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 LOFLIN, L.I. Carolina Power & Light Co.
 RECIP. NAME RECIPIENT AFFILIATION
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See Rpt.

SUBJECT: Forwards responses to NRC 890928 ltr & 891011 telcon questions re inservice testing of auxiliary feedwater sys.

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	<u>REG FILE</u> 01	1 1	RES/DSIR/EIB	1 1
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MA-2

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Carolina Power & Light Company

NOV 10 1989

SERIAL: NLS-89-303

United States Nuclear Regulatory Commission
ATTENTION: Document Control Desk
Washington, DC 20555

H. B. ROBINSON STEAM ELECTRIC PLANT, UNIT NO. 2
DOCKET NO. 50-261/LICENSE NO. DPR-23
RESPONSES TO AFW IN-SERVICE TESTING QUESTIONS

Gentlemen:

Carolina Power & Light Company is providing responses, attached, to the questions provided in your September 28, 1989 letter, supplemented in an October 11, 1989 conversation with the Project Manager, regarding in-service testing of the Auxiliary Feedwater System.

Questions regarding this matter should be referred to Mr. R. W. Prunty at (919) 546-7318.

Yours very truly,

L. I. Loflin
Manager

Nuclear Licensing Section

LIL/cn (4687NED)

Attachments

cc: Mr. S. D. Ebnetter
Mr. L. Garner (NRC - HBR)
Mr. R. Lo

8911170022 891110
PDR ADOCK 05000261
P FDC

Attachment 1

Response to AFW IST Questions

QUESTION 1 - "Provide a description of the in-service testing that is performed on the AFW pumps to include the frequency, flow path for each pump, and the parameters measured."

Prior to AFW Outage

Answer: Motor Driven Pump Monthly Test on Recirculation

The motor driven pumps were tested monthly with total discharge being routed through the recirculation orifice back to the CST. A provision was provided in OST-201 to feed the steam generators if desired; however, no performance data were taken during operation in this mode. As a visual aid, a marked flow diagram is provided that details the test flow path (Attachment 13). The following parameters as required by ASME Code Section XI, Table IWP-3100-1, were measured or observed:

- Inlet pressure (prior to and during pump operation)
- Differential pressure
- Vibration amplitude
- Proper lubricant level or pressure

Flow rate while on recirculation was not measured in keeping with a previously submitted relief request. Bearing temperatures are measured on an annual frequency in accordance with IWP-3300.

Attachment 2 provides a copy of the OST-201 data sheet that was completed for each pump after a run time of at least 15 minutes on recirculation has been verified.

After AFW Outage

Answer: Motor Driven Pump Monthly Test at limited flow.

The motor driven pumps will continue to be tested monthly; however, the discharge will be at a fraction of full flow to the steam generators with the recirculation piping open. The flow to the steam generators will be consistently maintained from test to test and during the test while collecting performance data. This change in testing is necessary to minimize pump wear. The parameters measured prior to this change will continue to be measured.

The OST-201 data sheet (Attachment 2) will be revised to incorporate new acceptance criteria for Pump DP to reflect the above described change in testing.

Prior to and After AFW Outage

Answer: Steam Driven Pump Monthly Test

The steam driven pump is tested monthly in the recirculation loop in a manner similar to the motor driven pumps. A marked flow diagram is included that defines the hydraulic circuit used in this testing. (Attachment 13)

The following code required parameters are measured or observed:

- Speed
- Inlet pressure (prior to and during Pump operation)
- Differential pressure
- Vibration amplitude
- Proper lubricant level or pressure

Flow rate while on recirculation is not measured in keeping with a previously submitted relief request. Bearing temperature is measured annually in accordance with IWP-3300.

Attachment 3 provides a copy of the OST-202 data sheet listing the parameters measured after a run time of 15 minutes on recirculation has been verified.

To provide continuity and clarity, Question 5 will be answered next.

QUESTION 5 - "Assuming that the regular IST is performed using a minimum flow recirculation loop, provide the same information in Questions 1 and 2 for any testing that may be performed at shutdowns or refueling outages at a higher flow rate."

Prior to and After AFW Outage

Answer: Motor Driven Pump Flow Test at Cold Shutdown

These pumps are full flow tested by supplying the steam generators at cold shutdown. Flow is measured and differential pressure is calculated while the flow control valve for each pump is at 325 gpm. The recirculation loop is also flowing during the test and the flow through this loop is not accounted for by the flow controller or indicator. Each steam generator is separately supplied 325 gpm in this procedure. As information, the recirculation loop is isolated and flow is measured and differential pressure is calculated. This is done to provide a point for comparison to the manufacturer's pump curve. Attachment 4 provides the OST-207 data sheet used to record test values after the pump has operated for a minimum of 5 minutes. Also provided is a marked flow diagram that highlights the test configuration.

Prior to AFW Outage

Answer: Steam Driven Pump Flow Test prior to or after Cold Shutdown

The steam driven pump was also full flow tested, at power. Differential pressure was calculated while the pump was supplying 645 gpm to the 3 steam generators simultaneously. The recirculation loop was not in service during this test, thereby, making possible the accounting of all flow from the

pump. As an information point, differential pressure calculation is made possible and flow to the steam generators was measured with the recirculation loop in service. The flow controller setting was maintained at 600 gpm during this portion of the test.

Attachment 5 shows the data gathered during the performance of OST-206 after operation of at least 5 minutes has been verified. A marked flow diagram is provided that provides the test loop used.

After AFW Outage

Answer: Steam Driven Pump Flow Test prior to or after Cold Shutdown

The steam driven pump is no longer full flow tested, as the full flow capability has been restricted by Plant Modification M-1025. This modification's purpose was to minimize the effects of the steam driven pump flow control valve failure during a main steam line break accident. The pump will be tested at 280 gpm, and the recirculation loop will remain in-service throughout the duration of the test. Data gathered during the performance of OST-206 will remain the same, however, the data sheet (Attachment 5) acceptance criteria for Pump DP will be revised to reflect the above described change in testing.

QUESTION 2 - "Provide a copy of listing of the data recorded during the IST of these pumps over the past twenty-four months. Also provide a description of the test instrumentation and the associated accuracies."

Attachments 14-19 provide the surveillance instrument data as well as the test data requested for this question and Question 5:

Attachment 14

This attachment includes a list of AFW surveillance test instruments and each instruments' associated calibrated accuracy.

All the instruments identified are more accurate than the listing indicates; however, the I&C subunit calibrates the instruments to be within the accuracy listed on the attached. This listing includes all instruments used in one form or another. Those that are marked with an asterisk are the instruments which are specifically used to assess pump performance and are used to obtain values to compare with the test acceptance criteria and consequently pump operability.

Attachment 15

This attachment includes a list of the motor driven and steam driven AFW pump performance data tracked by the ISI subunit. Also included are plots of the performance data (developed head and vibration).

This list is only for pump performance when the pumps are operating on mini-flow recirculation during OST-201 and OST-202, and only for the time period requested (i.e., past 24 months). Note that future testing of the

MDAFW pumps will be different (they will not be tested strictly on mini-flow recirc) due to recognition of the fact that testing on mini-flow increases the wear of the pump internals.

Attachment 16

This attachment includes a copy of the pertinent pages of the motor driven and steam driven AFW pump performance tests, OST-201 and OST-202, respectively.

This information is only for the data requested (i.e., past 24 months). This information is also in support of Attachment 15. Note that copies of three surveillance tests were not located in the vault in the time frame allotted. However, these data points are plotted on the graphs. The dates of the missing tests copies are 3-17-88 for B MDAFW pump, a second test on 7-20-88 for the SDAFW pump, and 10-6-88 for the SDAFW pump.

Attachment 17

This attachment includes a copy of the pertinent pages of the motor driven and steam driven AFW pump performance tests, OST-207 and OST-206, respectively. Also included are plots of the performance data from these tests (developed head).

These tests are only for pump performance while the pumps are feeding the steam generators at rated flow. This information is only for the data requested (i.e., past 24 months). Note that future testing in this mode for the steam driven pump will be different as a result of changes made to the SDAFW pump flow control valve, FCV-6416, via Mod M-1025.

Attachment 18

This attachment includes copies of EST-013 that have been performed in the last 24 months.

EST-013 performs AFW pump bearing temperature measurements in accordance with the ASME Section XI code. This test is performed on an annual basis.

Attachment 19

This attachment includes copies of the ISI subunit valve stroke time data collection sheets for AFW Valves MS-V1-8A, 8B and 8C, AFW-V2-14A, 14B and 14C, AFW-V2-16A, 16B and 16C, and AFW-FCV-1424 and 1425. This information is for the time frame requested (past 24 months).

QUESTION 3 - "Provide the design or safety analysis values for differential pressure and flow."

Prior to AFW Outage

Answer: All acceptance criteria for flow and differential pressure were established in accordance with Table IWP-3100-2 contained in Section XI of the code. The following attachments list the acceptance for each aforementioned pump test:

Attachment 6: MDAFW Pump Monthly Recirculation Test
Attachment 7: SDAFW Pump Monthly Recirculation Test
Attachment 8: MDAFW Pump Flow Test at Cold Shutdown
Attachment 9: SDAFW Pump Flow Test at Cold Shutdown

After AFW Outage

Answer: All acceptance criteria will continue to meet the ASME Section XI Code described above, and revised accordingly to reflect changes in testing described in other sections of this response. In addition, the acceptance criteria will be revised as necessary to ensure the low side of Pump DP for the tested conditions adequately reflects acceptable performance to ensure the pump can deliver minimum required flow at accident conditions.

Attachment 10 lists the required flow from the AFW system for the applicable UFSAR Chapter 15.0, ATWS, and Station Blackout analyses.

QUESTION 4 - "Provide a copy of the manufacturer's pump curve for each pump."

Prior to and After AFW Outage

Answer: Attachment 11 and 12 are motor driven and steam driven pump curves respectively.

QUESTION 6 - "Provide a description of the maintenance history of these pumps over the past five years."

The requested data is provided in Attachment 20.

Attachment 2

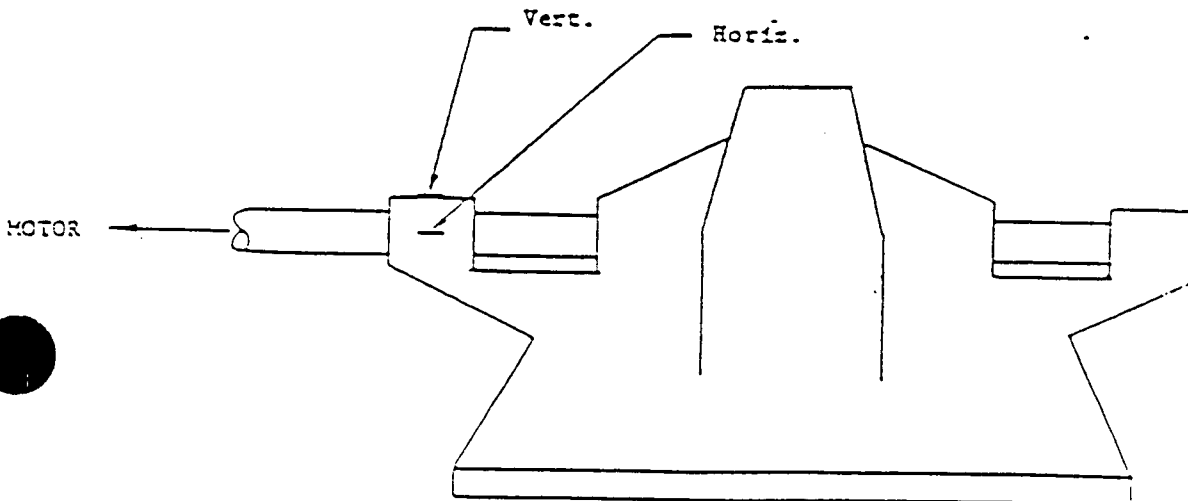
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.9 or 7.3.9	Disch. Press.	"A" - PI-1424			N/A	N/A
	PSIG	"B" - PI-1425			N/A	N/A
	Vibration,* MILS	Horiz.			≤1.0	1.0
		Vert.			≤1.0	1.0
	Suct. Press.	"A" - PI-1479		N/A	≥4.0	N/A
		PSIG	"B" - PI-1480	N/A		N/A
	Oil Press. to Regulator, PSIG				N/A	N/A
	Oil Temp. to Cooler, °F				N/A	N/A
	Oil Temp from Cooler, °F				N/A	N/A
	Oil Sump. Temp, °F				N/A	N/A
	Cooling Water Outlet, °F TI-1636				N/A	N/A
Header Press., PSIG PI-1421A				N/A	N/A	
7.2.10	Pump ΔP		N/A	≥1333	N/A	
7.3.10		PSIG, (1)	N/A	≤1462	≥1340 ≤1470	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



Attachment 3

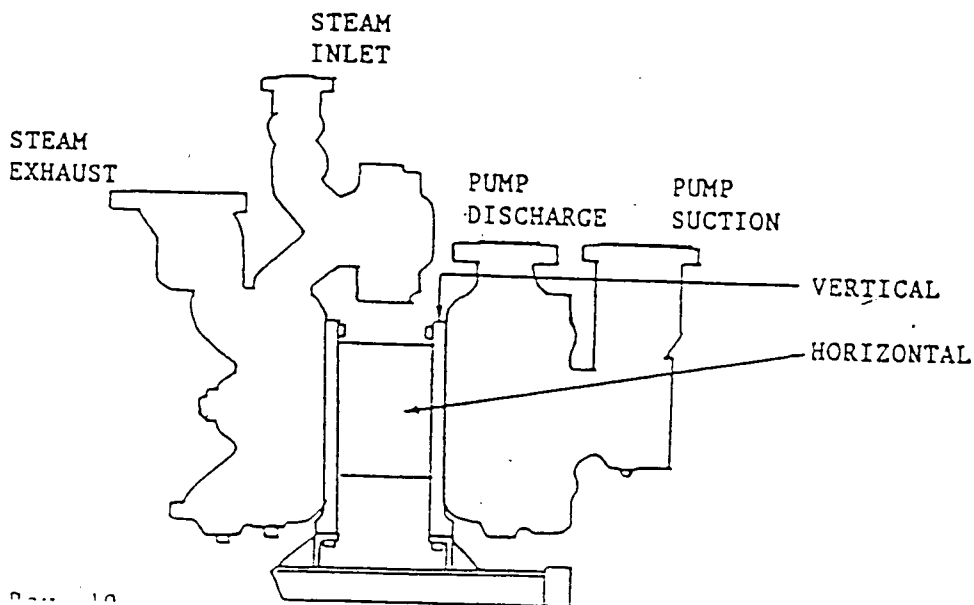
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.18.2	Disch. Press. PI-1426 PSIG		N/A
7.2.18.2	Steam Inlet Press. PI-1357-2. PSIG		N/A
7.2.18.2	Pump Turbine Speed, RPM		N/A
7.2.19	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)		≥310
7.2.21	Pump Turbine Speed, RPM	As Found	N/A
7.2.22.1		As Left	(2)
7.2.23	Header Press PI-1421B, PSIG		N/A
	Oil Press to Regulator, PSIG		N/A
	Oil Press from Regulator, PSIG		N/A
	Oil Temp to Cooler, °F		N/A
	Oil Temp. from Cooler, °F		N/A
	Cooling Water Outlet Temp.		N/A
	Vibration Mils*	Horizontal	≤3.0
		Vertical	≤1.4
	Vibration in/sec*	Horizontal (1)	N/A
		Vertical (1)	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)		N/A
	Pump Suct. Press. PI-1478, PSIG		≥2.0
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated)- Pump Suct. Press. PI-1478		≥1412 ≤1548

- (1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.
- (2) Pump speed must be able to be adjusted to within the range of 9400 to 9550 RPM (e.g. if As Found at 9600 RPM, the pump must be able to be adjusted back into range. If As Found is in range, then no need for adjustment, except as directed in this OST).

Vibration Data Points

*To be taken after 15 minutes of operation.



Attachment 4

PUMP AND VALVE DATA SHEET

REF. STEP NO.	PARAMETER	PUMP TESTED		ACCEPTANCE CRITERIA	
			A	B	
7.2.8	Disch. Press. PSIG	PI-1424		N/A	N/A
or		PI-1425	N/A		N/A
7.3.8	Suct. Press. PSIG	PI-1479		N/A	N/A
		PI-1480	N/A		N/A
7.2.10	RTGB Flow GPM	FI-1425A		N/A	N/A
7.2.16		FI-1425B		N/A	N/A
7.2.22		FI-1425C		N/A	N/A
7.2.33 or 7.3.20	* Pump ΔP PSID				A Pump ≥1111, ≤1219 psig B Pump ≥1105, ≤1212 psig
7.2.9 or 7.3.9	Vibration, Mils	Horizontal			≤1
		Vertical			≤1

* Pump ΔP = (Disch. Press.) - (Suct. Press.)

REF. STEP NO.	CHECK VALVE	** VERIFICATION OPEN (INITIALS)
7.2.7	AFW-40	
7.3.7	AFW-41	
7.2.7	AFW-68	
7.2.15	AFW-69	
7.2.21	AFW-70	

**Operability of check valves AFW-40 and AFW-41 OPENING is verified by obtaining a flowrate of 325 GPM through its respective AFW pump. Operability of check valves AFW-68, AFW-69, and AFW-70 OPENING is verified by obtaining a flowrate of 325 GPM to its respective steam generator.

Attachment 5

Pump Speed AS FOUND _____ RPM

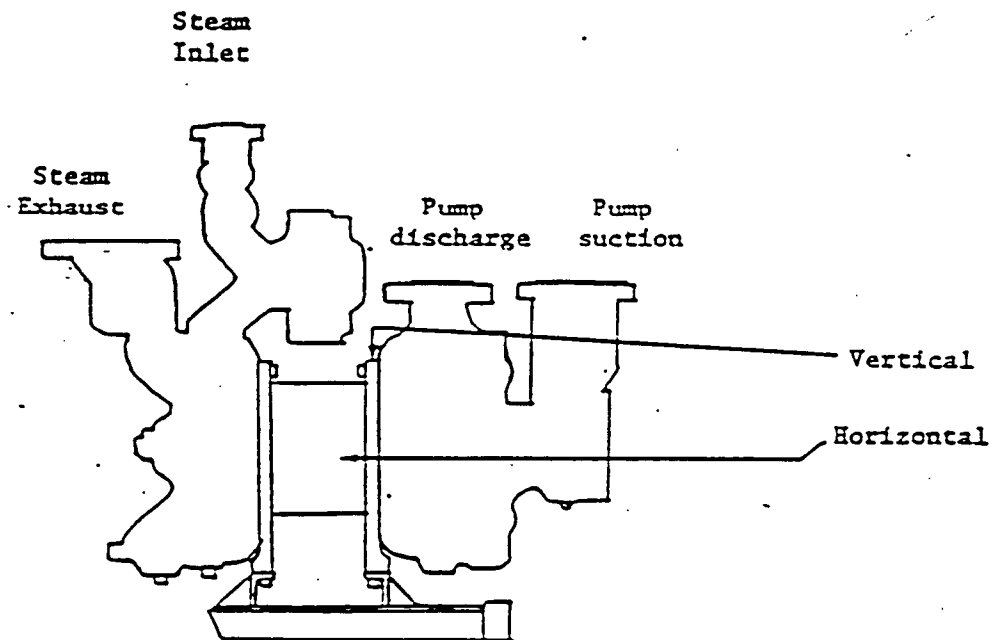
AS LEFT _____ RPM

*VIBRATION DATA

PUMP	DATA		ACCEPTANCE CRITERIA
SDAFW	HORIZONTAL	MILS	≤1 MILS
	VERTICAL	MILS	≤1 MILS
SDAFW	HORIZONTAL (1)	IN/SEC	N/A
	VERTICAL (1)	IN/SEC	N/A

(1) If vibration exceeds 0.3 in/sec. notify Technical Support - Systems.
*NOTE: SDAFW pump vibrations (displacement and velocity) should only be taken after 5 continuous minutes of feeding the S/G's at 280 gpm, maintaining this feed mode until all vibration readings are obtained.

VIBRATION DATA POINTS



Attachment 6

5.0 SPECIAL TOOLS AND EQUIPMENT (Continued)

5.2 Calibrated Stop Watch No. _____ Cal. Date _____ (Within 12 mo.)

6.0 ACCEPTANCE CRITERIA

6.1 Pump Acceptance Criteria

6.1.1 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2 Pump data taken shall be compared to the appropriate baseline data. Each value shall be categorized into one of the ranges as indicated below.

6.1.2.1 MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS
ALLOWABLE RANGES OF TEST QUANTITIES

Parameter	Pump	Acceptable (1)	Alert (1)	Required Action(1)
Suction Pressure (PSI)	"A"	≥4.0	<4.0	<4.0
	"B"	≥4.0	<4.0	<4.0
ΔP (PSID)	"A"	≥1333	Low ≥1288 <1333	<1288
		≤1462	High >1462 ≤1476	>1476
	"B"	≥1340	Low ≥1297 <1340	<1297
		≤1470	High >1470 ≤1484	>1484
Vibration Amplitude (Mils)	"A"	≤1	>1 ≤1.5	>1.5
	"B"	≤1	>1 ≤1.5	>1.5

1. Ranges may be changed in accordance with the specification of IWP-3111 and IWP-3112.

Attachment 7

6.0 ACCEPTANCE CRITERIA (Continued)6.1.2.1 STEAM DRIVEN AUXILIARY FEEDWATER PUMP
ALLOWABLE RANGES OF TEST QUANTITIES

Parameter	Acceptable (1)	Alert (1)	Required Action (1)
Suction Pressure (PSIG) (2)	≥2.0	<2.0	<2.0
ΔP (PSID) at 9400 RPM (3)	≥1412 and ≤1548	Low ≥1366 <1412 High >1548 ≤1563	<1366 or >1563
Speed (RPM) (4)	≤9550 and ≥9400	>9550 or <9400	>9600 or <9400
Vibration Amplitude (Mils)	Horiz. ≤3.0 Vert. ≤1.4	Horiz. >3.0 ≤4.5 Vert. >1.4 ≤2.1	Horiz. >4.5 Vert. >2.1
Feed-Steam ΔP (PSID)	≥310	<310	<310

1. Ranges may be changed in accordance with the specification of IWP-3111 and IWP-3112.
2. This is suction pressure from gauge PI-1478 which is at elevation approximately five (5) feet above pump suction.
3. This pressure is to be obtained with pressure controller isolated and Turbine speed at 9400 + 20, -0 RPM.
4. With instrument air isolated to the Masoneilan Pressure Controller, turbine speed must be able to be adjusted within this range. This is applicable to As-Left RPM only.

