and removed piping for welding. once boroscope inspection has been completed.	MT	DATE
	6.	N/A if already completed. Record the As-Found Position of AF-00170A valve. ☐ Open ☐ Closed ☐ Other Explain Other _____ **Prepare to divert water to drain, and open AF-00170A** *This will drain RO-04015 orifice and also the piping downstream to allow boroscope inspection where AF-00046A and AF-00046B were removed* If not done so already, remove swagelok cap downstream of AF-00170A vent/drain valves .	OPS	DATE

WO WORK PLAN

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Hold Point	Step No	Work Plan Description	Worker	Date
	7	N/A if already completed Record the As-Found Position of AF-00170C valve ☐ Open ☐ Closed ☐ Other Explain Other _____ **Prepare to divert water to drain, and open AF-00170C** *This will drain RO-04015 orifice and also the piping downstream to allow boroscope inspection where AF-00046A and AF-00046B were removed* If not done so already, remove swagelok cap downstream of AF-00170C vent/drain valves	OPS	DATE
	8	At RO-04015: • Remove the bonnet cap bolting and the bonnet cap off the valve body.	MT	DATE
CAUTION				

CAUTION : During the performance of the next step, TAKE ALL PRECAUTIONS POSSIBLE TO ENSURE THE CAPTURE OF <u>ALL</u> FOREIGN MATERIAL WHEN REMOVING THE INTERNALS FROM THE BODY OF RO-04015. hold an open bag under the internals during the removal and have a clean drop cloth on the floor to capture anything which could drop by the bag. All material needs to be saved for engineering evaluation. Engineering SHALL be present when the bonnet is removed to take photos and to document initial findings as needed. (this is why the next step has an engineering hold point.) *[handwritten signature] Tom Kendall 18/11/02*

Hold Point	Step No	Work Plan Description	Worker	Date
ENG HOLD POINT	9	*Do not proceed until engineering is present.* Check the following box to indicate you have read the Caution note above: ☐ • Remove the orifice cartridge • Remove the seat ring • Remove the seat ring gasket Engineering document initial findings: _____ _____ _____ _____ _____ _____ _____ _____ _____	MT ENG	DATE DATE

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Date: November 5, 2002

Hold Point	Step No	Work Plan Description	Worker	Date
	10	Inspect internals and record as found condition Take photos and quantify amount of debris found if any If debris is found, record number of holes partially or entirely plugged, as applicable or any debris found at the base of the cartridge As Found condition _____ _____ _____ _____ _____ _____ _____ _____ _____	ENG	DATE
	11	Establish an extremely clean work area A work area, which is free of any debris, from other jobs or foreign material, which could get mixed up with anything found in during the disassembly of the orifice cartridge This includes the floor area in the immediate vicinity wher the disassembly will take place	MT SUPVSR	DATE DATE
	12	After a clean work area has been established, perform the following: • Exercise special care to keep any drilling or grinding debris created during the following from becoming mixed with system debris which may exist. We are trying to keep from contaminating the findings • Carefully grind or drill out the small bead welds which hold the retaining pins in place near the top of the cartridge. The should now be ready for disassembly (CONTACT ENGINEERING TO BE PRESENT BEFORE DISASSEMBLING THE CARTRIDGE) • With engineering present maintenance carefully disassemble the cartridge and engineering take photos and record initial findings of the cartridge disassembly, quantifying any debris found and record the number of holes entirely or partially plugged As found condition _____ _____ _____ _____ _____ _____ _____ _____ _____ _____	MT ENG	DATE DATE
	13	Notify NDE group that a boroscope inspection of the piping internals, can now be done	MT	DATE

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Hold Point	Step No	Work Plan Description	Worker	Date
	14	NDE group to perform an engineering directed boroscope inspection of recirc line piping Engineering to review boroscope inspection results and record findings below Comments _____ _____ _____ _____	ENG	DATE
AS-Found Condition	15	Engineering review as found condition and evaluate findings of flow orifice and boroscope inspections Evaluation As Found Condition ☐ SAT As Found Condition ☐ UNSAT , if UNSAT provide recommended actions **Recommended Actions:** _____ _____ _____ _____	ENG	DATE
QC HOLD POINT	16	If Engineering evaluation of the as found condition shows it to be UNSAT, THEN review the recommended actions and determine if any **additional QC inspection required** Additional QC inspection required. ☐ NO ☐ YES If yes, return the work plan to planning to have additional hold or inspection points added.	QC	DATE
	17	*N/A this step if no actions are required* Perform recommended corrective actions (shown in **AS-Found Condition** Step signed by engineering) Record actions performed _____ _____ _____	MT	DATE