6.1.3 When tests show deviations greater than allowed (Refer to Step 6.1.2.1), the instruments involved may be recalibrated and the test rerun.

6.1.4 If deviations fall within the ALERT RANGE of Step 6.1.2.1 of this procedure, the frequency of testing shall be doubled until the cause of the deviation is determined and corrected and either the existing reference values reverified or a new set established per IWP-3111 (ASME Section XI).

Attachment 8

6.0

ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure (Psig)	A	≥1111, ≤1219 psig	Low ≥1075, <1111 psig High >1219 ≤1231 psig	<1075, >1231 psig
	B	≥1105, ≤1212 psig	Low ≥1070, <1105 psig High >1212, ≤1224 psig	<1070, >1224 psig
Vibration Amplitude (Mils)	A	≤1	>1 ≤1.5	>1.5
	B	≤1	>1 ≤1.5	>1.5

6.2

If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.3

Pump Data taken shall be compared to the appropriate baseline data. Each value shall be categorized into one of the ranges as indicated in Step 6.1.

6.4

Check valves shall exhibit a change of position as required by the data sheet.

6.5

If a check valve fails to exhibit the required change of valve position by this testing, then declare the valve inoperable. The condition shall be corrected prior to startup. A retest showing acceptable operation shall be run before the valve is returned to service.

6.6

All test data shall be analyzed within 96 hours after completion of a test.

6.7

The reviewing and approving authorities may accept this test in accordance with the provisions set forth in OMM-015, Operations Surveillance Testing.

6.8

When tests show deviations greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

Attachment 9

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Calibrated Stop Watch No. _____ Cal. Date _____ (Within 12 mo.)

5.2 RPM Indicator

5.3 Two-way Radios

5.4 Vibration Detector with magnetic probe

5.5 Pyrometer

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥1247 ≤1366 psig	Low ≥1206 <1247 psig High >1366 ≤1380 psig	<1206 >1380 psig
Vibration	SDAFW Pump	≤1 MILS	>1 ≤1.5 MILS	>1.5 MILS

6.1.1 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2 If the differential pressure calculated in Step 7.2.43 or the vibration measured is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

Attachment 10



Carolina Power & Light Company

Company Correspondence

ROBINSON NUCLEAR PROJECT DEPARTMENT
POST OFFICE BOX 790
HARTSVILLE, SOUTH CAROLINA 29550

NOV 02 1989

Robinson File No: 3065

Serial: RNP/89-3124

MEMORANDUM TO: R. A. Dayton

FROM: J. M. Moon

SUBJECT: AFW System Flow Rates for Accident Mitigation

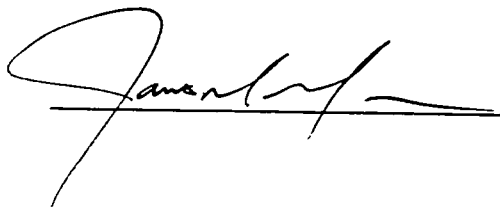
Minimum flow requirements for the AFW pumps are summarized in this memorandum. Chapter 15.0 of the UFSAR has been reviewed and was used in this summary. Additionally, recent analyses by the Fuels Group and Westinghouse were also used as referenced material. While not specific Chapter 15.0 analyses, the AFW System response for Anticipated Transients Without Scram (ATWS) and Station Blackout are included.

A listing of each analysis involving an AFW System response and the required flow rate follows.

1. UFSAR Section 15.1 - Increase in Heat Removal by the Secondary System
 - A. Inadvertent opening of a steam generator or safety valve - Required AFW flow rate - 240 gpm.
Reference - UFSAR Table 15.0.8-1
 - B. Steam system piping failure - Assumed AFW flow rate - 1300 gpm. Note that the 1300 gpm is used to exacerbate the accident condition. Termination of AFW flow would reduce consequences of this accident.
Reference: UFSAR Table 15.1.5-1
2. UFSAR Section 15.2 - Decrease in Heat Removal by the Secondary System
 - A. Loss of non-emergency AC power to the station auxiliaries - Required AFW flow rate - 240 gpm.
Reference: UFSAR Table 15.0.8-1
 - B. Loss of normal feedwater flow - Required AFW rate rate - 240 gpm.
Reference: UFSAR Table 15.0.8-1

- C. Feedwater system pipe break - Required AFW flow rate - 240 gpm.
Reference: UFSAR Table 15.0.8-1
- 3. UFSAR Section 15.6 - Decrease in Reactor Coolant System Inventory
 - A. Steam Generator tube failure - Required AFW flow rate - 240 gpm.
Reference: UFSAR Table 15.0.8-1
 - B. Loss of coolant accidents resulting from the spectrum of postulated piping breaks within the Reactor Coolant System pressure boundary - Required AFW flow rate (small break LOCA) - 240 gpm.
Reference: August 21, 1989 letter from G. O. Percival to S. R. Zimmerman; Serial: CPL-89-617
- 4. Anticipated Transient Without Scram -
Required AFW flow rate - 600 gpm (Capacity of 2 motor-driven).
Reference: August 21, 1989 letter from G. O. Percival to S. R. Zimmerman; Serial: CPL-89-617
- 5. Station Blackout -
Required AFW flow rate - 240 gpm
Reference: Nuclear Fuel Section Design Activity 89-0071 (assumes operator action to start AFW flow occurs 10 minutes after the station blackout)

The description of the AFW System contained in SD-027 will be revised to reflect the information contained in this memorandum.



SWF:lht

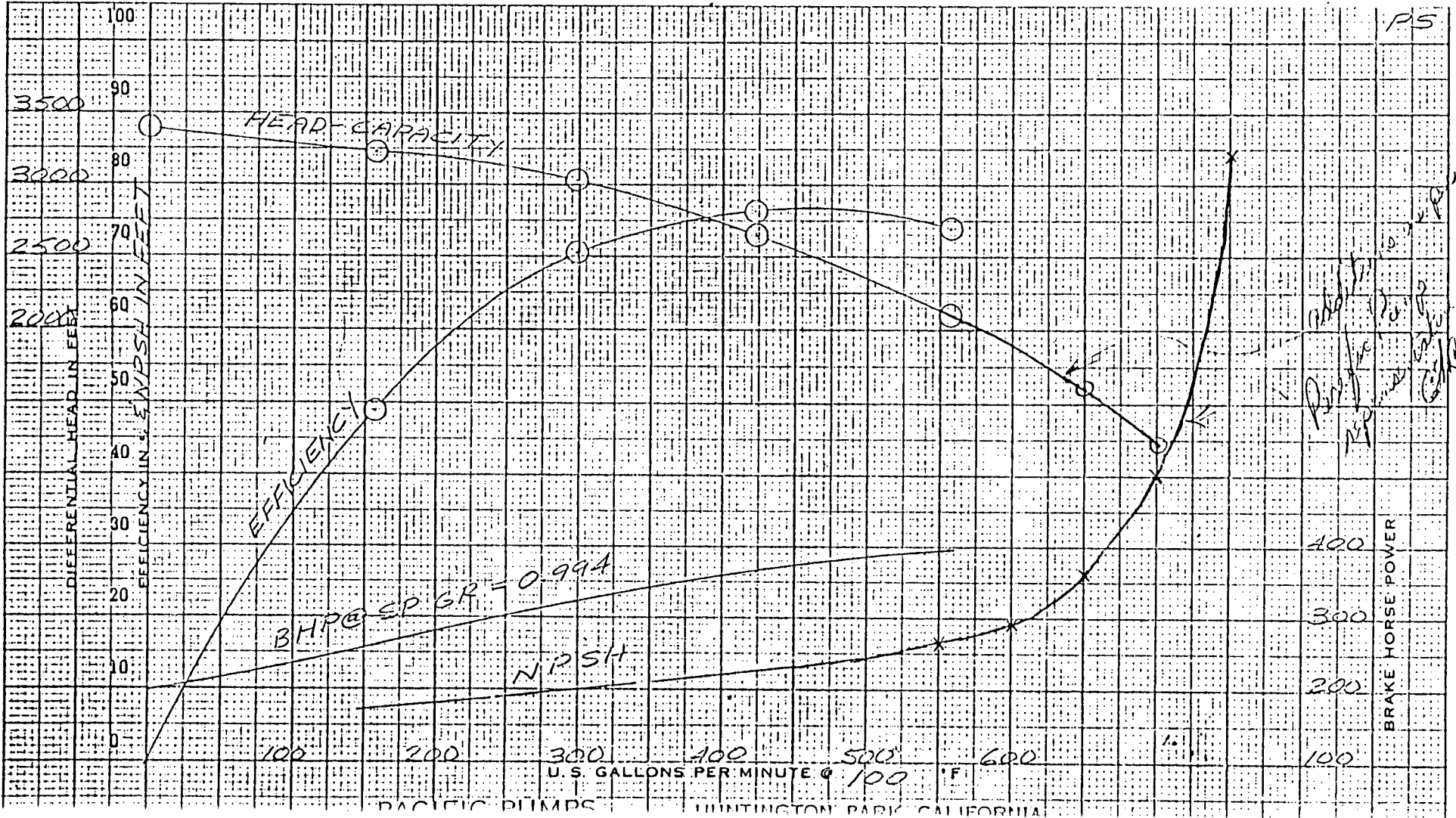
cc: R. A. Dayton
D. C. Stadler

Attachment 11

MOTOR DRIVEN PUMPS A & B

CONTRACTOR EBASCO
 CUSTOMER CAROLINA POWER & LIGHT CO
 ITEM NO. P.O. NY-434107
 IMPELLER PATTERN M-6146 M-6147/48
 MAXIMUM DIAMETER 8 1/2 8 1/2
 RATED DIAMETER 8 1/2 8 1/2
 MINIMUM DIAMETER 7 1/2 7 1/2

TEST PERFORMANCE CURVE NO. 33623
 SIZE 2 1/2 TYPE JTGH STAGES 10
 R.P.M. 3550 DATE 7-15-68
 PUMP NUMBER 44097
 PERFORMANCE ALSO APPLIES TO PUMP
 NUMBER 44098



Attachment 12

PACIFIC STEAM TURBO PUMP

CUSTOMER CAROLINA POWER & LIGHT

PERFORMANCE CURVE NUMBER 7-3363

JOB NUMBER NY 434107

ITEM NUMBER

STEAM: INLET ^{120 TO 1005} P.S.I.G., QUALITY 350 FTT EXHAUST 0-15 P.S.I.G.

SIZE PUMP 4x3 STAGES 1

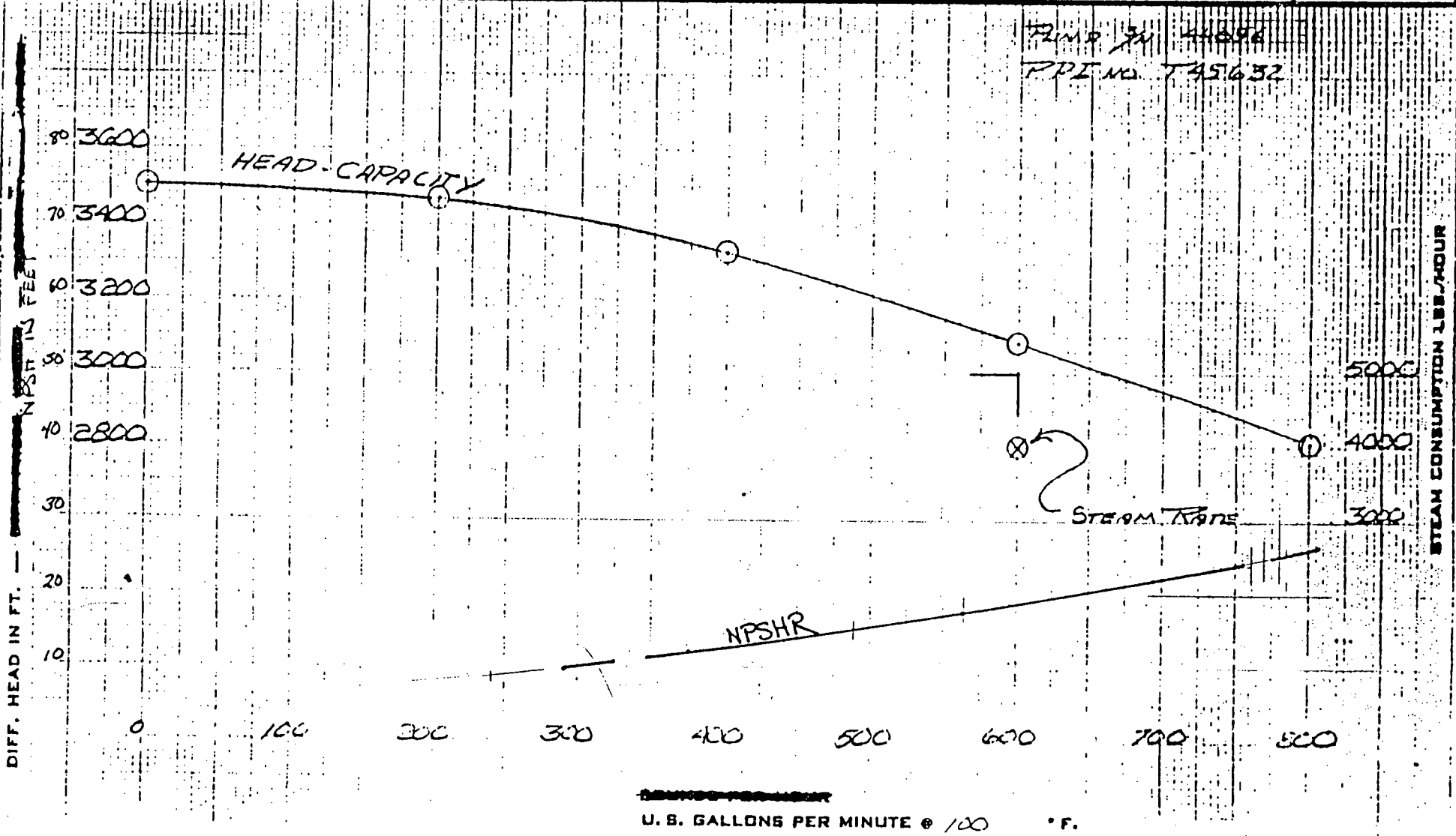
SIZE TURBINE 3x12 STAGES 2 ROW

OPERATION BASED ON HAVING 23 FT. LIQUID HEAD ABOVE VAPOR PRESSURE NOT INCLUDED IN CURVE.

TYPE TBR-16 R.P.M. 9400

DATE 11-30-68 BY RMS

SCHEDULED PERFORMANCE



Attachment 13

Attachment 14

AFW SURVEILLANCE TEST INSTRUMENTATION

CALIBRATED INSTRUMENT

CALIBRATED ACCURACY

* 1.	PI-1479-1	±2%
* 2.	PI-1480-1	±2%
* 3.	PI-1478-1	±2%
* 4.	PI-1424	±2%
* 5.	PI-1425	±2%
* 6.	PI-1426	±2%
* 7.	HANDHELD VIBRAMETER mdl. 306	±5%
* 8.	STOP WATCH	±0.05 sec.
* 9.	PI-1357-2	±2%
* 10.	TACHOMETER	±2%
11.	FI-1424	±2%
12.	FI-1425	±2%
* 13.	CONTACT PYROMETER (OPS. HANDHELD)	±5%
14.	FI-1425A	±2%
15.	FI-1425B	±2%
16.	FI-1425C	±2%
17.	FCV-1424 V/P	±4.2%
18.	FT-1424	±0.5%
19.	FCV-1425 V/P	±4.2%
20.	FT-1425	±0.5%
21.	FT-1425A	±0.5%
22.	FT-1425B	±0.5%
23.	FT-1425C	±0.5%
24.	FY-1425A	±1%
25.	FY-1425B	±1%
26.	FY-1425C	±1%
27.	FI-1426A	±2%
28.	FI-1426B	±2%
29.	FI-1426C	±2%
30.	FT-1426A	±0.5%
31.	FT-1426B	±0.5%
32.	FT-1426C	±0.5%
33.	FY-1426A	±1%
34.	FY-1426B	±1%
35.	FY-1426C	±1%
36.	FCV-6416 V/P	±4.2%
37.	FT-6416	±0.5%

* These instruments are used for pump performance determination

Attachment 15

DATA FOR MOTOR DRIVEN AFW PUMP A (OST-201)

PAGE 1 OF 1

<u>DATE OF TEST</u>	<u>FLOW</u>	<u>DELTA-P</u>	<u>HORIZONTAL VIBRATION</u>	<u>VERTICAL VIBRATION</u>
10/20/87	NOT APPLICABLE	1422.0	0.5	0.4
11/18/87	NOT APPLICABLE	1433.8	0.4	0.2
12/16/87	NOT APPLICABLE	1413.5	0.4	0.2
1/20/88	NOT APPLICABLE	1345.3	0.4	0.2
1/20/88	NOT APPLICABLE	1434.1	0.5	0.2
2/17/88	NOT APPLICABLE	1404.0	0.4	0.2
3/16/88	NOT APPLICABLE	1411.5	0.5	0.2
4/20/88	NOT APPLICABLE	1419.2	0.5	0.2
5/18/88	NOT APPLICABLE	1423.5	0.5	0.2
6/17/88	NOT APPLICABLE	1403.0	0.7	0.4
7/21/88	NOT APPLICABLE	1423.7	0.5	0.1
8/17/88	NOT APPLICABLE	1419.1	0.8	0.3
9/16/88	NOT APPLICABLE	1423.4	0.5	0.2
9/21/88	NOT APPLICABLE	1432.8	0.5	0.4
10/17/88	NOT APPLICABLE	1413.0	0.4	0.2
11/16/88	NOT APPLICABLE	1443.8	0.5	0.2
1/26/89	NOT APPLICABLE	1444.5	0.5	0.1
2/22/89	NOT APPLICABLE	1440.6	0.4	0.2
3/21/89	NOT APPLICABLE	1442.5	0.3	0.2
4/19/89	NOT APPLICABLE	1434.8	0.4	0.6
5/17/89	NOT APPLICABLE	1453.2	0.4	0.2
6/20/89	NOT APPLICABLE	1442.7	0.5	0.3
7/18/89	NOT APPLICABLE	1413.5	0.5	0.3
8/16/89	NOT APPLICABLE	1433.5	0.6	0.2

DATA FOR MOTOR DRIVEN AFW PUMP B (OST-201)

PAGE 1 OF 2

<u>DATE OF TEST</u>	<u>FLOW</u>	<u>DELTA-P</u>	<u>HORIZONTAL VIBRATION</u>	<u>VERTICAL VIBRATION</u>
10/20/87	NOT APPLICABLE	1411.6	0.4	0.3
11/18/87	NOT APPLICABLE	1388.5	0.4	0.3
12/16/87	NOT APPLICABLE	1393.2	0.5	0.3
1/20 88	NOT APPLICABLE	1413.4	0.5	0.1
1/20/88	NOT APPLICABLE	1385.5	0.5	0.2
2/17/88	NOT APPLICABLE	1403.5	0.4	0.2
3/16/88	NOT APPLICABLE	1410.8	0.4	0.2
3/17/88	NOT APPLICABLE	1383.2	0.4	0.3
4/20/88	NOT APPLICABLE	1420.8	0.4	0.2
5/18/88	NOT APPLICABLE	1423.3	0.3	0.2
5/18/88	NOT APPLICABLE	1413.0	0.3	0.2
6/17/88	NOT APPLICABLE	1407.0	0.3	0.3
7/21/88	NOT APPLICABLE	1423.2	0.4	0.2
8/08/88	NOT APPLICABLE	1422.7	0.4	0.2
8/17/88	NOT APPLICABLE	1418.3	0.5	0.3
8/30/88	NOT APPLICABLE	1443.1	0.4	0.3
8/31/88	NOT APPLICABLE	1432.7	0.5	0.3
9/16/88	NOT APPLICABLE	1427.9	0.4	0.3
9/21/88	NOT APPLICABLE	1422.1	0.5	0.5
10/17/88	NOT APPLICABLE	1431.6	0.4	0.2
11/16/88	NOT APPLICABLE	1433.8	0.4	0.2
1/26/89	NOT APPLICABLE	1430.6	0.5	0.3
2/13/89	NOT APPLICABLE	1431.4	0.5	0.3
2/22/89	NOT APPLICABLE	1430.5	0.5	0.3

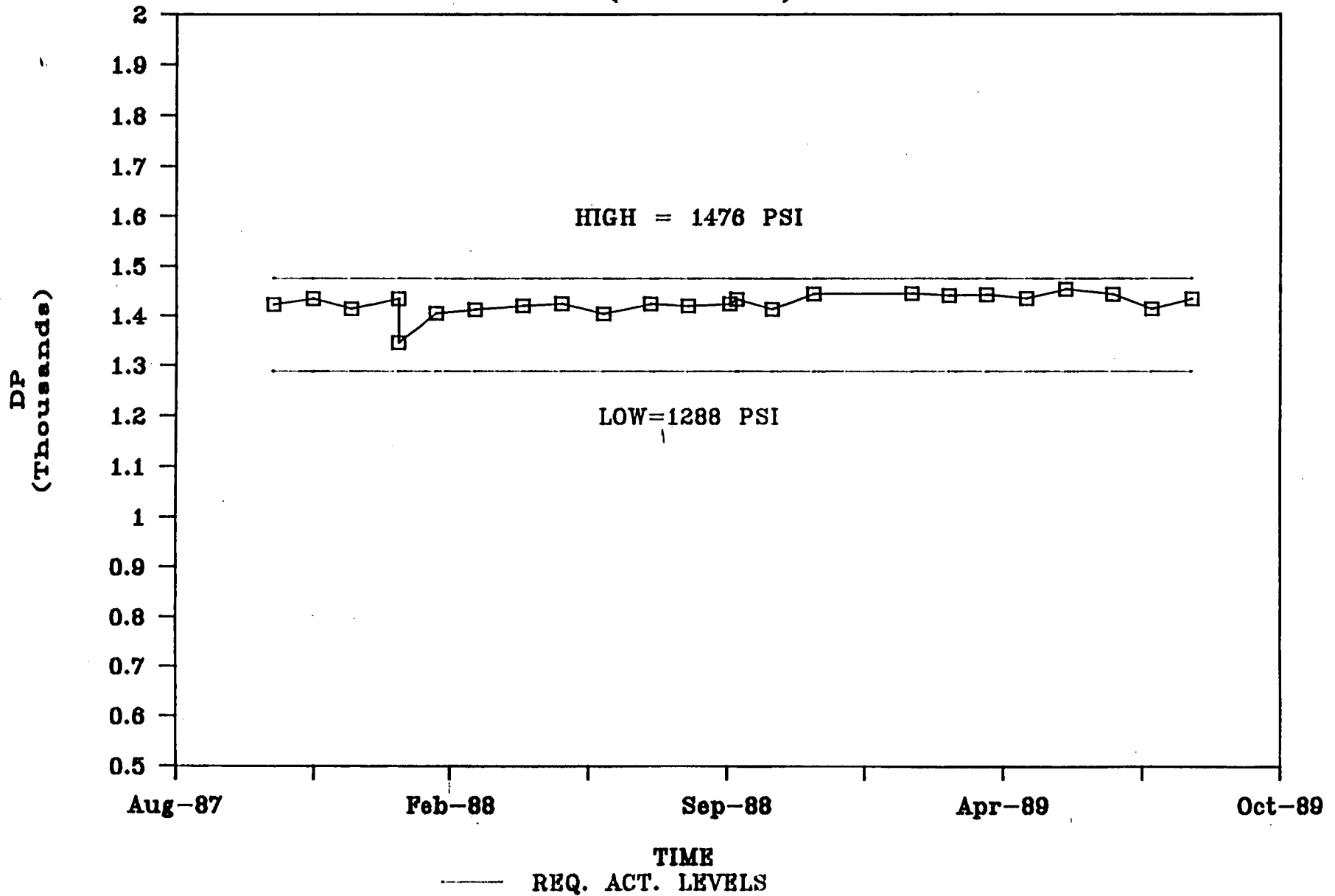
<u>DATE OF TEST</u>	<u>FLOW</u>	<u>DELTA-P</u>	<u>HORIZONTAL VIBRATION</u>	<u>VERTICAL VIBRATION</u>
3/21/89	NOT APPLICABLE	1442.0	0.3	0.4
4/19/89	NOT APPLICABLE	1454.5	0.6	0.5
5/17/89	NOT APPLICABLE	1453.7	0.5	0.4
6/20/89	NOT APPLICABLE	1462.4	0.4	0.5
7/18/89	NOT APPLICABLE	1432.8	0.4	0.4
8/16/89	NOT APPLICABLE	1453.0	0.9	0.4

<u>DATE OF TEST</u>	<u>FLOW</u>	<u>DELTA-P</u>	<u>HORIZONTAL VIBRATION</u>	<u>VERTICAL VIBRATION</u>
10/21/87	NOT APPLICABLE	1476.0	0.9	0.5
11/18/87	NOT APPLICABLE	1477.5	0.7	0.4
12/15/87	NOT APPLICABLE	1517.0	1.0	0.5
1/05/88	NOT APPLICABLE	1547.5	0.5	0.6
1/20/88	NOT APPLICABLE	1548.0	0.7	0.6
3/10/88	NOT APPLICABLE	1545.0	0.9	0.5
3/16/88	NOT APPLICABLE	1545.5	0.8	0.6
4/18/88	NOT APPLICABLE	1536.9	0.4	0.2
5/17/88	NOT APPLICABLE	1537.0	1.0	0.9
6/17/88	NOT APPLICABLE	1576.0	0.8	0.5
6/17/88	NOT APPLICABLE	1535.8	1.0	0.8
7/20/88	NOT APPLICABLE	1558.5	0.6	0.4
7/20/88	NOT APPLICABLE	1527.0	0.8	0.5
8/17/88	NOT APPLICABLE	1527.0	1.5	0.7
8/17/88	NOT APPLICABLE	1487.0	1.2	0.9
8/29/88	NOT APPLICABLE	1545.8	1.5	1.3
9/19/88	NOT APPLICABLE	1527.0	0.9	0.9
10/04/88	NOT APPLICABLE	1546.5	2.2	0.9
10/06/88	NOT APPLICABLE	1516.0	1.5	0.7
10/19/88	NOT APPLICABLE	1524.6	0.9	1.0
2/10/89	NOT APPLICABLE	1476.9	0.8	0.5
2/24/89	NOT APPLICABLE	1486.5	0.6	0.6
3/22/89	NOT APPLICABLE	1536.4	1.2	0.7

<u>DATE OF TEST</u>	<u>FLOW</u>	<u>DELTA-P</u>	<u>HORIZONTAL VIBRATION</u>	<u>VERTICAL VIBRATION</u>
4/19/89	NOT APPLICABLE	1538.0	1.0	0.8
5/17/89	NOT APPLICABLE	1526.5	1.5	0.9
6/17/89	NOT APPLICABLE	1586.8	1.5	0.8
6/20/89	NOT APPLICABLE	1495.8	0.8	1.1
7/18/89	NOT APPLICABLE	1506.4	1.5	0.8
8/16/89	NOT APPLICABLE	1516.5	0.7	0.6

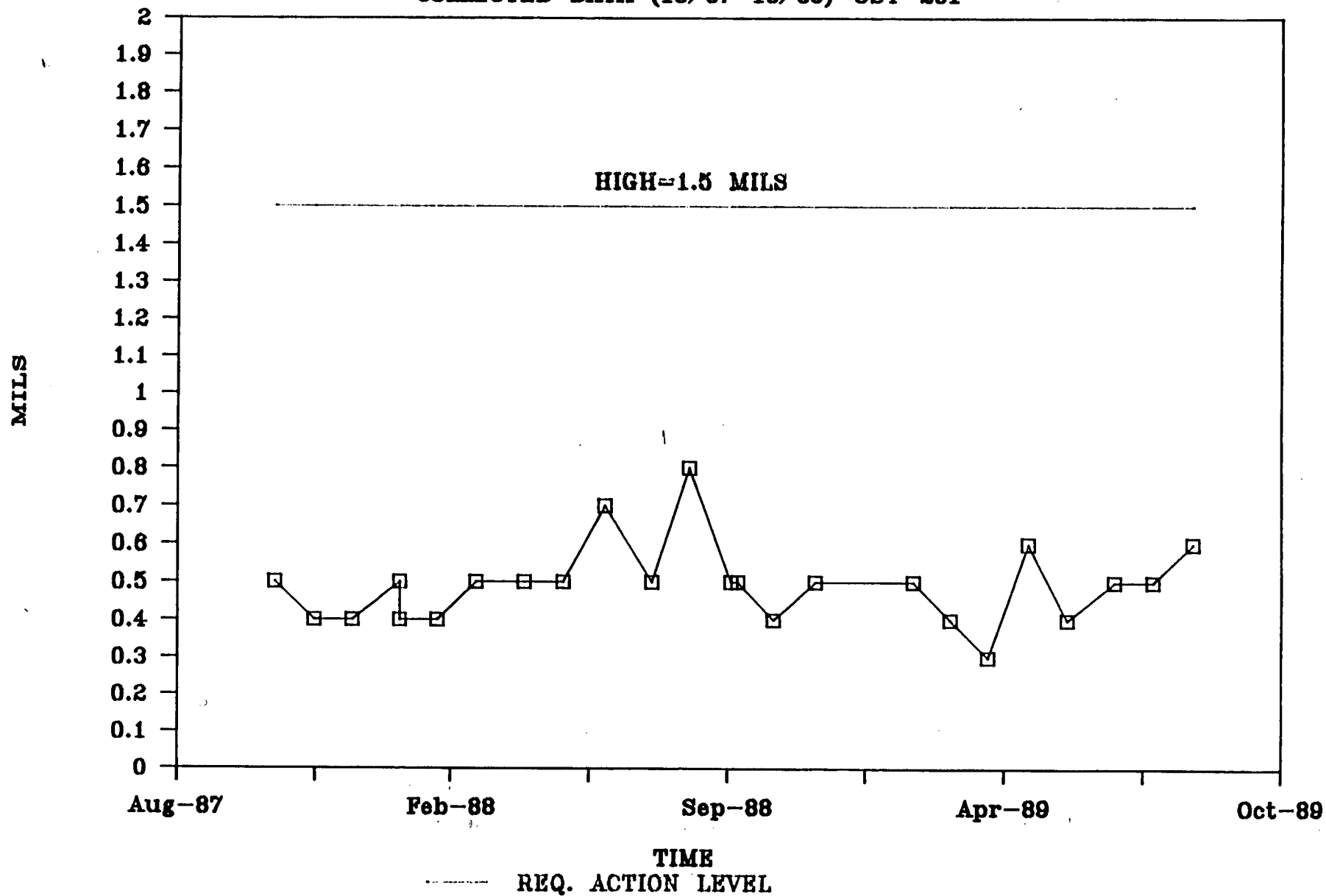
MOTOR DRIVEN AFW PUMP "A" (OST-201)

COLLECTED DATA(10/87-10/89)RECIRC FLOW



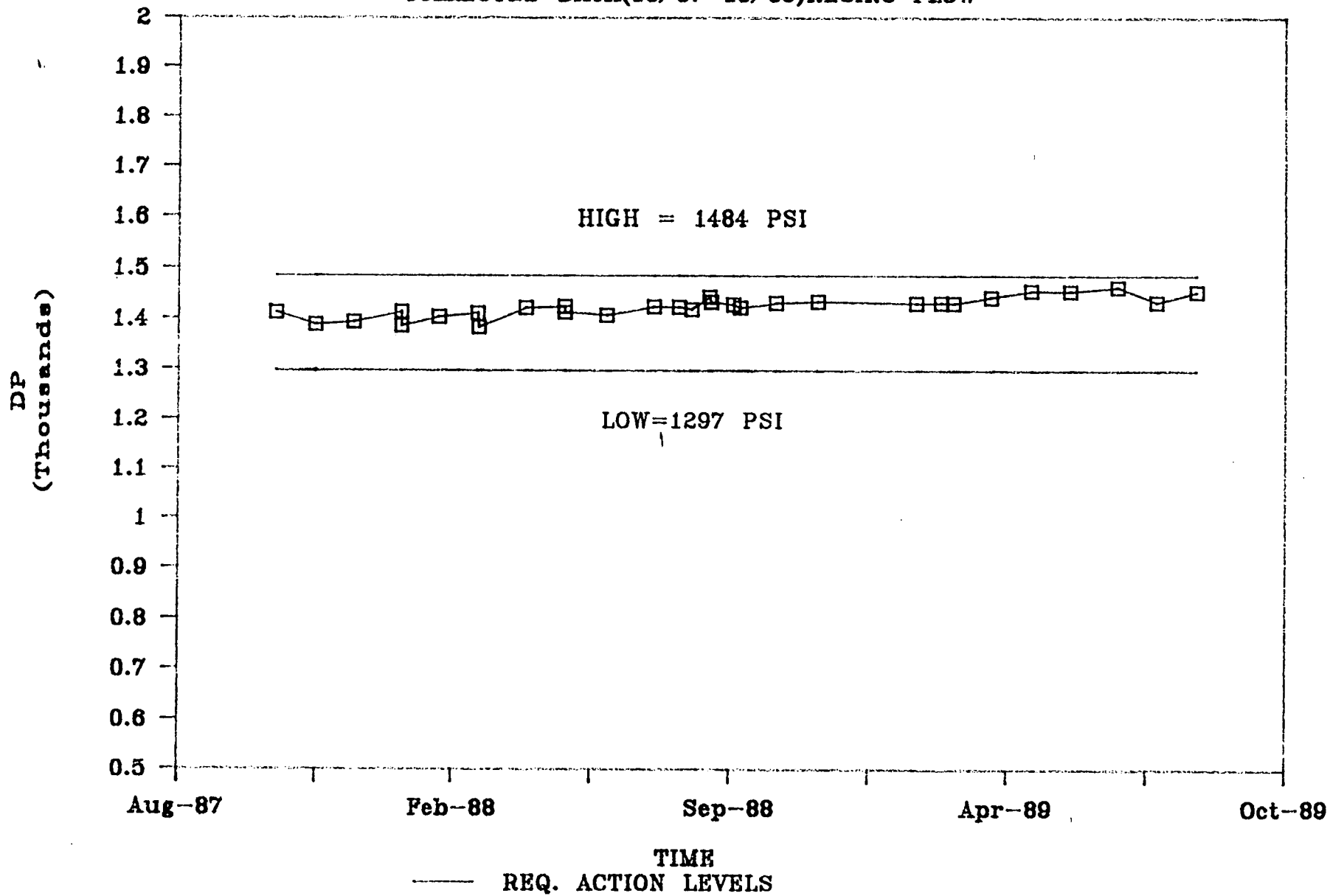
MOTOR DRIVEN AFW PUMP "A" VIBS. DATA

COLLECTED DATA (10/87-10/89)-OST-201



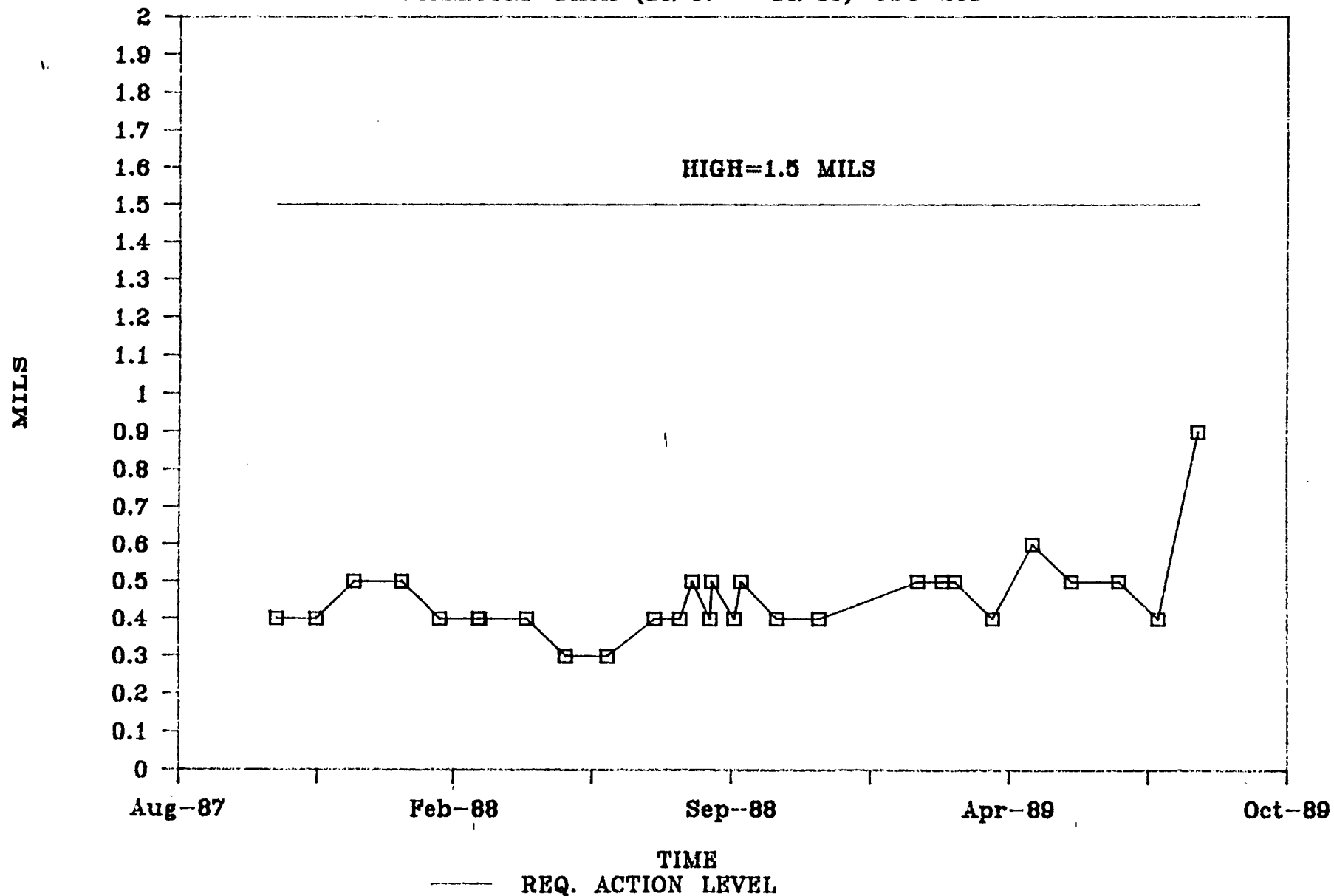
MOTOR DRIVEN AFW PUMP "B" (OST-201)

COLLECTED DATA(10/87-10/89)RECIRC FLOW



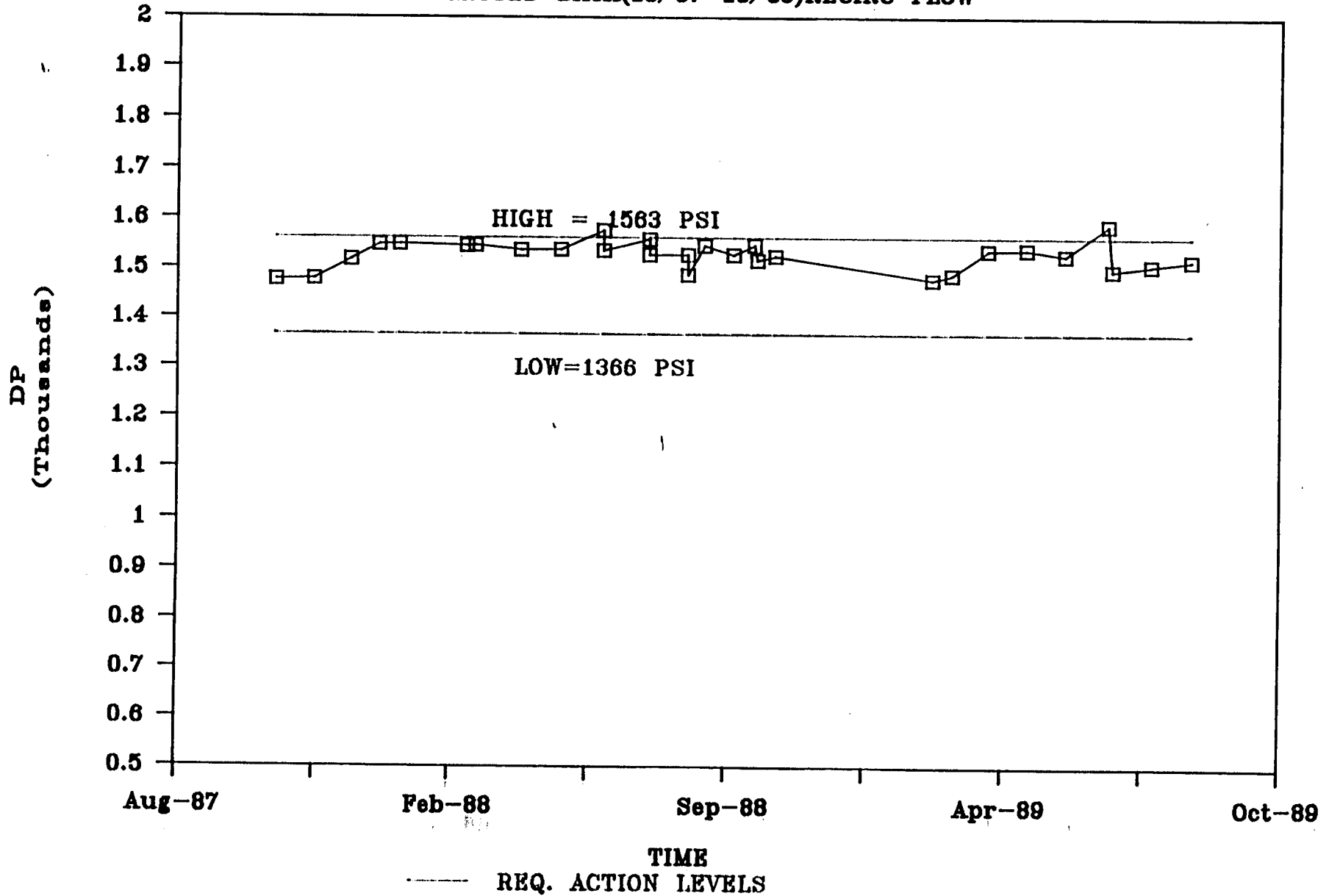
MOTOR DRIVEN AFW PUMP "B" VIBS. DATA

COLLECTED DATA (10/87 -- 10/89)--OST-201



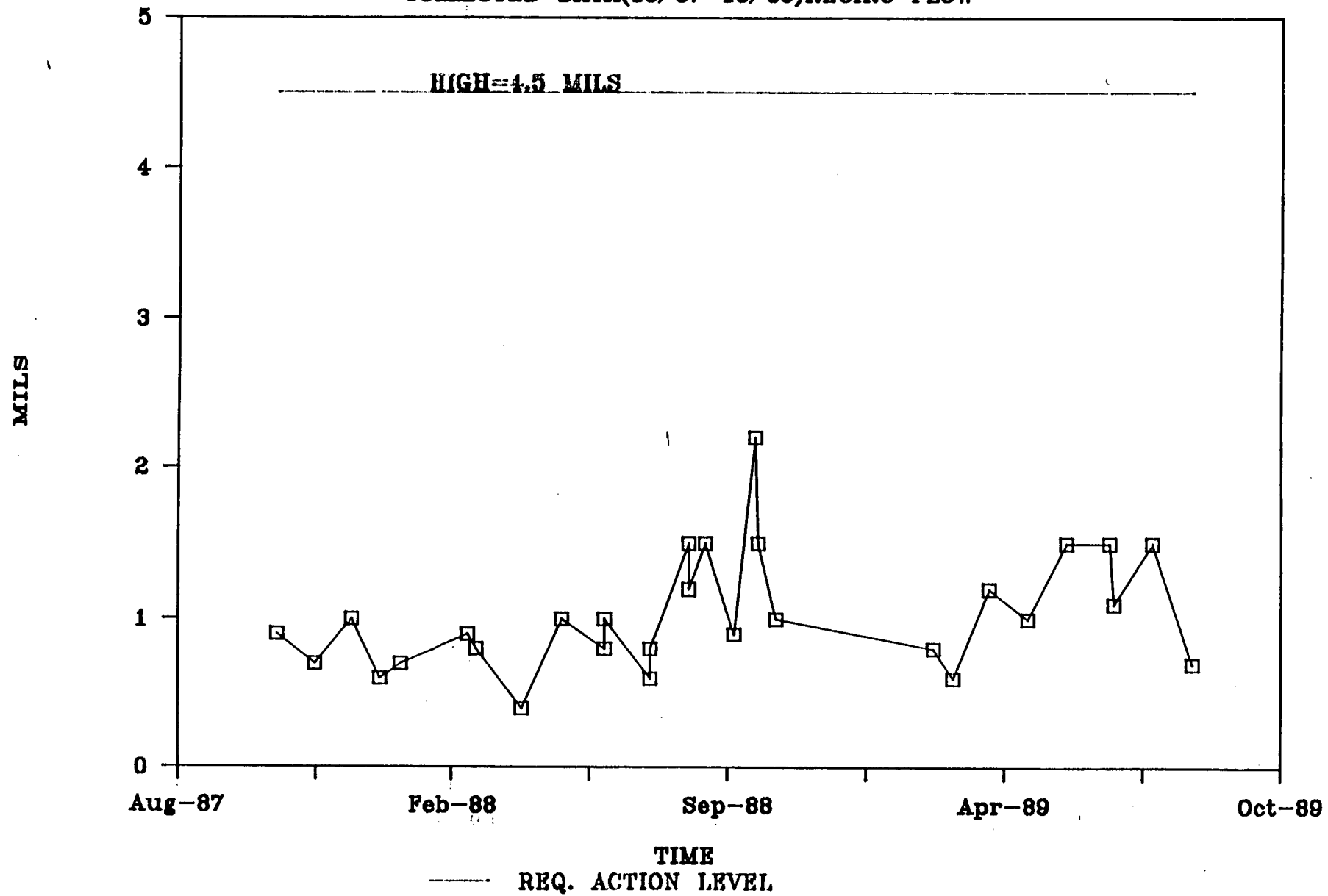
STEAM DRIVEN AFW PUMP (OST-202)