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Hold Point	Step No	Work Plan Description	Worker	Date
QC HOLD POINT	18	*Reference Attached weld map for location of FW-1* Perform an FME inspection of the piping internals prior to fit up and closure @ FW-1 (joint just upstream of AF –046A)	MT QC	DATE DATE
	19	Ensure boroscope inspections are complete. A qualified welder to WPM 2.P1-GT to perform weld referenced as FW-1, as per the weld map and weld data sheet, included with this work order	MT	DATE
	20	Fabricate new retaining pins from the following material Type 316 weld wire that is 0 125" diameter, has been accepted for use by engineering As an option and If deemed necessary by engineering. reference Att A for details on fabricating new alignment pins. (Diameter of Att A is slightly less than what OE has shown, that 0.125" diameter 316 wire worked well and is tack welded)	MT	DATE
	21	*Cartridge Assembly* • realign vent holes at the top of the retainer and replace pins Pins are to be placed 180 degrees from each other and tack welded as per weld data sheet	MT	DATE
QC HOLD POINT	22	Perform FME inspection prior to reassembly /system closure • At RO-04015 orifice	MT QC	DATE DATE
	23	To re-install the flow trim use new gaskets, SI# 100-3317 and 100-3318 and the following • Install seat ring gasket • Install seat ring • Install the cartridge; making sure the end with the pins is at the top or toward the bonnet • Install bonnet gasket • Install bonnet and tighten bonnet flange bolting to finger tightness	MT	DATE

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Hold Point	Step No	Work Plan Description	Worker	Date
QC HOLD POINT	24	*QC HOLD POINT: Witness Torque to be within +/- 5 ft-lbs of specified value.* Torque fasteners using a standard three pass process increasing torque values in one third increments. (i e 40 Ft Lbs., 80 Ft Lbs then final), and using a staggered pattern Ensure bonnet cover gap to valve body is tightened down evenly. Final Torque of Bonnet Fasteners is 130 Ft-Lbs. (+/-) 5 Ft-lbs. M&TE _____ Cal Due Date _____ Record Final As Left Torque _____ Ft-Lbs	__MT__ __QC__	__DATE__ __DATE__
QC HOLD POINT	25	Perform FME inspection prior to reassembly /system closure • At AF-00049	__MT__ __QC__	__DATE__ __DATE__
	26	Install ½" NPT to ½" Swage fitting into the reducing insert pump side of AF-00049 valve Reconnect swagelok fitting to return line to service condition, referencing MI 32 11 if needed	__MT__	__DATE__
QC HOLD POINT	27	Perform FME inspection prior to reassembly /system closure • At AF-00047	__MT__ __QC__	__DATE__ __DATE__
	28	Install ½" NPT to ½" Swage fitting into the reducing insert pump side of AF-00047 valve Reconnect swagelok fitting to return line to service condition, referencing MI 32.11 if needed	__MT__	__DATE__
	29	Notify Operations that inspections are complete.	__MT__	__DATE__

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Hold Point	Step No	Work Plan Description	Worker	Date
	30	If not done so already, return swagelok cap downstream of AF-00170A vent/drain valve and return this valve to the As-Found Position, recorded earlier As Left valve position was ☐ Open ☐ Close ☐ Other Reference As-Found valve position recorded earlier	OPS Verifier	DATE
	31	If not done so already, return swagelok cap downstream of AF-00170C vent/drain valve and return this valve to the As-Found Position, recorded earlier As Left valve position was ☐ Open ☐ Close ☐ Other Reference As-Found valve position recorded earlier	OPS Verifier	DATE
Operation Fill and Vent	32	P-038B pump, suction and discharge lines can be filled and vented as per OI-62A	OPS	DATE