COLLECTED DATA(10/87-10/89)RECIRC FLOW



STEAM DRIVEN AFW PUMP VIBS DATA-OST-202

COLLECTED DATA(10/87-10/89)RECIRC FLOW



Attachment 16

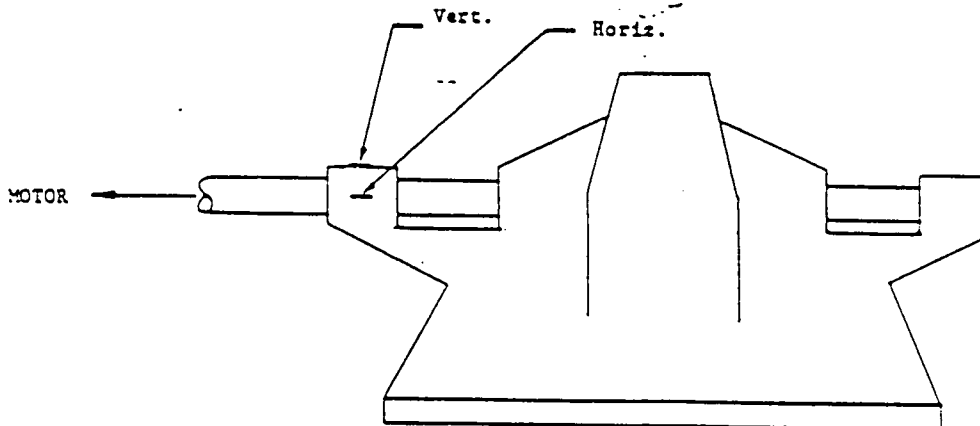
MDSFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1430	0	N/A	N/A
		"B" - PI-1425	0	1420	N/A	N/A
	Vibration,* MILS	Horiz.	0.5	0.4	≤1.0	≤1.0
		Vert.	0.2	0.28	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	8.0	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	8.4	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	15	N/A	N/A
	Oil Temp. to Cooler, °F		106	100	N/A	N/A
	Oil Temp from Cooler, °F		98	94	N/A	N/A
	Oil Sump. Temp, °F		104	90	N/A	N/A
Cooling Water Outlet, °F TI-1636		78	76	N/A	N/A	
Header Press., PSIG PI-1421A		1450	1475	N/A	N/A	
7.2.9	Pump ΔP PSIG, (1)		N/A	≥1333	N/A	
7.3.9			1422	≤1462		
			N/A	N/A	≥1296	
			1411.6	≤1421		

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



23210079

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

2
3
2
1
0
0
3
2

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>mm</u>	<u>CD WIRENS</u>	<u>10/20/87</u>
	<u>(P)</u>	<u>STEVE PETERSEN</u>	<u>10/20/87</u>
	<u>W</u>	<u>W. CURRIGHT</u>	<u>10-20-87</u>
	<u>W</u>	<u>L. DRAININ</u>	<u>10-20-87</u>

Test Complete: Date 10-20-87 Time 0250

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 10-20-87 Time 2300
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory)

Approved by: [Signature] Date 10-23-87
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 11/11/87
ISI Coordinator

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
- 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
- 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Ben Larvin (Print) Ben Larvin 11-17-78
Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

Ben Larvin 11-17-78
Shift Foreman Date

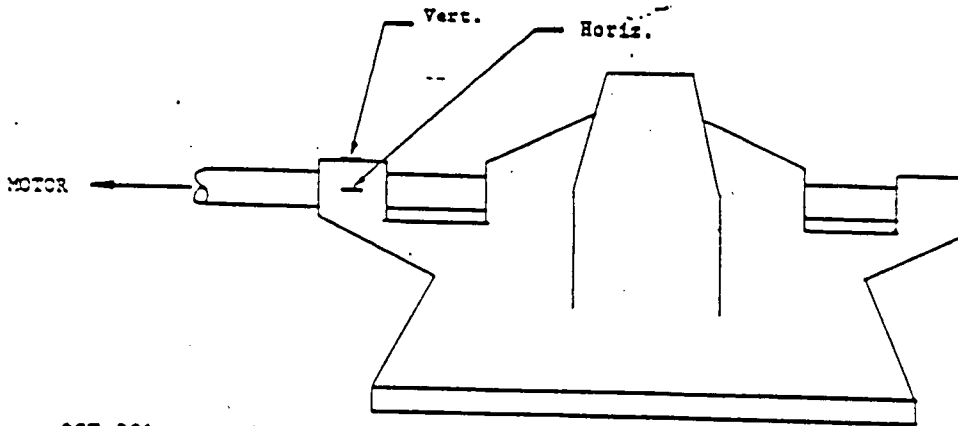
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
			7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424 "B" - PI-1425	1440 0
	Vibration,* MILS	Horiz. Vert.	.40 1.21 1.07-1.24	.38 .25	≤1.0 ≤1.0	≤1.0 ≤1.0
	Suct. Press. PSIG	"A" - PI-1479 "B" - PI-1480	6.2 N/A	N/A 6.5	24.0 N/A	N/A 24.0
	Oil Press. to Regulator, PSIG		30	15	N/A	N/A
	Oil Temp. to Cooler, °F		109	104	N/A	N/A
	Oil Temp from Cooler, °F		100	93	N/A	N/A
	Oil Sump. Temp, °F		97	95-96	N/A	N/A
	Cooling Water Outlet, °F TI-1636		70	72	N/A	N/A
	Header Press., PSIG PI-1421A		1425	1460	N/A	N/A
7.2.9	Pump ΔP		1433.8	N/A	≥1333	N/A
7.3.9	PSIG, (1)		N/A	1388.5	N/A	≥1296

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



2335 1437

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

2
3
3
5
1
4
4
0

Test Performed by	^{CSO} Initials	Name (Print)	Date
	AB	Steve Athler	11-18-87
	MS	Jim Buxey	11-17-87
	BL	Rick Burnell	11-17-87
	BCW	Ben Larkin	11-17-87
		B. C. W. ALD SMITH	18 NOV 87

Test Complete: Date 11-18-87 Time 0410

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 11-18-87
Unit 2 - Shift Foreman Time 0545
11-18-87

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 11-25-87
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 12/4/87
ISI Coordinator

23610831

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTCB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

BRYAN C. WALDSMITH (Print) Bryan C. Waldsmith Signature 15 Dec 87 Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] Shift Foreman 12-15-87 Date

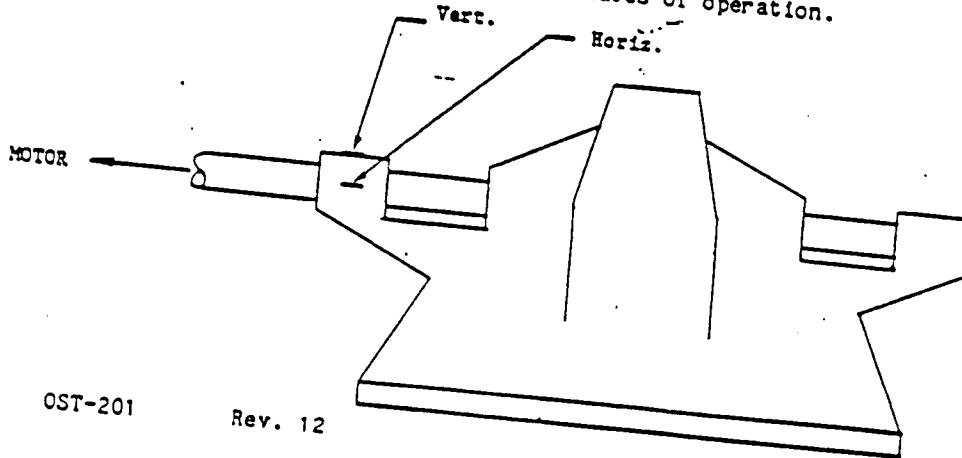
MDAFW PUMP DATA

23610846

REF. STEP NO.	PARAMETER	PUMP TESTED		ACCEPTANCE CRITERIA		
		"A"	"B"	"A"	"B"	
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1420	0	N/A	N/A
		"B" - PI-1425	0	1400	N/A	N/A
	Vibration,* MILS	Horiz.	.42	.52	≤1.0	≤1.0
		Vert.	.24	.30	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	6.5	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	6.8	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	14	N/A	N/A
	Oil Temp. to Cooler, °F		102	97	N/A	N/A
	Oil Temp from Cooler, °F		92	85	N/A	N/A
	Oil Sump. Temp, °F		92	86	N/A	N/A
Cooling Water Outlet, °F TI-1636		72	68	N/A	N/A	
Header Press., PSIG PI-1421A		1440	1450	N/A	N/A	
7.2.9	Pump ΔP	1413.5	N/A	≥1333	N/A	
7.3.9	PSIG, (1)	N/A		≥1462	N/A	
			1393.2	N/A	≥1296	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points
 *To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

23610849

Test Performed by	Initials	Name (Print)	Date
	<u>B. L. W.</u>	<u>B. L. WALDSMITH</u>	<u>15 Dec 1987</u>
	<u>T.H.</u>	<u>T.D. Hunt</u>	<u>12/16/87</u>
	<u>Jal</u>	<u>John Leone</u>	<u>12.16.87</u>
	<u>RAA</u>	<u>REHAKI</u>	<u>12-16-87</u>

Test Complete: Date 12/16/87 Time 0327

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 12-16-87 Time 0315
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 12-23-87
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 12/23/87
ISI Coordinator

24610130

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Bethune (Print) [Signature] 11/17/88
 Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

[Signature]
 Shift Foreman 11/17/88
 Date

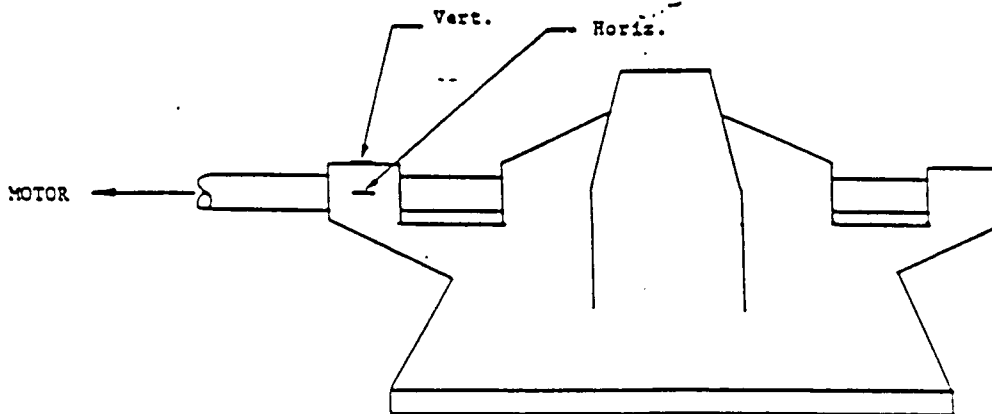
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press.	"A" - PI-1424	1350	0	N/A	N/A
	PSIG	"B" - PI-1425	0	1390	N/A	N/A
	Vibration,* MILS	Horiz.	.40	.50	≤1.0	≤1.0
		Vert.	.24	.22	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	4.7	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	4.5	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	15	N/A	N/A
	Oil Temp. to Cooler, °F		106	95	N/A	N/A
	Oil Temp from Cooler, °F		95	80	N/A	N/A
	Oil Sump. Temp, °F		95	77	N/A	N/A
	Cooling Water Outlet, °F TI-1636		60	60	N/A	N/A
Header Press., PSIG PI-1421A		1500	1450	N/A	N/A	
7.2.9	Pump ΔP		1345.3	N/A	≥1333 ≤1462	N/A
7.3.9	PSIG, (1)		N/A	1385.5	N/A	≥1296 ≤1421

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



2461 0145

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>TDH</u>	<u>T. D. Hocutt</u>	<u>1/20/88</u>
	<u>ASH</u>	<u>A. L. Haley</u>	<u>1/20/88</u>

Test Complete: Date 1-20-88 Time 0700 NA 1-27-88

Test Satisfactory: Yes No (Circle one)

Reviewed by: [Signature] Date 1-20-88 Time 0700
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory)
① A pump running prior to test to feed S/G's. 0549 was
start time of test. NFw-4G was open at start
of test. THIS TEST WAS NOT COMPLETED DUE
TO NECESSITY OF FEEDING STEAM GENERATORS.
TEST WILL BE PERFORMED AT LATER TIME.

Approved by: [Signature] Date 2-11-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 4/6/88
ISI Coordinator

24610148

2.0

REFERENCES

2.1

Technical Specification 4.3.1, 4.3.3, 4.3.4 and Table 4.1-1, Item JJ

2.2

ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda

2.3

OP-402 Auxiliary Feedwater

2.4

Engineering flow diagrams:

2.4.1

G-190197, Feedwater, Condensate and Air Evacuation

2.4.2

G-190199, Service and Cooling Water System

3.0

PREREQUISITES

3.1

The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.

3.2

Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.

3.3

Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

John Brown (Print) John P. Brown Signature 1-20-88 Date
 Name Signature Date

3.5

The Shift Foreman has given his permission to conduct this test.

John Brown Shift Foreman 1-20-88 Date
 Shift Foreman Date

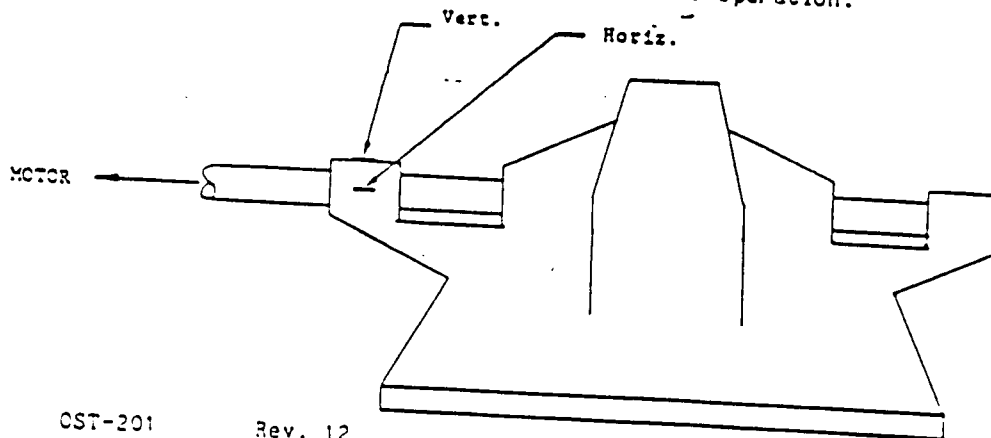
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1770	0	N/A	N/A
		"B" - PI-1425	0	1720	N/A	N/A
	Vibration,* MILS	Horiz.	.45	.45	≤1.0	≤1.0
		Vert.	.2	.1	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	6.5	N/A	24.0	N/A
		"B" - PI-1480	N/A	6.6	N/A	24.0
	Oil Press. to Regulator, PSIG		37	15	N/A	N/A
	Oil Temp. to Cooler, °F		22	22	N/A	N/A
	Oil Temp from Cooler, °F		25	25	N/A	N/A
	Oil Sump. Temp, °F		22	25	N/A	N/A
Cooling Water Outlet, °F TI-1636		56	57	N/A	N/A	
Header Press., PSIG PI-1421A		1770	1760	N/A	N/A	
7.2.9	Pump ΔP		N/A	≥1333	N/A	
7.3.9	PSIG, (1)		N/A	≤1462	N/A	
			N/A	N/A	≥1296	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

0 2 3 2
1 2 9 1 5
0 1 2 3 4

Test Performed by	Initials	Name (Print)	Date
	<u>gal</u>	<u>J. Moore</u>	<u>1-20-88</u>
	<u>[Signature]</u>	<u>W. F. STOKER</u>	<u>1-20-88</u>
	<u>[Signature]</u>	<u>[Signature]</u>	<u>1-20-88</u>
	<u>[Signature]</u>	<u>K. V. MOORE</u>	<u>1-20-88</u>

Test Complete: Date 1-20-88 Time 1835

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 1-20-88 Time 1900
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) Unit # 88 - Affected in 17h
Unit 1745 C - Declared inoperable
AT 1744 hrs

Approved by: [Signature] Date 1-22-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 1/22/88
ISI Coordinator

2 4 2 1 1 5 5 4

2.0

REFERENCES

2.1

Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33

2.2

ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda

2.3

OP-402 Auxiliary Feedwater

2.4

Engineering flow diagrams:

2.4.1

G-190197, Feedwater, Condensate and Air Evacuation

2.4.2

G-190199, Service and Cooling Water System

3.0

PREREQUISITES

3.1

The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.

3.2

Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.

3.3

Where necessary, establish communications between the operator at the RTCS, the operator at the valves to be stroked, and the NDAFW Pumps.

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

M. W. Burris (Print) M. W. Burris 17 FEB 88
Name Signature Date

3.5

The Shift Foreman has given his permission to conduct this test.