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Hold Point	Step No	Work Plan Description	Worker	Date
Flow Instrument Fill and Vent	33	Fill and vent the following instrumentation AND line up for normal operation after lines have been filled Initials a) FT-4014 (P-38B AFP DISCHARGE FLOW TRANSMITTER) _____ b) DPIS-4014 (P-38B AFP DISCHARGE DIFF PRESS INDICATOR SWITCH) _____ c) FIT-4050B (P-38B AFP MINI RECIRC FLOW INDICATOR TRANSMITTER) _____	IC	DATE
INDEPENDENT VERIFICATION	34	Perform independent verification of as-left valve position for FT-4014 MANIFOLD Initials High Side OPEN _____ Bypass SHUT _____ Low Side OPEN _____ Drain SHUT _____	VERIFIER	DATE
INDEPENDENT VERIFICATION	35	Perform independent verification of as-left valve position for DPIS-4014 MANIFOLD Initials High Side OPEN _____ Bypass SHUT _____ Low Side OPEN _____ Drain SHUT _____	VERIFIER	DATE
INDEPENDENT VERIFICATION	36	Perform independent verification of as-left valve position for FIT-4050B MANIFOLD Initials High Side OPEN _____ Bypass SHUT _____ Low Side OPEN _____ High Side Isolation OPEN _____ Low Side Isolation OPEN _____	VERIFIER	DATE
PMT	37	Perform Leak Check @ NOP/NOT on the RO-04015 B/B flange joint ☐ SAT ☐ UNSAT Comments _____ _____ _____	OPS	DATE

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Hold Point	Step No	Work Plan Description	Worker	Date
	38	Perform a Leak Check at all fittings loosened or removed AF-00047 valve ☐ SAT ☐ UNSAT AF-00049 valve ☐ SAT ☐ UNSAT AF-00170A downstream cap ☐ SAT ☐ UNSAT AF-00170C downstream cap ☐ SAT ☐ UNSAT	 OPS	 DATE
PMT	39	Inspect weld identified as FW-1 on the attached weld map, downstream of AF-00046A, at normal operating pressure and temperature, and perform a leak check Leak Check ☐ Sat ☐ Unsat Comments _____ _____ _____ *Note: This inspection is exempt from ASME Sect XI pressure test requirements for this ¼" Class 3 valve.*	 OPS	 DATE
HOUSE KEEPING	40	Remove all debris, tools, and materials from the area Ensure all work areas meet PBNP housekeeping expectations Notify scaffolding crew to remove scaffolding if not done already	 MT	 DATE
LABELING	41	Ensure labeling is adequate. Transfer or order new labels if required	 MT	 DATE

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			OPERATIONS		
RETURN TO SERVICE TESTING	1	As Required IAW PBF 2114 OI–62A ☐ Sat ☐ Unsat Comments _____ _____ _____ _____ _____ _____		OPS	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	Supervisor or Job Leader _____ Date

FEEDBACK

Fill out feedback form attached to work package (maintenance group use PBF-9929)	MT	DATE