[Signature] 17 FEB 88
Shift Foreman Date

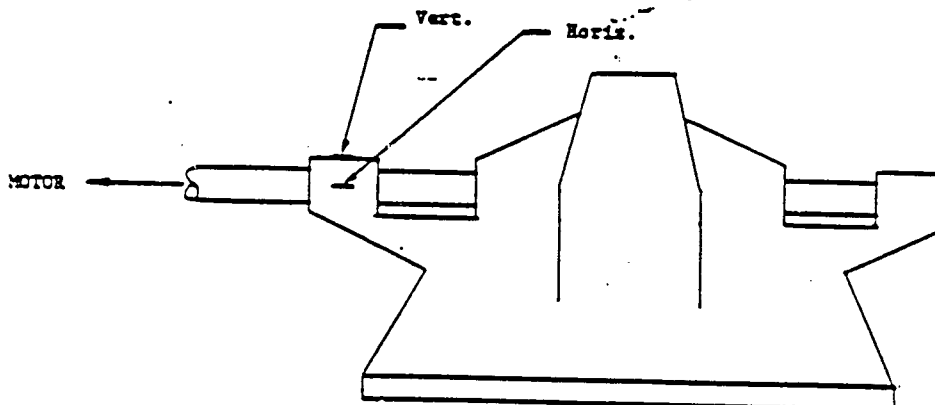
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1412	0	N/A	N/A
		"B" - PI-1425	0	1412	N/A	N/A
	Vibration,* MILS	Horiz.	.4	.38	≤1.0	≤1.0
		Vert.	.25	.19	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	6	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	6.5	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	15	N/A	N/A
	Oil Temp. to Cooler, °F		75	90	N/A	N/A
	Oil Temp from Cooler, °F		80	77	N/A	N/A
	Oil Sump. Temp, °F		80	70	N/A	N/A
Cooling Water Outlet, °F TI-1636		56	56	N/A	N/A	
Header Press., PSIG PI-1421A		1400	1490	N/A	N/A	
7.2.9	Pump ΔP		1404	N/A	≥1333	N/A
7.3.9	PSIG, (1)		N/A	1403.5	≥1462	≥1296
					≥1421	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



242 1569

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	Initials	Name (Print)	Date
	<u>HA</u>	<u>MW Burreiss</u>	<u>17 FEB 88</u>
	<u>MC</u>	<u>MAJ Kink</u>	<u>17 FEB 88</u>
	<u>CO</u>	<u>WALTER C. Downey</u>	<u>2-17-88</u>

Test Complete: Date 2-17-88 Time 0318

Test Satisfactory: Yes / No (Circle one)

Reviewed by: AD Moran Date 2-17-88 Time 0500
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) STEP 7.3.15 AMT-1425C
88-ACCA) work Request Submitted - FLOW id dicator
Notable @ 0318 hrs

Approved by: JD Wilson Date 2-18-88
Unit 2 - Operating Supervisor

Reviewed by: W. Mc Cutcherson Date 2/18/88
ISI Coordinator

2421572

2 4 5 0 0 2 1 9

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

MIDWES (Print) *M. Jones* 3-15-88
 Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 3-15-88
 Shift Foreman Date

MDAFW PUMP DATA

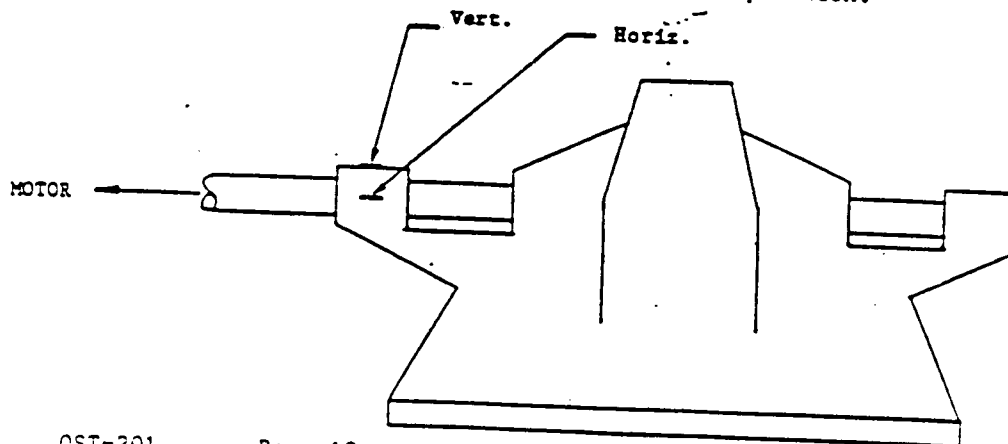
REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1420	0	N/A	N/A
		"B" - PI-1425	0	1420	N/A	N/A
	Vibration,* MILS	Horiz.	0.5	0.4	≤1.0	≤1.0
		Vert.	0.2	0.2	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	8.5	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	9.20	N/A	≥4.0
	Oil Press. to Regulator, PSIG		29	16	N/A	N/A
	Oil Temp. to Cooler, °F		104	95	N/A	N/A
	Oil Temp from Cooler, °F		93	87	N/A	N/A
	Oil Sump. Temp, °F		90	80	N/A	N/A
	Cooling Water Outlet, °F TI-1636		61	63	N/A	N/A
Header Press., PSIG PI-1421A		1420	1490	N/A	N/A	
7.2.9	Pump ΔP	1411.5	N/A	≥1333	N/A	
7.3.9	PSIG, (1)	N/A		≤1462		
			1410.8	N/A	≥1296 ≤1421	

24500231

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

2 4 5 0
0 2 3 4

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>mm</u>	<u>M JONES</u>	<u>3-16-88</u>
	<u>BCW</u>	<u>B. C. WALDSMITH</u>	<u>16 MAR 88</u>
	<u>7C</u>	<u>KODA SMITH</u>	<u>3/16/88</u>
	_____	_____	_____

Test Complete: Date 3/16/88 Time 0330

Test Satisfactory: Yes No (Circle one)

Reviewed by: [Signature] Date 3-16-88 Time 0410
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 3-22-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 3/29/88
ISI Coordinator

2.0

REFERENCES

2.1

Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33

2.2

ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda

2.3

OP-402 Auxiliary Feedwater

2.4

Engineering flow diagrams:

2.4.1

G-190197, Feedwater, Condensate and Air Evacuation

2.4.2

G-190199, Service and Cooling Water System

3.0

PREREQUISITES

3.1

The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.

3.2

Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.

3.3

Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

Carl H. Conway (Print) Carl H. Conway 4-19-88
 Name Signature Date

3.5

The Shift Foreman has given his permission to conduct this test.

[Signature] 4-19-88
 Shift Foreman Date

2488 1584

MDAFW PUMP DATA

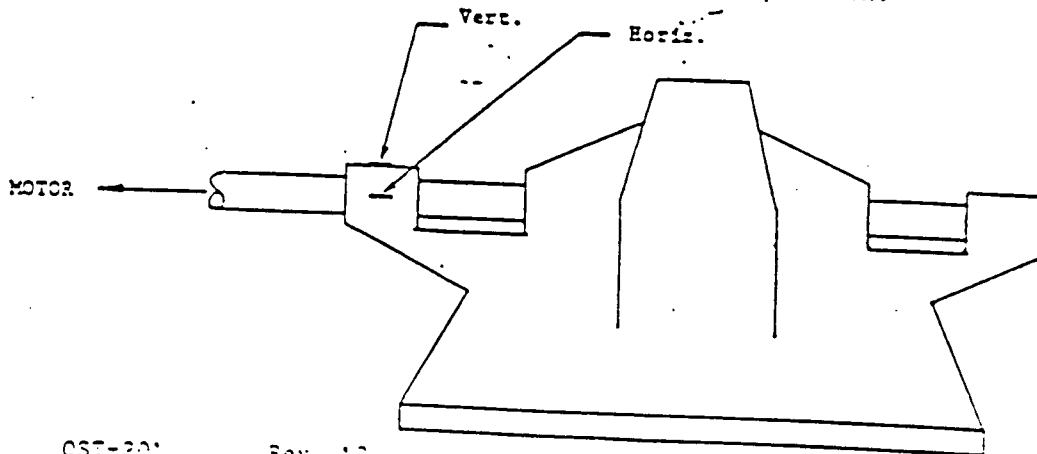
REF. STEP. NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1425	0	N/A	N/A
		"B" - PI-1425	0	1424	N/A	N/A
	Vibration,* MILS	Horiz.	0.5	0.42	≤1.0	≤1.0
		Vert.	0.25	0.2	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	5.8	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	8.25	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	16	N/A	N/A
	Oil Temp. to Cooler, °F		113	108	N/A	N/A
	Oil Temp from Cooler, °F		104	90	N/A	N/A
	Oil Sump. Temp, °F		100	90	N/A	N/A
Cooling Water Outlet, °F TI-1636		71	72	N/A	N/A	
Header Press., PSIG PI-1421A		1425	1490	N/A	N/A	
7.2.9	Pump ΔP		1419.2	N/A	≥1333	N/A
7.3.9	PSIG, (1)		N/A	1420.8	N/A	≥1296
						≥1421

2488 1599

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

2438
1602

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>RA</u>	<u>K. Grewin RA #4111</u>	<u>4/19/88</u>
	<u>(2) sma</u>	<u>P.M. Durbach the other</u>	<u>4-19-88</u>
	<u>AW</u>	<u>TE White</u>	<u>4/19/88</u>
	<u>ZAL</u>	<u>M. Reberdt</u>	<u>4-20-88</u>

Test Complete: Date 4-20-88 Time 1125

Test Satisfactory: (Yes) / No (Circle one)

Reviewed by: [Signature] Date 4-20-88 Time 1211
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 4-27-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 4/27/88
ISI Coordinator

2 5 4 5 0 3 4 0

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 - Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Mark Babcock (Print) Mark Babcock 5-17-98
 Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 5/17/98
 Shift Foreman Date

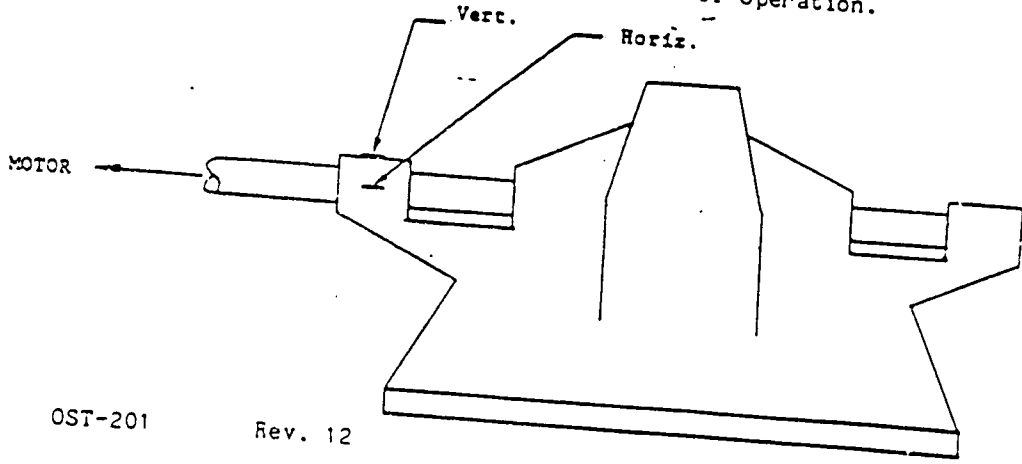
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1430	0	N/A	N/A
		"B" - PI-1425	0	1430	N/A	N/A
	Vibration,* MILS	Horiz.	0.5	0.35	≤1.0	≤1.0
		Vert.	0.24	0.22	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	6.5	N/A	24.0	N/A
		"B" - PI-1480	N/A	6.75	N/A	24.0
	Oil Press. to Regulator, PSIG		30	15	N/A	N/A
	Oil Temp. to Cooler, °F		115	105	N/A	N/A
	Oil Temp from Cooler, °F		105	100	N/A	N/A
	Oil Sump. Temp, °F		100	98	N/A	N/A
Cooling Water Outlet, °F TI-1636		81	82	N/A	N/A	
Header Press., PSIG PI-1421A		1440	1475	N/A	N/A	
7.2.9	Pump ΔP		1423.5	N/A	21333	N/A
7.3.9	PSIG, (1)		N/A		21462	N/A
				1423.25	N/A	21296

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



OST-201

Rev. 12

2 5 4 5
0 3 5 5

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	Initials	Name (Print)	Date
	<u>MR</u>	<u>M. Robson</u>	<u>5-17-88</u>
	<u>to</u>	<u>K. DREW</u>	<u>5/17/88</u>
	<u>Law</u>	<u>T. White</u>	<u>5/17/88</u>

Test Complete: Date 5/18/88 Time 0200

Test Satisfactory: Yes / No (Circle one)

Reviewed by: C. M. Winters Date 5/18/88 Time 0410
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) B' MOTOR PUMP DP
WAS IN THE ALERT RANGE - OST 201 WILL BE RE-RUN ON B' MOTOR
PUMP AND ADJUSTED TO THIS OST - THIS OST WAS ACCEPTED USING
6.1.6 AS THE REFERENCE FOR ACCEPTANCE FOR PUMP DP IN ALERT RANGE
SEE W. # 95 AFFILI TO CHECK CALIB OF P11425

Approved by: D. Wilson Date 5-24-88
Unit 2 - Operating Supervisor

Reviewed by: M. McCutcheon Date 6/16/88
ISI Coordinator

0358
2545

2545 0363

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

_____ (Print) _____
 Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

 Shift Foreman Date

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / 1 Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) PG 1-10, 13-15, 19-20, 23 Recess B MANN P TO
TO CHECK DP

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>JW</u>	<u>TEWHITE</u>	<u>5/18/88</u>
	<u>JWP</u>	<u>M ROBERTS</u>	<u>5-18-88</u>

Test Complete: Date 5/18/88 Time 0550

Test Satisfactory: Yes / No (Circle one)

Reviewed by: M. Winters Date 5/18/88 Time 0555
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) THIS DST WAS PERFORMED
ON B MANN PUMP TO VERIFY PUMP DP. PREVIOUS DP WAS IN THE
ALERT RANGE

Approved by: [Signature] Date 5-24-88
Unit 2 - Operating Supervisor

Reviewed by: W. MacLachlan Date 6/16/88
ISI Coordinator

0374
2545

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
- 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
- 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

T. Hocutt (Print) T. Hocutt 6/17/88
Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 6-17-88
Shift Foreman Date

0463
2568

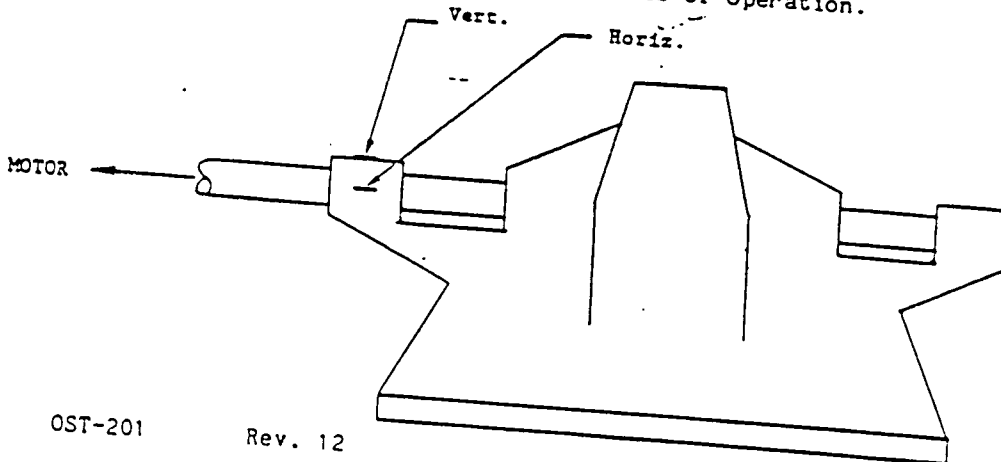
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
			7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1410
		"B" - PI-1425	0	1415	N/A	N/A
	Vibration, * MILS	Horiz.	.65	.35	≤1.0	≤1.0
		Vert.	.40	.30	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	7.0	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	8.0	N/A	≥4.0
	Oil Press. to Regulator, PSIG		29	15	N/A	N/A
	Oil Temp. to Cooler, °F		121	111	N/A	N/A
	Oil Temp from Cooler, °F		110	104	N/A	N/A
	Oil Sump. Temp, °F		110	107	N/A	N/A
	Cooling Water Outlet, °F TI-1636		86	86	N/A	N/A
	Header Press., PSIG PI-1421A		1400	1450	N/A	N/A
7.2.9	Pump ΔP		1403	N/A	≥1333	N/A
7.3.9	PSIG, (1)		N/A	1407	≤1462	≥1296
					N/A	≤1421

0478
2568

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points
 *To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

Test Performed by	Initials	Name (Print)	Date
	TDH	T. D. Holtz	6/17/88
	W	W. CURTIS	6-17-88
	W	HA WINGEN	6/17/88

Test Complete: Date 6-17-88 Time 1721

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 6-17-88 Time 1735
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 6-24-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 6/29/88
ISI Coordinator

0481
2568

26160569

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Dan AKERS (Print) *Dan Akers* 7/19/88
 Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 7/19/88
 Shift Foreman Date

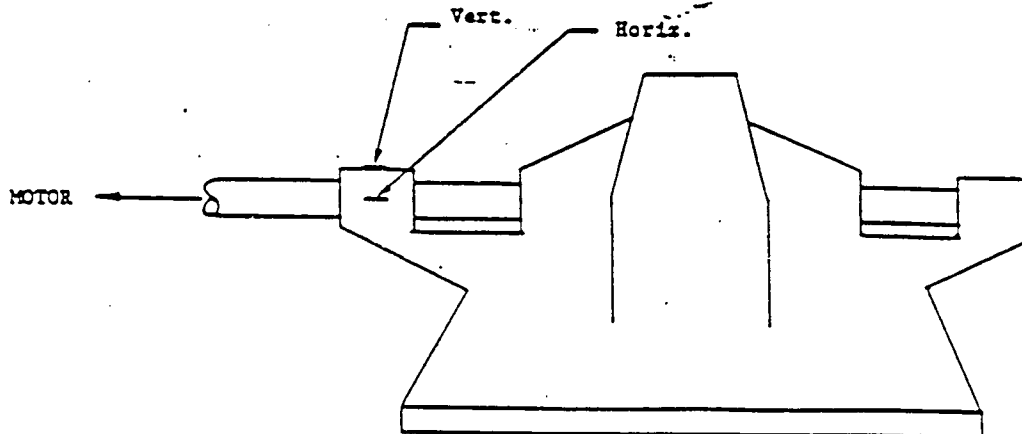
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA		
			"A"	"B"	"A"	"B"	
7.2.8 or 7.3.8	Disch. Press.	"A" - PI-1424	130	140	N/A	N/A	
	PSIG	"B" - PI-1425	0	1430	N/A	N/A	
	Vibration, # MILS	Horiz.		.50	0.37	≤1.0	≤1.0
		Vert.		.07	0.25	≤1.0	≤1.0
	Suct. Press.	"A" - PI-1479		6.3	N/A	≥4.0	N/A
		PSIG	"B" - PI-1480		N/A	N/A	≥4.0
	Oil Press. to Regulator, PSIG			29	15	N/A	N/A
	Oil Temp. to Cooler, °F			124	117	N/A	N/A
	Oil Temp from Cooler, °F			118	110	N/A	N/A
	Oil Sump. Temp, °F			119	110	N/A	N/A
Cooling Water Outlet, °F TI-1636			94	96	N/A	N/A	
Header Press., PSIG PI-1421A			1430	1480	N/A	N/A	
7.2.9	Pump ΔP		1433.7	N/A	≥1333	N/A	
7.3.9	PSIG, (1)		N/A	1423.2	N/A	≥1296	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



26160584

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
	<u>DA</u>	<u>DAV AVERIS</u>	<u>7/19/88</u>
	<u>DR</u>	<u>DAVID A. COOK</u>	<u>7/19/88</u>
	<u>C</u>	<u>WARRICK</u>	<u>7-21-88</u>
	<u>MA</u>	<u>M. GANN</u>	<u>7/21/88</u>

Test Complete: Date 7-21-88 Time 1115

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 7/21/88 Time 1115
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) WRITE WR 78-AGEN1

ON B PUMP DISCHARGE GAGE IN ALERT RANGE
The OST also tests A+B M/D AFW Ppg FI-1426A BIS. V2-20A
Each time verified after feeding adjustment. UTR #15
88-743, 747 - 751 respectively

Approved by: [Signature] Date 7-22-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 8/8/88
ISI Coordinator

0587
2616

MDAFW PUMP DATA

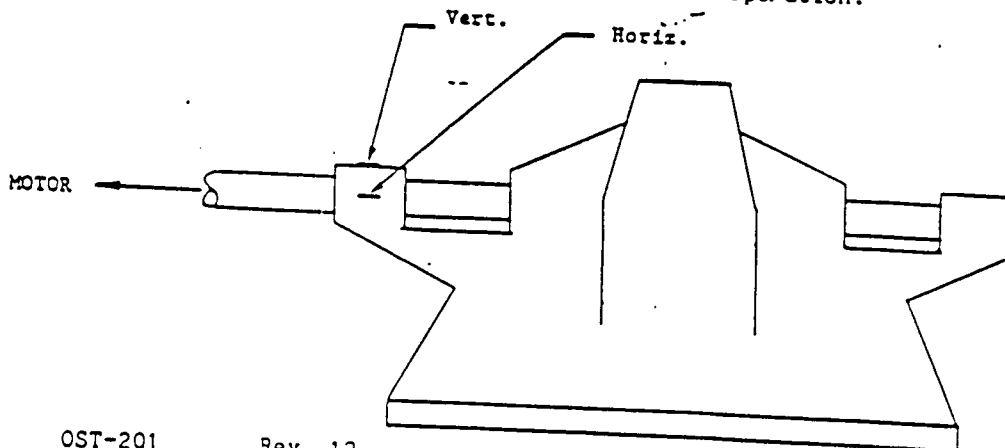
2607 1333

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	N/A	0	N/A	N/A
		"B" - PI-1425	N/A	1430	N/A	N/A
	Vibration,* MILS	Horiz.	N/A	.4	≤1.0	≤1.0
		Vert.	N/A	.23	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	N/A	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	7.3	N/A	≥4.0
	Oil Press. to Regulator, PSIG		N/A	15	N/A	N/A
	Oil Temp. to Cooler, °F		N/A	116	N/A	N/A
	Oil Temp from Cooler, °F		N/A	106	N/A	N/A
	Oil Sump. Temp, °F		N/A	104	N/A	N/A
Cooling Water Outlet, °F TI-1636		N/A	44	N/A	N/A	
Header Press., PSIG PI-1421A		N/A	1480	N/A	N/A	
7.2.9	Pump ΔP		N/A	≥1333	N/A	
7.3.9	PSIG, (1)		N/A	≥1462	N/A	
			N/A	1422.7	≥1296	≥1421

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) B PUMP IN THE ALERT RANGE (p. 1-23)

Test Performed by	Initials	Name (Print)	Date
	<u>[Signature]</u>	<u>HARRY D. SMITH</u>	<u>8/5/88</u>
	<u>[Signature]</u>	<u>B. L. HALEY</u>	<u>8/8/88</u>
	<u>[Signature]</u>	<u>L. WIEGAND</u>	<u>8-8-88</u>

Test Complete: Date 8-8-88 Time 1558

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 1603 Time 5-8-88
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) B AFW Motor Over
long in Alert Range

Approved by: [Signature] Date 8.10.88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 8/10/88
ISI Coordinator

2607 1336

MDAFW PUMP DATA

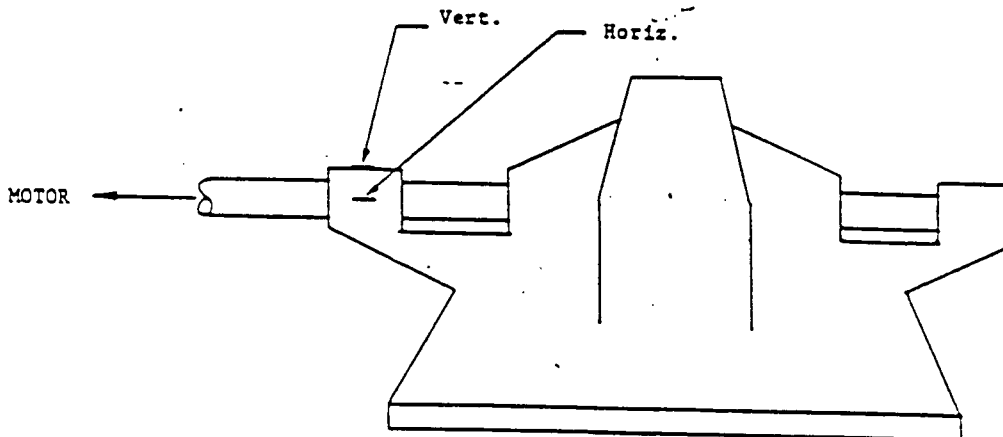
REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1425	0	N/A	N/A
		"B" - PI-1425	0	1425	N/A	N/A
	Vibration,* MILS	Horiz.	.85	.52	≤1.0	≤1.0
		Vert.	.30	.35	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479	5.9	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	6.7	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	15	N/A	N/A
	Oil Temp. to Cooler, °F		120	115	N/A	N/A
	Oil Temp from Cooler, °F		110	105	N/A	N/A
	Oil Sump. Temp, °F		112	106	N/A	N/A
	Cooling Water Outlet, °F TI-1636		98	95	N/A	N/A
Header Press., PSIG PI-1421A		1425	1475	N/A	N/A	
7.2.9	Pump ΔP		1419.1	N/A	≥1333	N/A
7.3.9	PSIG, (1)		N/A	1418.3	≤1462	≥1296
					≤1421	

2620 1137

Calculations: (1) Pump $\Delta P = (\text{Disch. Press}) - (\text{Suct. Press})$
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

2620
1140

Initials	N.A. Winslow Name (Print)	8/16/88 Date
WBA	W.E. STOVER	8-16-88
(W)	W. CUTRIGHT	8-16-88
TDH	T.D. HOCUTT	8/16/88
MS	S. SHAW	8/16/88
DB	DAN AKERS	8/16/88

Test Complete: Date 8/17/88 Time 0001

Test Satisfactory: Yes No (Circle one)

Reviewed by: P. M. D. J. Date 8/17/88 Time 0200
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 8-18-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 8/18/88
ISI Coordinator

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
- 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
- 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Rich Burnell (Print) *Rich Burnell* 8/30/88
Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 8-30-88
Shift Foreman Date

2651
0132
2651

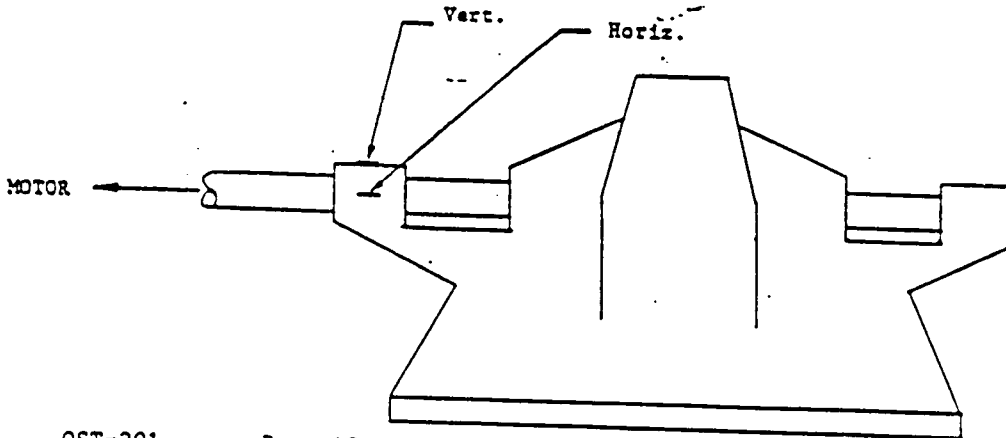
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA		
			"A"	"B"	"A"	"B"	
7.2.8 or 7.3.8	Disch. Press.	"A" - PI-1424	N/A	0	N/A	N/A	
	PSIG	"B" - PI-1425	1	1450	N/A	N/A	
	Vibration,* MILS	Horiz.			6.44	≤1.0	≤1.0
		Vert.			0.3	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479			N/A	≥4.0	N/A
		"B" - PI-1480			N/A	6.9	≥4.0
	Oil Press. to Regulator, PSIG		N/A	15	N/A	N/A	
	Oil Temp. to Cooler, °F			116	N/A	N/A	
	Oil Temp from Cooler, °F			106	N/A	N/A	
	Oil Sump. Temp, °F			108	N/A	N/A	
Cooling Water Outlet, °F TI-1636			0.5	N/A	N/A		
Header Press., PSIG PI-1421A			1470	N/A	N/A		
7.2.9	Pump ΔP			N/A	≥1333	N/A	
7.3.9	PSIG, (1)			N/A	≤1462	≥1296	
				1443.1	N/A	≤1421	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



2651-0154
2651-0147

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled (Unscheduled) (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) ALL PAGES

THIS OST RUN DUE TO "B" PUMP BEING IN ACERT RANGE

26510157
26510150

Test Performed by	Initials	Name (Print)	Date
	<u>AKS</u>	<u>Rich Burnett</u>	<u>8/30/88</u>
	<u>AT</u>	<u>Greg Taylor</u>	<u>8-30-89</u>
	<u>AL</u>	<u>Robert C. Newby</u>	<u>8-30-88</u>

Test Complete: Date 8-30-88 Time 2100

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 8-30-88 Time 2100
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory)

"B" AFW DETURED OOS DUE TO AP BEING HIGH - THIS WAS FIRST TIME OST HAS BEEN RUN WITH THIS NEW DISCHARGE PRESSURE

Approved by: [Signature] Date 7-7-88
Unit 2 - Operating Supervisor

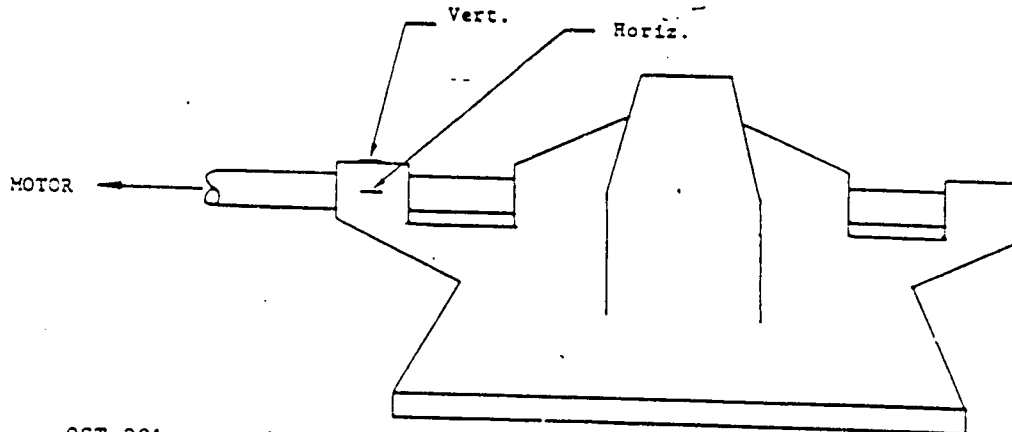
Reviewed by: [Signature] Date 9/5/88
ISI Coordinator

MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	N/A	0	N/A	N/A
		"B" - PI-1425		1440	N/A	N/A
	Vibration,* MILS	Horiz.		.45	≤1.0	≤1.0
		Vert.		.32	≤1.0	≤1.0
	Suct. Press. PSIG	"A" - PI-1479		N/A	≥4.0	N/A
		"B" - PI-1480	N/A	7.3	N/A	≥4.0
	Oil Press. to Regulator, PSIG		N/A	15	N/A	N/A
	Oil Temp. to Cooler, °F			116	N/A	N/A
	Oil Temp from Cooler, °F			136	N/A	N/A
	Oil Sump. Temp, °F			107	N/A	N/A
Cooling Water Outlet, °F TI-1636			44	N/A	N/A	
Header Press., PSIG PI-1421A			1465	N/A	N/A	
7.2.9	Pump ΔP			N/A	≥1333	N/A
7.3.9	PSIG, (1)		N/A		≥1462	≥1296
				1432.7		≥1421

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points
 *To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) TO CHECK B. M/D AFM PUMP BE?
ALL PAGES USED (p.1-23)

0377
0340

	Initials	Name (Print)	Date
Test Performed by	<u>RS</u>	<u>Rick Russell</u>	<u>8-31-88</u>
	<u>A</u>	<u>Cara Taylor</u>	<u>8-31-88</u>
	<u>A</u>	<u>D. Billings</u>	<u>8-31-88</u>

Test Complete: Date 8-31-88 Time 1205

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 8-31-88 Time 6:30
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) THIS TEST WAS RUN AFTER
INSTALLING THE NEW DISCHARGE PRESSURE GAGE PL-1425. THE PREVIOUSLY
RUN OST-201 SHOWED THE OP IN THE REQUIRED ACTION CATEGORY ON 8-30-88
AT 2100. THIS OST-201 (WITH GAGING GAGE) SHOWS THE PUMP TO BE IN
THE ALERT RANGE (WHERE IT WAS BEFORE THE 8-30-88).

Approved by: [Signature] Date 9-2-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 9/5/88
ISI Coordinator

0103
0103
0103

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during hot shutdown or *rel. in. h.* power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

T-3147

Greg Taylor (Print) *Greg Taylor* 9-16-88
 Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.
[Signature] 9-16-88
 Shift Foreman Date

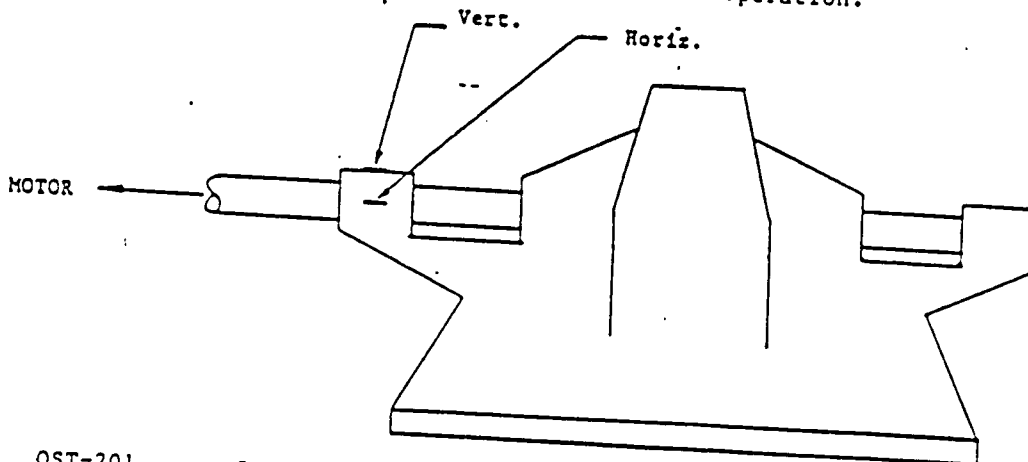
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1430	0	N/A	N/A
		"B" - PI-1425	0	1435	N/A	N/A
	Vibration,* MILS	Horiz.	.54	.44	≤1.0	1.0
		Vert.	.22	.28	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479	6.6	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	7.1	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	15	N/A	N/A
	Oil Temp. to Cooler, °F		115	109	N/A	N/A
	Oil Temp from Cooler, °F		103	98	N/A	N/A
	Oil Sump. Temp, °F		110	96	N/A	N/A
Cooling Water Outlet, °F TI-1636		80	84	N/A	N/A	
Header Press., PSIG PI-1421A		1425	1450	N/A	N/A	
7.2.9	Pump ΔP		1423.4	N/A	≥1333	N/A
7.3.9	PSIG, (1)		N/A	1427.9	≤1462	≥1340
					N/A	≤1470

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) Performed due to maintenance completed during outage and for SLP-002.

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>GT</u>	<u>GREG TAYLOR</u>	<u>9-16-88</u>
	<u>KE</u>	<u>KONA SMITH</u>	<u>9/16/88</u>
	<u>PLW</u>	<u>R. C. JAMES</u>	<u>9-16-88</u>
	<u>ME</u>	<u>ALICE DUMALL</u>	<u>9-16-88</u>

Test Complete: Date 9-16-88 Time 1408

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 9-16-88 Time 1415
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 9/16/88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 9/25/88
ISI Coordinator

2651072

2.0

REFERENCES

2.1

Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33

2.2

ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda

2.3

OP-402 Auxiliary Feedwater

2.4

Engineering flow diagrams:

2.4.1

G-190197, Feedwater, Condensate and Air Evacuation

2.4.2

G-190199, Service and Cooling Water System

3.0

PREREQUISITES

3.1

The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.

3.2

Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.

3.3

Where necessary, establish communications between the operator at the RTCB, the operator at the valves to be stroked, and the MDAFW Pumps.

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

<u>T. Hoenitt</u>	(Print)	<u>T Hoenitt</u>	<u>9/20/88</u>
Name		Signature	Date

3.5

The Shift Foreman has given his permission to conduct this test.

<u>[Signature]</u>	<u>9/20/88</u>
Shift Foreman	Date

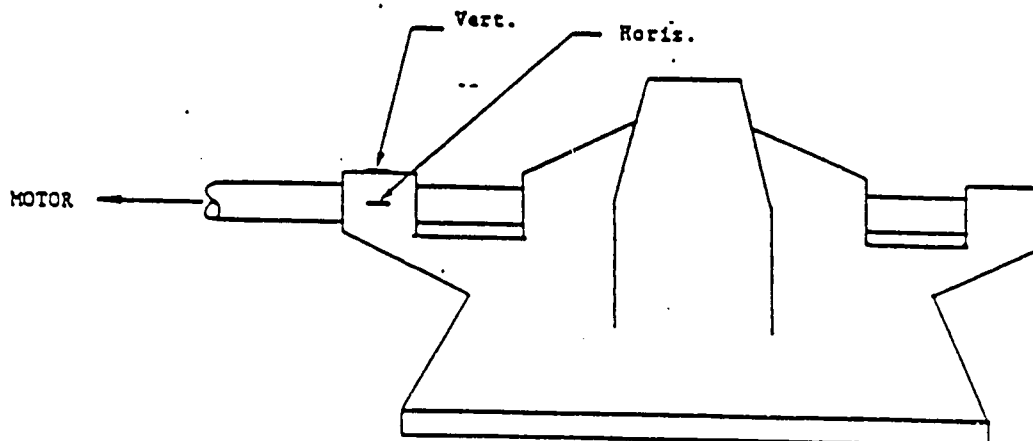
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
					"A"	"B"
7.2.8 or 7.3.8	Disch. Press.	"A" - PI-1424	1440	0	N/A	N/A
	PSIG	"B" - PI-1425	0	1430	N/A	N/A
	Vibration,* MILS	Horiz.	^{10H} 4/2/83 1.57 32	.45	≤1.0	1.0
		Vert.	^{TOP} 9/2/83 1.40 25	.51	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479	7.2	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	7.9	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	14	N/A	N/A
	Oil Temp. to Cooler, °F		115	110	N/A	N/A
	Oil Temp from Cooler, °F		103	98	N/A	N/A
	Oil Sump. Temp, °F		104	99	N/A	N/A
Cooling Water Outlet, °F TI-1636		84	90	N/A	N/A	
Header Press., PSIG PI-1421A		1430	1460	N/A	N/A	
7.2.9	Pump ΔP		1432.8	N/A	≥1333 ≤1462	N/A
7.3.9	PSIG, (1)		N/A	1422.1	N/A	≥1340 ≤1470

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



264 1087

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

Test Performed by	Initials	Name (Print)	Date
	JDH	T. D. Hocutt	9/21/88
	<i>[Signature]</i>	W. CURTIS	9-21-88
	<i>[Signature]</i>	H.A. WINGERS	9/21/88

Test Complete: Date 9/21/88 Time 0322

Test Satisfactory: Yes / No (Circle one)

Reviewed by: *[Signature]* Date 9/21/88 Time 0400
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: *[Signature]* Date 9-23-88
Unit 2 - Operating Supervisor

Reviewed by: *[Signature]* Date 9/29/88
ISI Coordinator

26541090

2655
1430

2.0

REFERENCES

2.1

Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33

2.2

ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda

2.3

OP-402 Auxiliary Feedwater

2.4

Engineering flow diagrams:

2.4.1

G-190197, Feedwater, Condensate and Air Evacuation

2.4.2

G-190199, Service and Cooling Water System

3.0

PREREQUISITES

3.1

The AFW system components can be tested during hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.

3.2

Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.

3.3

Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

RAAH C. Dawney (Print) RAAH C. Dawney Signature 10-17-88 Date
Name

3.5

The Shift Foreman has given his permission to conduct this test.

D. M. Hill Shift Foreman 10-17-88 Date

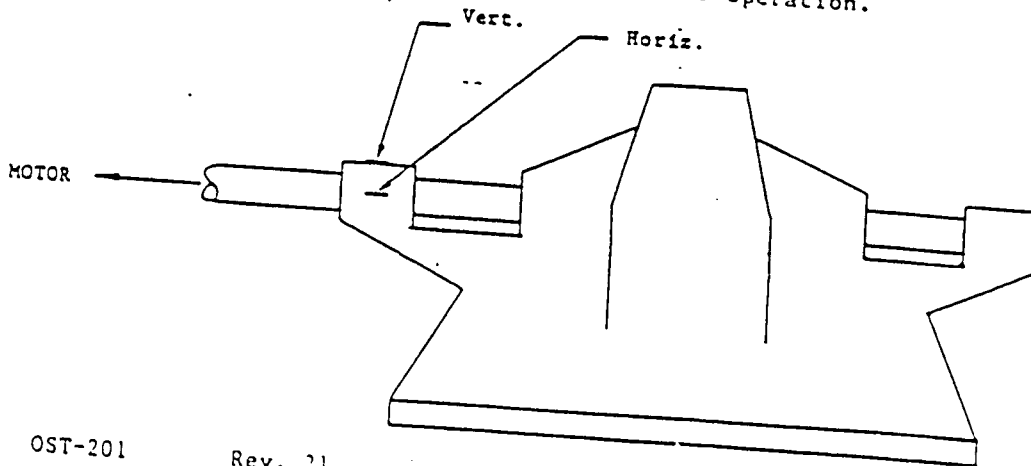
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press. PSIG	"A" - PI-1424	1420	0	N/A	N/A
		"B" - PI-1425	0	1440	N/A	N/A
	Vibration,* MILS	Horiz.	.38	.4	≤1.0	1.0
		Vert.	.2	.2	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479	7	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	8.4	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	15	N/A	N/A
	Oil Temp. to Cooler, °F		100	100	N/A	N/A
	Oil Temp from Cooler, °F		90	90	N/A	N/A
	Oil Sump. Temp, °F		85	90	N/A	N/A
Cooling Water Outlet, °F TI-1636		78	78	N/A	N/A	
Header Press., PSIG PI-1421A		1425	1460	N/A	N/A	
7.2.9	Pump ΔP		1413	N/A	≥1333	N/A
7.3.9	PSIG, (1)		N/A		≤1462	
				1431.6	N/A	≥1340

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



2665 1445

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	Initials	Name (Print)	Date
	<u>RD</u>	<u>ROBERT C. DOWNING</u>	<u>10-17-88</u>
	<u>MM</u>	<u>MICHAEL S. MORSE</u>	<u>10-17-88</u>
	<u>RH</u>	<u>R. L. HALEY</u>	<u>10-17-88</u>

Test Complete: Date 10-17-88 Time 1205

Test Satisfactory: Yes / No (Circle one)

Reviewed by: D. W. GILL Date 10/17/88 Time 1515
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) A' MCAFW RUN FOR MORE THAN 30 MINUTES DUE TO FEEDING 3/6'S

Approved by: D. W. GILL Date 10-18-88
Unit 2 - Operating Supervisor

Reviewed by: Wanda C. ... Date 10/20/88
ISI Coordinator

2665
1448

2.0

REFERENCES

2.1

Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33

2.2

ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda

2.3

OP-402 Auxiliary Feedwater

2.4

Engineering flow diagrams:

2.4.1

G-190197, Feedwater, Condensate and Air Evacuation

2.4.2

G-190199, Service and Cooling Water System

3.0

PREREQUISITES

3.1

The AFW system components can be tested during cold shutdown, hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.

3.2

Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.

3.3

Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

MJONES (Print) M Jones 11-15-88
 Name Signature Date

3.5

The Shift Foreman has given his permission to conduct this test.