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AF-00046B

Picture only actual valve
May not be a bolted
bonnet

AF-00046A

DB-3 Line
Class

FW-1 1/4"
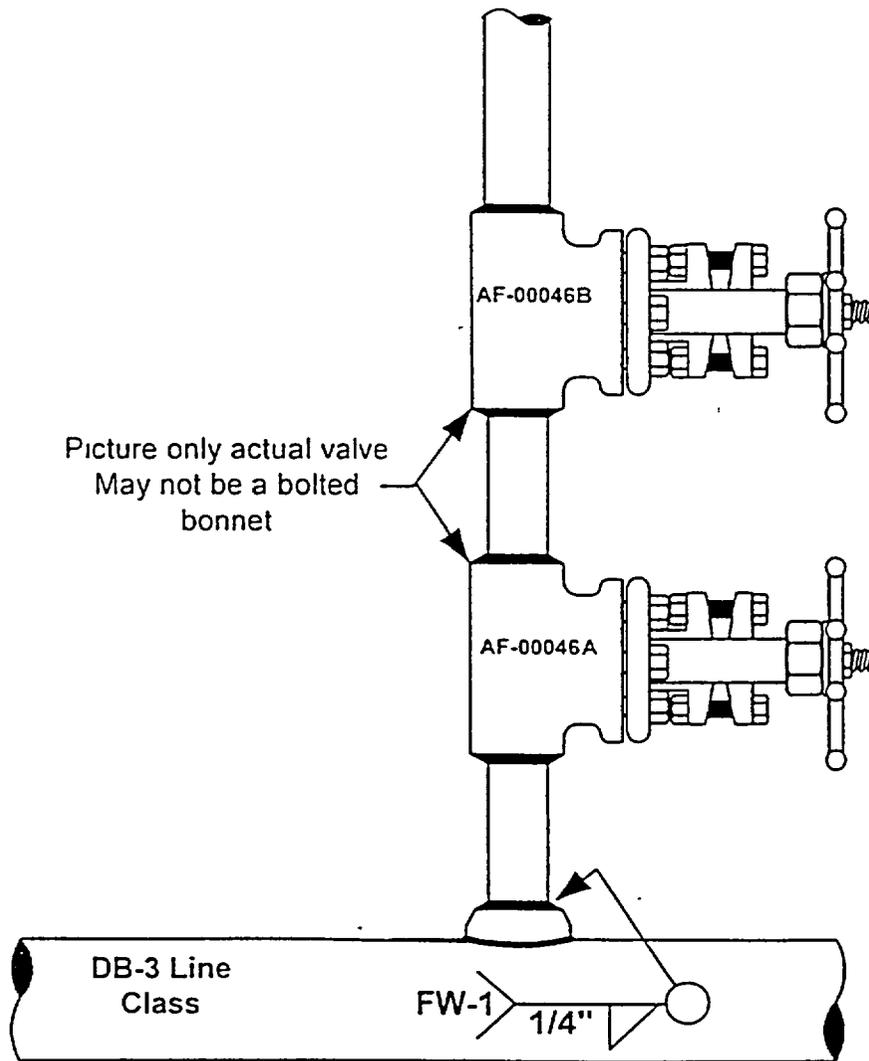
Weld Map

FILLET/SOCKET WELD DATA SHEET

WORK AUTHORIZATION # (WO, MR, etc.) _____0213471_____

DRAWING # _____ REVISION _____ DATE 11/04/02   INITIATOR/DATE M.Desroches 11/1/02

BASE MATL TYPE/GR Pins (316 WELD WIRE) Nom Thick ___1/8"___ to BASE MATL TYPE/GR Cartridge 316 RO-04015 Nom Thick ___NA___

EQUIPMENT # . RO 04015 LINE # _____ N/A _____ FINAL ACCEPTANCE/DATE

WELDING PROCEDURE SPEC. WPM 2.P8-GT	Weld# N/A Group	Size Tack Initials	Weld# Group	Size Initials	Weld# Group	Size Initials	Weld# Group	Size Initials	Weld# Group	Size Initials
Fit-up, Alignment, Cleanliness,	☒ MM ☐ ☐		☐ ☐ ☐		☐ ☐ ☐		☐ ☐ ☐		☐ ☐ ☐	
Electrode Size _____ Type ER316 Trace # Shield Flow Rate _____ CFH Type Trace #	☒ MM ☐ ☐ ☐ ☐ ☐		☐ ☐ ☐ ☐ ☐ ☐		☐ ☐ ☐ ☐ ☐ ☐		☐ ☐ ☐ ☐ ☐ ☐		☐ ☐ ☐ ☐ ☐ ☐	
PREHEAT TEMPERATURE Min Temp. 50 / F Purge: < _____ % O Oxygen Analyzer S/N	☒ MM ☐ ☐ ☐		☐ ☐ ☐ ☐		☐ ☐ ☐ ☐		☐ ☐ ☐ ☐		☐ ☐ ☐ ☐	
INTERPASS TEMPERATURE Maximum Temperature 350 F Welders Symbol/ID	☒ MM ☐ ☐ ☐		☐ ☐ ☐ ☐		☐ ☐ ☐ ☐		☐ ☐ ☐ ☐		☐ ☐ ☐ ☐	
Final NDE: ☐ Procedure Final VT ☒ 2) _____ 3) _____	Initials	Form#	Initials	Form#	Initials	Form#	Initials	Form#	Initials	Form#

Comments: No Visible cracking inspection to be completed by welder