[Signature] 11-15-88
 Shift Foreman Date

2707 0778

MDAFW PUMP DATA

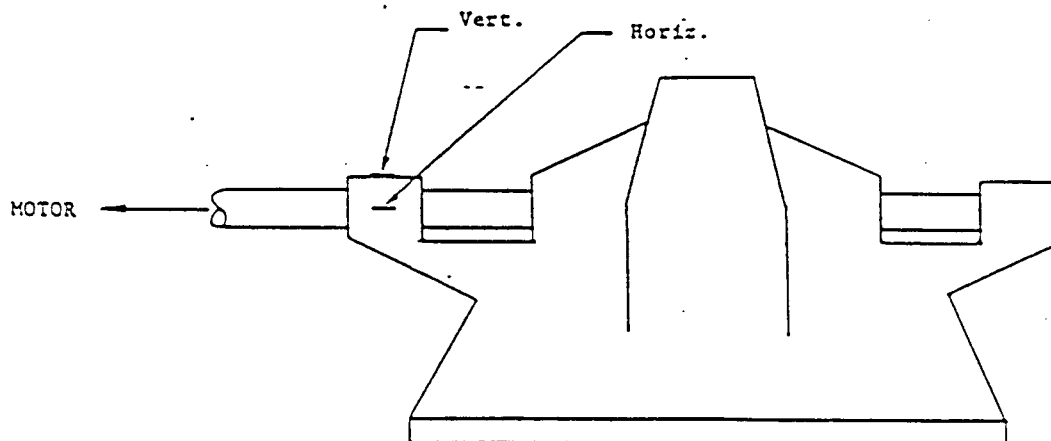
REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.8 or 7.3.8	Disch. Press.	"A" - PI-1424	1450	0	N/A	N/A
	PSIG	"B" - PI-1425	0	1440	N/A	N/A
	Vibration,* MILS	Horiz.	0.45	0.38	≤1.0	1.0
		Vert.	0.20	0.20	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479	6.20	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	6.25	N/A	≥4.0
	Oil Press. to Regulator, PSIG		30	15	N/A	N/A
	Oil Temp. to Cooler, °F		106	106	N/A	N/A
	Oil Temp from Cooler, °F		96	97	N/A	N/A
	Oil Sump. Temp, °F		90	88	N/A	N/A
	Cooling Water Outlet, °F TI-1636		77	75	N/A	N/A
	Header Press., PSIG PI-1421A		1420	1450	N/A	N/A
7.2.9	Pump ΔP		1443.80	N/A	≥1333 ≤1462	N/A
7.3.9	PSIG, (1)		N/A	1433.75	N/A	≥1340 ≤1470

27070793

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

0796
2707

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>MM</u>	<u>M JONES</u>	<u>11-15-88</u>
	<u>BCW</u>	<u>B. C. WALDSMITH</u>	<u>16 Nov 88</u>
	<u>DM</u>	<u>D. Morrison</u>	<u>11/16/88</u>

Test Complete: Date 11/16/88 Time 0315

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 11/16/88 Time 0341
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____
'B' PFW pump used to feed A+B 5/8"

Approved by: [Signature] Date 11-19-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 11/25/88
ISI Coordinator

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:-
- 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
- 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during cold shutdown, hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Martin L. Arnold (Print) Martin L. Arnold 23-Jan-89
Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 1-23-89
Shift Foreman Date

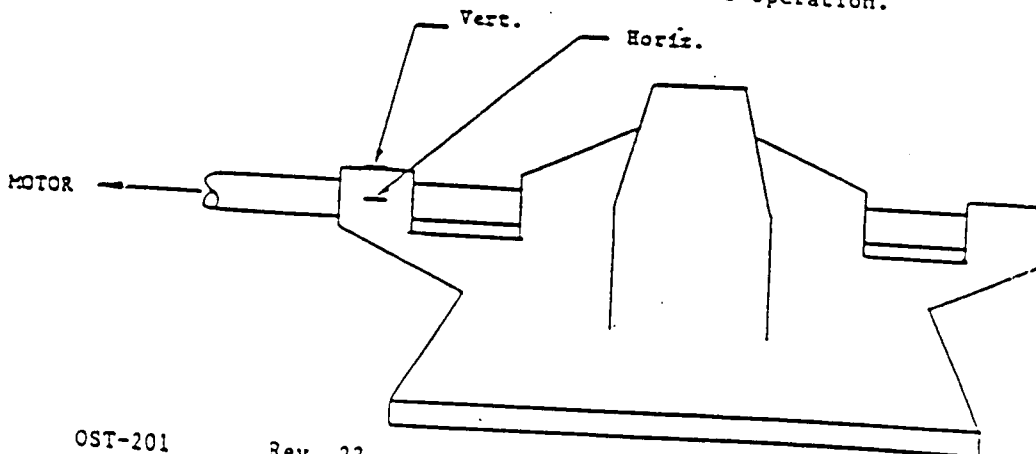
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA		
			"A"	"B"	"A"	"B"	
7.2.9 or 7.3.9	Disch. Press.	"A" - PI-1424					
	PSIG	"B" - PI-1425	1450	0	N/A	N/A	
	Vibration,* MILS	Horiz.		0	1440	N/A	N/A
		Vert.		.45	0.5-2	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479		.15	0.28	≤1.0	1.0
		"B" - PI-1480		5.5	N/A	≥4.0	N/A
	Oil Press. to Regulator, PSIG			N/A	9.2	N/A	≥4.0
	Oil Temp. to Cooler, °F			28	17	N/A	N/A
	Oil Temp from Cooler, °F			80	75	N/A	N/A
	Oil Sump. Temp, °F			73	75	N/A	N/A
Cooling Water Outlet, °F TI-1636			75	70	N/A	N/A	
Header Press., PSIG PI-1421A			48	30	N/A	N/A	
7.2.10	Pump ΔP		1440	1470	N/A	N/A	
7.3.10	PSIG, (1)		1445	N/A	≥1333	N/A	
			N/A	1430.6	N/A	≤1462	≥1340 ≤1470

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	Initials	Name (Print)	Date
	<u>mea/wed</u>	<u>Martin L. Arnold/WESTON</u>	<u>23-Jan-89 11-23-89</u>
	<u>BM/OM</u>	<u>B. Mulligan/OPINION</u>	<u>1-23-89 11/26/89</u>
	<u>g/lmr</u>	<u>Greg Taylor/MALDEN</u>	<u>1-25-89 11/27/89</u>
	<u>ora/ta</u>	<u>Steve Atlee/HARRIS</u>	<u>1-25-89 11-27-89</u>

Test Complete: Date 1/26/89 Time 1413

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 1/26/89 Time 1413
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) USED STOPWATCH & HSN-4

Approved by: [Signature] Date 1-28-89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 1/30/89
ISI Coordinator

2789 1986

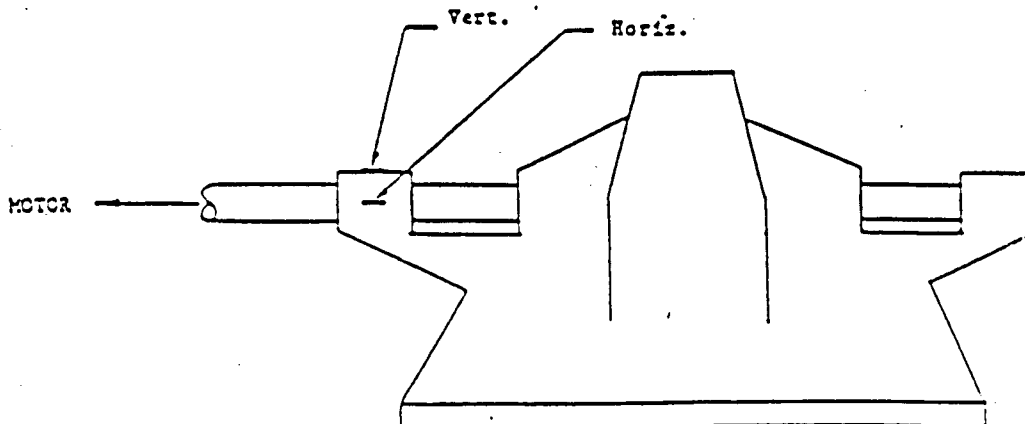
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER	PUMP TESTED		ACCEPTANCE CRITERIA		
		"A"	"B"	"A"	"B"	
7.2.9 or 7.3.9	Disch. Press.	"A" - PI-1424	N/A	0	N/A	N/A
	PSIG	"B" - PI-1425	N/A	1440	N/A	N/A
	Vibration,* MILS	Horiz.	N/A	.45	≤1.0	1.0
		Vert.	N/A	.35	≤1.0	1.0
	Suct. Press.	"A" - PI-1479	N/A	N/A	≥4.0	N/A
		PSIG	"B" - PI-1480	N/A	8.6	N/A
	Oil Press. to Regulator, PSIG	N/A	16	N/A	N/A	
	Oil Temp. to Cooler, °F	N/A	90	N/A	N/A	
	Oil Temp from Cooler, °F	N/A	72	N/A	N/A	
	Oil Sump. Temp, °F	N/A	70	N/A	N/A	
	Cooling Water Outlet, °F TI-1636	N/A	53	N/A	N/A	
Header Press., PSIG PI-1421A	N/A	1460	N/A	N/A		
7.2.10	Pump ΔP	N/A	N/A	≥1333	N/A	
7.3.10	PSIG, (1)	N/A	N/A	≤1462	N/A	
		N/A	1431.4	N/A	≥1340 ≤1470	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) B' M DAEW Pump - only for de loring BLS IAW OWP (Pg 1-14 of 22, 18-22 of 22)

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>mic</u>	<u>Micah L Arnold</u>	<u>13 Feb 89</u>
	<u>Bcw</u>	<u>B. C. WALDSMITH</u>	<u>13 Feb 89</u>

Test Complete: Date 13 Feb 89 Time 1755

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 2-13-89 Time 1800
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 2/15/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 2/22/89
ISI Coordinator

2011 11 6 9

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
- 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
- 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during cold shutdown, hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

San Garcia (Print) San Garcia 2-21-85
Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

Colin B. ... 2/21/85
Shift Foreman Date

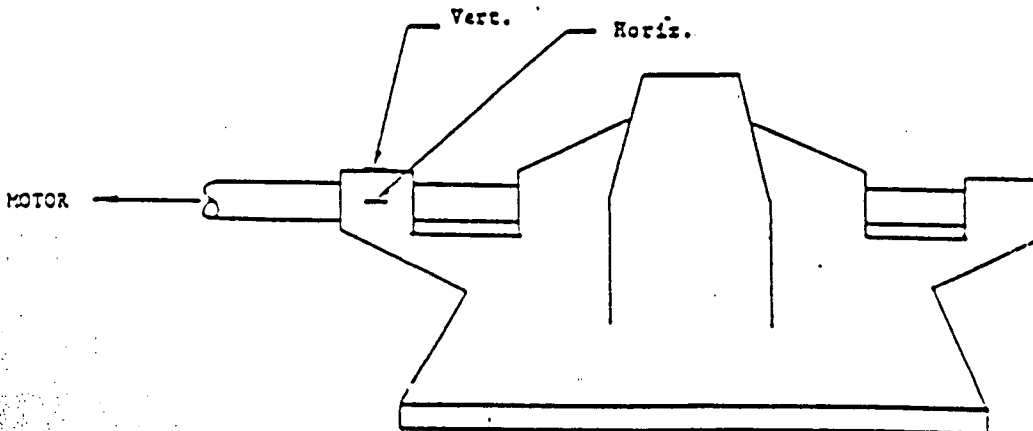
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.9 or 7.3.9	Disch. Press.	"A" - PI-1424	14.0	14.0	N/A	N/A
	PSIG	"B" - PI-1425	0	14.0	N/A	N/A
	Vibration,* MILS	Horiz.	.4	.46	≤1.0	1.0
		Vert.	.16	.3	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479	9.4	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	9.5	N/A	≥4.0
	Oil Press. to Regulator, PSIG		29	17	N/A	N/A
	Oil Temp. to Cooler, °F		85	84	N/A	N/A
	Oil Temp from Cooler, °F		77	75	N/A	N/A
	Oil Sump. Temp, °F		71	70	N/A	N/A
Cooling Water Outlet, °F II-1636		56	52	N/A	N/A	
Header Press., PSIG PI-1421A		14.0	14.25	N/A	N/A	
7.2.10	Pump ΔP		1440.6	N/A	≥1333	N/A
7.3.10	PSIG, (1)		N/A		≤1462	
				1430.5	N/A	≥1340 ≤1470

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>SAA</u>	<u>Steve A+Lae</u>	<u>2-22-89</u>
	<u>BN</u>	<u>F. B. SCHWIER</u>	<u>2-22-89</u>
	<u>J</u>	<u>G. Taylor</u>	<u>2-22-89</u>
	<u>CPW</u>	<u>C. Schwier</u>	<u>2/22/89</u>

Test Complete: Date 2-22-89 Time 0038

Test Satisfactory: Yes / No (Circle one)

Reviewed by: CPW Date 2/22/89 Time 0100
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) A. ...
is ...

Approved by: [Signature] Date 2/23/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 2/23/89
ISI Coordinator

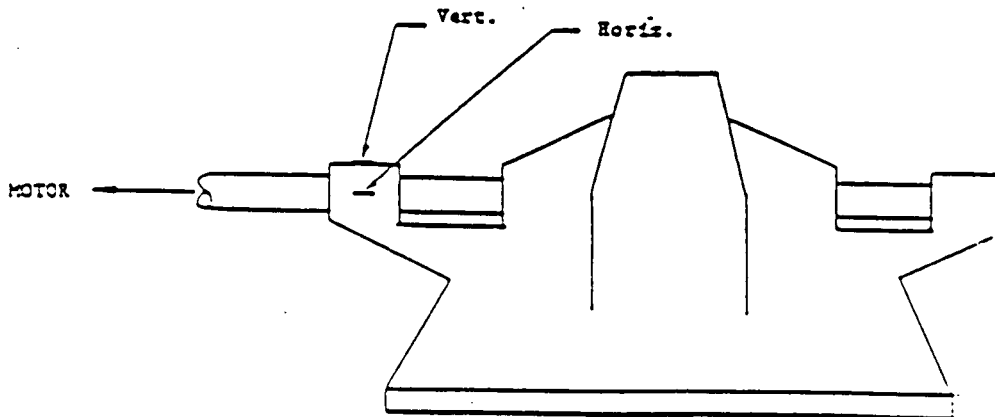
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
			7.2.9 or 7.3.9	Disch. Press.	"A" - PI-1424	1450
	PSIG	"B" - PI-1425	0	1450	N/A	N/A
	Vibration,* MILS	Horiz.	.27	.39	≤1.0	1.0
		Vert.	.18	.39	≤1.0	1.0
	Suct. Press.	"A" - PI-1479	7.5	N/A	≥4.0	N/A
	PSIG	"B" - PI-1480	N/A	B.D.	N/A	≥4.0
	Oil Press. to Regulator, PSIG		29	15.5	N/A	N/A
	Oil Temp. to Cooler, °F		93	95	N/A	N/A
	Oil Temp from Cooler, °F		87	86	N/A	N/A
	Oil Sump. Temp, °F		88	90	N/A	N/A
	Cooling Water Outlet, °F TI-1636		67	65	N/A	N/A
	Header Press., PSIG PI-1421A		1450	1455	N/A	N/A
7.2.10	Pump ΔP		1442.5	N/A	≥1333	N/A
7.3.10	PSIG, (1)		N/A	1442	≤1462	≥1340 ≤1470

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



2354 0961

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>MA</u>	<u>M. GANN</u>	<u>3/21/89</u>
	<u>AK</u>	<u>MR KIRK</u>	<u>21 MAR 89</u>
	<u>JK</u>	<u>J F METIS</u>	<u>3/21/89</u>

Test Complete: Date 3-21-89 Time 2320

Test Satisfactory: Yes / No (Circle one)

Reviewed by: D. McCall Date 3/22/89 Time 0353
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: Bob Steele Date 3-31-89
Unit 2 - Operating Supervisor

Reviewed by: Y. McCutcheon Date 4/10/89
ISI Coordinator

2834-0964

2 3 7 7 1 6 7 8

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during cold shutdown, hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

E. Lovette (Print) [Signature] 4-18-89
 Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 4-18-89
 Shift Foreman Date

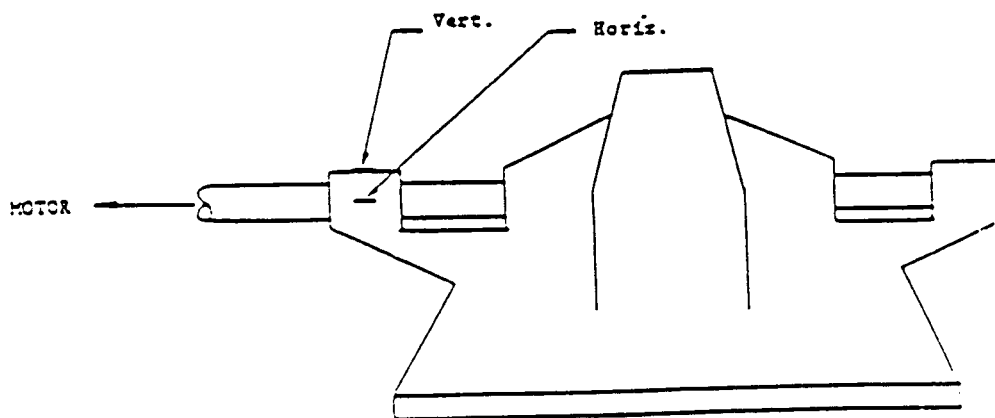
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA	
			"A"	"B"	"A"	"B"
7.2.9 or 7.3.9	Disch. Press.	"A" - PI-1424	1440	0	N/A	N/A
	PSIG	"B" - PI-1425	0	1460	N/A	N/A
	Vibration,* MILS	Horiz.	0.4	0.55	≤1.0	1.0
		Vert.	0.6	0.45	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479	5.2	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	5.5	N/A	≥4.0
	Oil Press. to Regulator, PSIG		32	16	N/A	N/A
	Oil Temp. to Cooler, °F		95	44	N/A	N/A
	Oil Temp from Cooler, °F		40	25	N/A	N/A
	Oil Sump. Temp, °F		40	42	N/A	N/A
Cooling Water Outlet, °F TI-1636		68	66	N/A	N/A	
Header Press., PSIG PI-1421A		1450	1475	N/A	N/A	
7.2.10	Pump ΔP		1434.8	N/A	≥1333 ≤1462	N/A
7.3.10	PSIG, (1)		N/A	1454.5	N/A	≥1340 ≤1470

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



2977 1692

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>TR</u>	<u>M. Rebandt</u>	<u>4-19-89</u>
	<u>W</u>	<u>W. CURRIER</u>	<u>4-19-89</u>
	<u>AW</u>	<u>TR White</u>	<u>4/19/89</u>
	<u>TRP</u>	<u>H. Fletcher</u>	<u>4-19-89</u>

Test Complete: Date 4/19/89 Time 0455

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 4-19-89 Time 05:28
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 4/19/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 4/24/89
ISI Coordinator

2377 1695

2904 1266

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 C-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 C-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during cold shutdown, hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

DAN AKLES (Print) [Signature] 5/16/89
 Name Signature Date

- 3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 5/16/89
 Shift Foreman Date

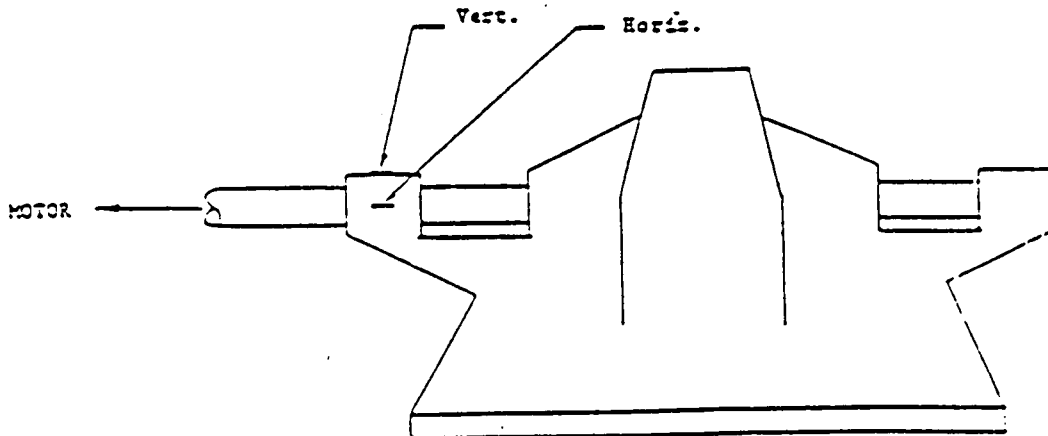
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER	PUMP TESTED		ACCEPTANCE CRITERIA		
		"A"	"B"	"A"	"B"	
7.2.9 or 7.3.9	Disch. Press. "A" - PI-1424	1460	0	N/A	N/A	
	PSIG "B" - PI-1425	0	1461	N/A	N/A	
	Vibration,* MILS	Horiz.	.4	.5	≤1.0	1.0
		Vert.	.2	.4	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479	6.8	N/A	≥4.0	N/A
		"B" - PI-1480	N/A	7.3	N/A	≥4.0
	Oil Press. to Regulator, PSIG	29	15	N/A	N/A	
	Oil Temp. to Cooler, °F	102	100	N/A	N/A	
	Oil Temp from Cooler, °F	95	93	N/A	N/A	
	Oil Sump. Temp, °F	98	95	N/A	N/A	
Cooling Water Outlet, °F TI-1636	80	78	N/A	N/A		
Header Press., PSIG PI-1421A	1450	1475	N/A	N/A		
7.2.10	Pump ΔP	1453.2	N/A	≥1333 ≤1462	N/A	
7.3.10	PSIG, (1)	N/A	1453.7 1472.7 200/20/164	N/A	≥1340 ≤1470	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



2904 1280

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / ~~Unscheduled~~ (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>DAW</u>	<u>DAW AKERS</u>	<u>5/17/89</u>
	<u>JK</u>	<u>KORWIN</u>	<u>5/17/89</u>
	<u>SB</u>	<u>STEVE BISHOP</u>	<u>5/17/89</u>
	<u>CMW</u>	<u>CMWINTAS</u>	<u>5/17/89</u>

Test Complete: Date 5/17/89 Time 0315

Test Satisfactory: Yes / ~~No~~ (Circle one)

Reviewed by: CMWint Date 5/17/89 Time 0345
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 5/19/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 5/31/89
ISI Coordinator

2904
1283

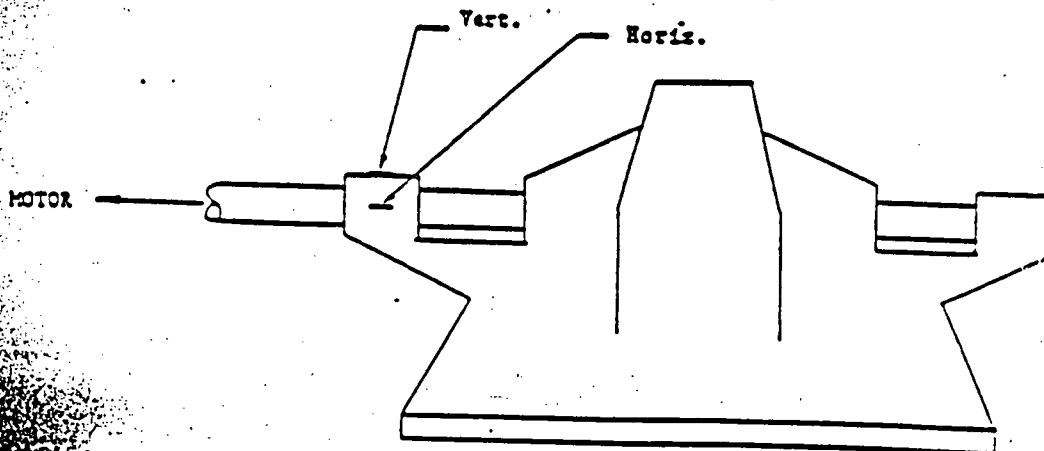
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER	PUMP TESTED		ACCEPTANCE CRITERIA	
		"A"	"B"	"A"	"B"
7.2.9 or 7.3.9	Disch. Press. PSIG	"A" - PI-1424 1450	"B" - PI-1425 1470	N/A	N/A
	Vibration,* MILS	Horiz. 0.47	Vert. .41	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479 7.3	"B" - PI-1480 7.6	≥4.0	N/A
	Oil Press. to Regulator, PSIG	30	15	N/A	N/A
	Oil Temp. to Cooler, °F	110	110	N/A	N/A
	Oil Temp from Cooler, °F	103	100	N/A	N/A
	Oil Sump. Temp, °F	103	101	N/A	N/A
	Cooling Water Outlet, °F TI-1636	88	85	N/A	N/A
	Header Press., PSIG PI-1421A	1440	1460	N/A	N/A
7.2.10	Pump ΔP	1442.7	N/A	≥1333	N/A
7.3.10	PSIG, (1)	N/A	1462.4	≤1462	≥1340 ≤1470

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



08111081129222

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

Initials	Name (Print)	Date
<u>AD</u>	<u>PAUL H. DOLAN</u>	<u>6-20-89</u>
<u>AK</u>	<u>DAN AKERS</u>	<u>6/20/89</u>
<u>1 (S)</u>	<u>STEVE BREDENBACH</u>	<u>6/20/89</u>
<u>W</u>	<u>H.A. WINGERT</u>	<u>6/20/89</u>

Test Complete: Date 6/20/89 Time 2200

Test Satisfactory: Yes / No (Circle one)

Reviewed by: DEJ Date 6-20-89 Time 2310
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: R. STEELE Date 6-23-89
Unit 2 - Operating Supervisor

Reviewed by: W. McCutcheon Date 6/26/89
ISI Coordinator

2922 : 0814

2.0 REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
- 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
- 2.4.2 G-190199, Service and Cooling Water System

3.0 PREREQUISITES

- 3.1 The AFW system components can be tested during cold shutdown, hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

2955
0186

Name

(Print) _____
Signature

Date

7/18/89

- 3.5 The Shift Foreman has given his permission to conduct this test.

Shift Foreman

Date

7/18/89

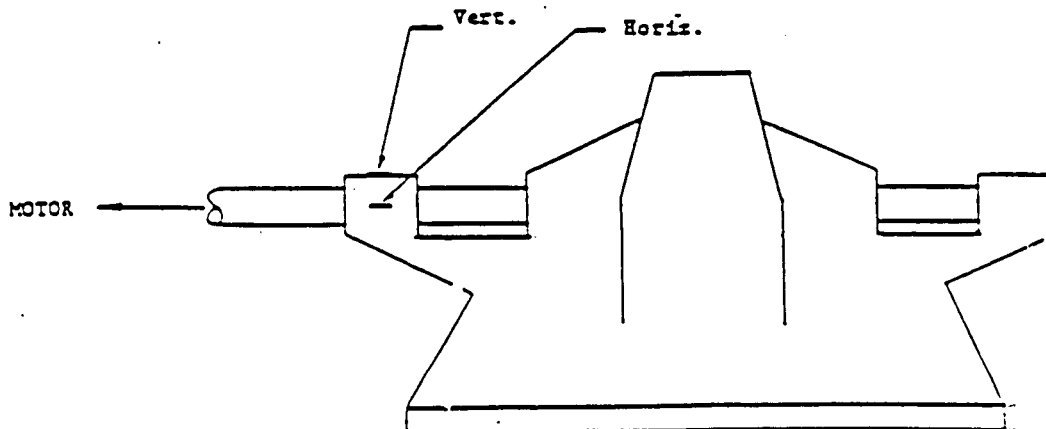
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER		PUMP TESTED		ACCEPTANCE CRITERIA		
			"A"	"B"	"A"	"B"	
7.2.9 or 7.3.9	Disch. Press.	"A" - PI-1424	1420	0	N/A	N/A	
	PSIG	"B" - PI-1425	0 <i>1440</i>	0 <i>1440</i>	N/A	N/A	
	Vibration,* MILS	Horiz.		0.5	0.14	≤1.0	1.0
		Vert.		0.3	0.4	≤1.0	1.0
	Suct. Press. PSIG	"A" - PI-1479		6.5	N/A	≥4.0	N/A
		"B" - PI-1480		N/A	7.2	N/A	≥4.0
	Oil Press. to Regulator, PSIG			22	14	N/A	N/A
	Oil Temp. to Cooler, °F			110	111	N/A	N/A
	Oil Temp from Cooler, °F			105	105	N/A	N/A
	Oil Sump. Temp, °F			100	104	N/A	N/A
Cooling Water Outlet, °F TI-1636			89	90	N/A	N/A	
Header Press., PSIG PI-1421A			1440	1430	N/A	N/A	
7.2.10	Pump ΔP		14135	N/A	≥1333	N/A	
7.3.10	PSIG, (1)		N/A	1432.8	≤1462	N/A	
				1472	N/A	≥1340	
						≤1470	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



2955 : 0200

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>DB</u>	<u>D. Billings</u>	<u>7-18-89</u>
	<u>BAW</u>	<u>David A. Cook</u>	<u>7-18-89</u>
	<u>JP</u>	<u>Jim Barry</u>	<u>7-18-89</u>
	<u>RTR</u>	<u>R.T. DALL</u>	<u>7-18-89</u>

Test Complete: Date 7/18/89 Time 1658

Test Satisfactory: Yes / No (Circle one)

Reviewed by: CRW/mtc Date 7/18/89 Time 1658
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: ISI/ste Date 7/21/89
Unit 2 - Operating Supervisor

Reviewed by: WMS/MCC/AB Date 7/31/89
ISI Coordinator

0203
2955

2.0

REFERENCES

- 2.1 Technical Specification 4.8.1, 4.8.3, 4.8.4 and Table 4.1-1, Item 33
- 2.2 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda
- 2.3 OP-402 Auxiliary Feedwater
- 2.4 Engineering flow diagrams:
 - 2.4.1 G-190197, Feedwater, Condensate and Air Evacuation
 - 2.4.2 G-190199, Service and Cooling Water System

3.0

PREREQUISITES

- 3.1 The AFW system components can be tested during cold shutdown, hot shutdown or power operation when the system is aligned for standby operation in accordance with OP-402, Auxiliary Feedwater.
- 3.2 Only one Auxiliary Feed Pump should be tested at a time with the remaining two pumps on automatic standby.
- 3.3 Where necessary, establish communications between the operator at the RTGB, the operator at the valves to be stroked, and the MDAFW Pumps.
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

_____ (Print) _____ Signature _____ Date
 Name

3.5

The Shift Foreman has given his permission to conduct this test.

_____ Date
 Shift Foreman

0 5 1 0
2 9 9 3

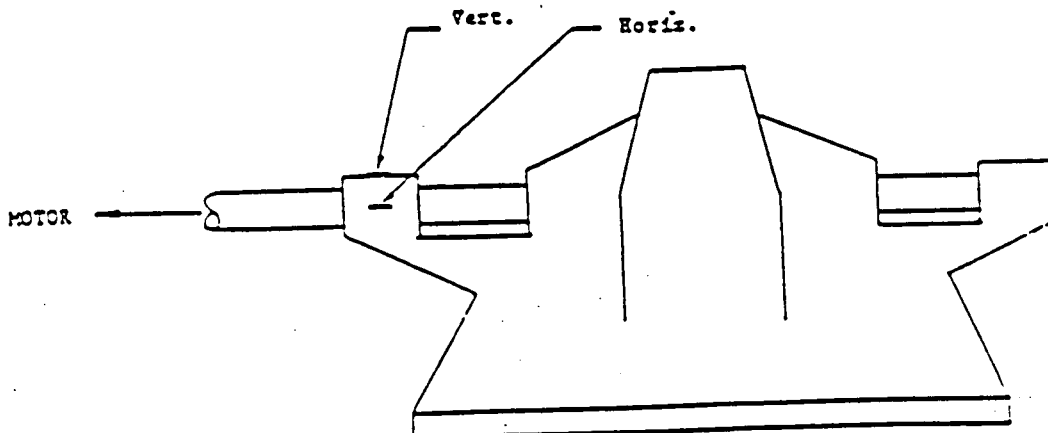
MDAFW PUMP DATA

REF. STEP NO.	PARAMETER	PUMP TESTED		ACCEPTANCE CRITERIA			
		"A"	"B"	"A"	"B"		
7.2.9 or 7.3.9	Disch. Press.	"A" - PI-1424	1440	1460	N/A	N/A	
	PSIG	"B" - PI-1425	0	1460	N/A	N/A	
	Vibration,*	Horiz.		.6	.9	≤1.0	1.0
		MILS	Vert.	.2	.44	≤1.0	1.0
	Suct. Press.	"A" - PI-1479		6.5	N/A	≥4.0	N/A
		PSIG	"B" - PI-1480	N/A	7.0	N/A	≥4.0
	Oil Press. to Regulator, PSIG		22.5	13.5	N/A	N/A	
	Oil Temp. to Cooler, °F		112	112	N/A	N/A	
	Oil Temp from Cooler, °F		105	105	N/A	N/A	
	Oil Sump. Temp, °F		103	108	N/A	N/A	
Cooling Water Outlet, °F TI-1636		90	87	N/A	N/A		
Header Press., PSIG PI-1421A		1450	1475	N/A	N/A		
7.2.10	Pump ΔP		1433.5	N/A	≥1333	N/A	
7.3.10	PSIG, (1)		N/A	1453	N/A	≥1340 ≤1470	

Calculations: (1) Pump ΔP = (Disch. Press) - (Suct. Press)
 "A" = (PI-1424) - (PI-1479)
 "B" = (PI-1425) - (PI-1480)

Vibration Data Points

*To be taken after 15 minutes of operation.



2988 0524

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>dw</u>	<u>TK White</u>	<u>8/15/89</u>
	<u>Fry</u>	<u>F.B. Schuster</u>	<u>8-15-89</u>
	<u>(W)</u>	<u>W. Currlott</u>	<u>8-16-89</u>
	<u>MM</u>	<u>C. Winter</u>	<u>8/16/89</u>

Test Complete: Date 8-16-89 Time 0245

Test Satisfactory: ^{CPA/1/1/89} Yes No (Circle one)

Reviewed by: C. Winter Date 8/16/89 Time 0250
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) 100.425 failed stroke
Time of 10 strokes was 29. AH SW 1

Approved by: [Signature] Date 8/17/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 8/25/89
ISI Coordinator

2983 0527

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

BOB STEELE (Print) *Bob Steele* 10-20-87
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

Bob Steele 10-20-87
Shift Foreman Date

1754
2320

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

SDAFW PUMP DATA

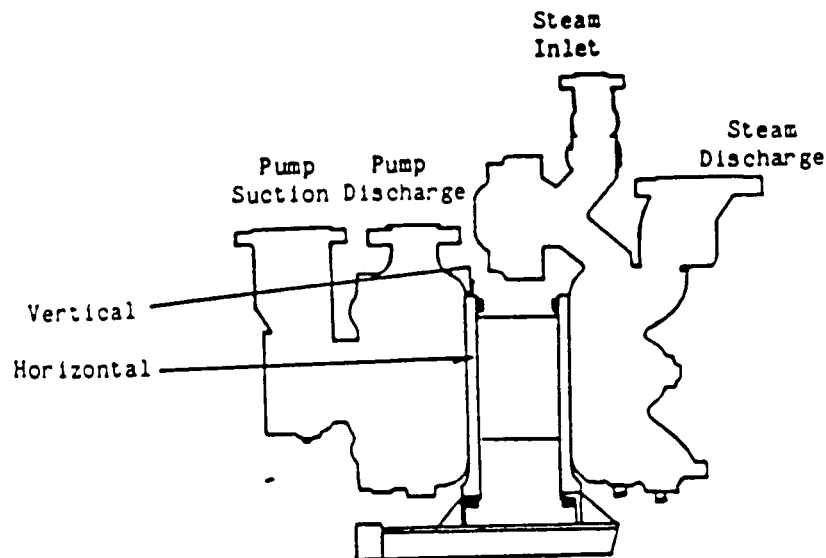
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.15.2	Disch. Press. PI-1426 PSIG	1300	N/A	
7.2.15.2	Steam Inlet Press. PI-1357-2. PSIG	805	N.A	
7.2.16	Feed to Steam ΔP, PSI (1)	495	2310	
7.2.18	Pump Turbine Speed, RPM	9410	89550 29400	
7.2.19	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1480	N/A	
	Pump Suct. Press. PI-1478, PSIG	4.0	22.0	
	Header Press PI-1421B, PSIG	1480	N/A	
	Oil Press to Regulator, PSIG	24 7	N/A	
	Oil Press from Regulator, PSIG	20	N/A	
	Oil Temp to Cooler, °F	145	N/A	
	Oil Temp. from Cooler, °F	130	N/A	
	Cooling Water Outlet Temp.	100	N/A	
	Vibration Mils*	Horizontal	0.4	≤1.2
		Vertical	0.5	≤1.0
7.2.20	Pump ΔP, PSI, (2)	1476	21412 ≤1548	

1 7 6 9
2 3 2 8

Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)
(2) Pump ΔP = [Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	Initials	Name (Print)	Date
	<u>W</u>	<u>K. DUCHIN</u>	<u>11/1/87</u>
	<u>df</u>	<u>JF METTS</u>	<u>10/21/87</u>
	<u>Q</u>	<u>STEVE SANDERSON</u>	<u>10/21/87</u>
	<u>W</u>	<u>W. CUTRIGAT</u>	<u>10-21-87</u>

Test Complete: Date 10/21/87 Time 0115

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature]
Unit 2 - Shift Foreman Date 10-21-87 Time 0200

Comments: (Required if results were unsatisfactory) WR- 87 APAY1
WRITTEN FOR FLOW TRANSDUCER
TEST ACCEPTED AS SET WITH FAME LHS ON FT- MOLA CML 10 HR BEING
WRITTEN AND EIR ON EQUIPMENT ENSURING 115 APAY 1-11-87

Approved by: [Signature]
Unit 2 - Operating Supervisor Date 10-25-87

Reviewed by: [Signature]
ISI Coordinator Date 11/11/87

2328 1772

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Ben Parvin (Print) Ben Parvin 11-17-81
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

100 Ful 11-17-81
Shift Foreman Date

4.0

PRECAUTIONS AND LIMITATIONS

4.1

Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2

Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3

The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4

Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5

After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

SDAFW PUMP DATA

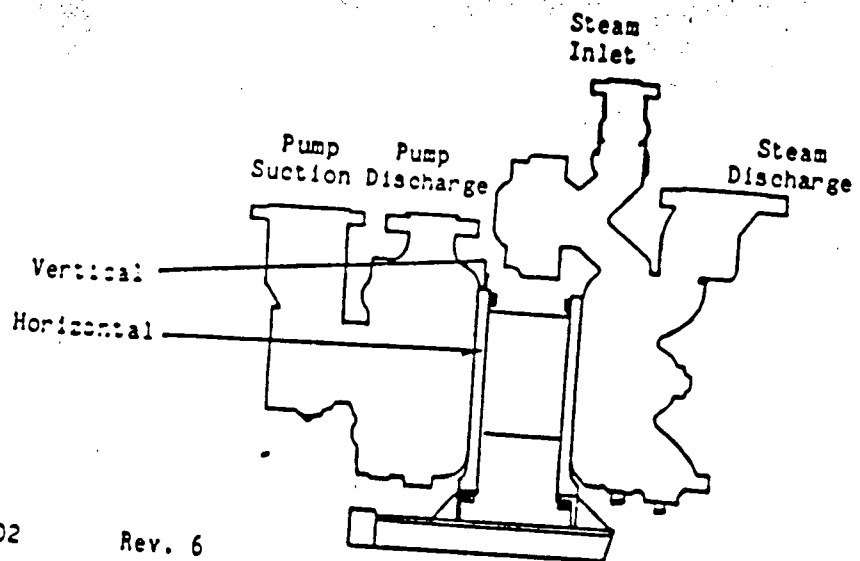
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.15.2	Disch. Press. PI-1426, PSIG	1200	N/A	
7.2.15.2	Steam Inlet Press. PI-1357-2, PSIG	800	N/A	
7.2.16	Feed to Steam ΔP, PSI (1)	400	2310	
7.2.18	Pump Turbine Speed, RPM	9500	89550 29400	
7.2.19	Disch. Press. PI-1426, PSIG (Reg. Isolated)	7400	N/A	
	Pump Suct. Press. PI-1478, PSIG	2.5	22.0	
	Header Press PI-1421B, PSIG	1510	N/A	
	Oil Press to Regulator, PSIG	107.5	N/A	
	Oil Press from Regulator, PSIG	22	N/A	
	Oil Temp to Cooler, °F	7	N/A	
	Oil Temp. from Cooler, °F	123	N/A	
	Cooling Water Outlet Temp.	105	N/A	
	Vibration Mils*	Horizontal	80	N/A
		Vertical	.65	S1.2
7.2.20	Pump ΔP, PSI, (2)	.36	S1.0	
		1477.5 1067.5	21412 S1548	

Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)

(2) Pump ΔP = [Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



1461
2335

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

1
4
6
4

2
3
3
3
2

Test Performed by	Initials	Name (Print)	Date
	<u>JB</u>	<u>Jim Dacey</u>	<u>11-15-87</u>
	<u>RS</u>	<u>Rick Russell</u>	<u>11-15-87</u>
	<u>BLW</u>	<u>B.L. WALDSMITH</u>	<u>18 NOV 87</u>
	<u>CAO</u>	<u>SM A+Lee</u>	<u>11-15-87</u>

Test Complete: Date 11-18-87 Time 0403

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 11-9-87 Time 0510
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) STEAM GENERATOR WERE
EED WHILE CHECKING ROVRN. SETTINGS AND DESIGN PRESSURE READINGS.

Approved by: [Signature] Date 11-25-87
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 12/4/87
ISI Coordinator

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

BRYAN C. WILDSMITH (Print) Bryan C. Wildsmith 15 Dec 87
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

5
5
0
0

[Signature] 12-15-87
Shift Foreman Date

PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

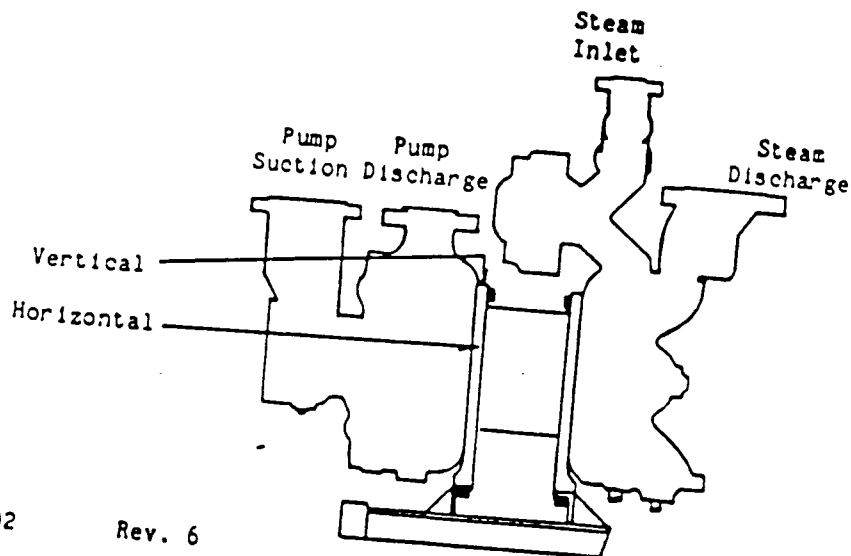
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.15.2	Disch. Press. PI-1426 PSIG			
7.2.15.2	Steam Inlet Press. PI-1357-2. PSIG	1220	N/A	
7.2.16	Feed to Steam ΔP, PSI (1)	800	N/A	
7.2.18	Pump Turbine Speed, RPM	420	2310	
7.2.19	Disch. Press. PI-1426, PSIG (Reg. Isolated)	9500	59550 29400	
	Pump Suct. Press. PI-1478, PSIG	1520	N/A	
	Header Press PI-1421B, PSIG	3.0	22.0	
	Oil Press to Regulator, PSIG	1530	N/A	
	Oil Press from Regulator, PSIG	21.5	N/A	
	Oil Temp to Cooler, °F	7.9	N/A	
	Oil Temp. from Cooler, °F	123	N/A	
	Cooling Water Outlet Temp.	104	N/A	
	Vibration Mils*	Horizontal	79	N/A
		Vertical	1.0	51.2
7.2.20	Pump ΔP, PSI, (2)	.54	51.0	
		1517	21412 51548	

Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)
 (2) Pump ΔP = [Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

3
7
8
0
1
3
2

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>BCW</u>	<u>B. C. WALDSMITH</u>	<u>15 Dec 87</u>
	<u>Jal</u>	<u>John A. Leone</u>	<u>15 Dec 87</u>
	<u>TDH/12/15/87</u>	<u>TDH/12/15/87 / D ALKERS</u>	<u>12/15/87 / 12/15/87</u>
	<u>BMH</u>	<u>BMH/ky</u>	<u>12-15-87</u>

Test Complete: Date 12/15/87 Time 2250

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 12-15-87 Time 2310
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 12-23-87
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 12/29/87
ISI Coordinator

23952427
0584
0030

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

B. MULLIGAN (Print) B. Mulligan ¹⁻⁵⁻⁸⁸
Name Signature ₁₋₅₋₈₈
Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 1-5-88
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

SDAFW PUMP DATA

2395242705990045

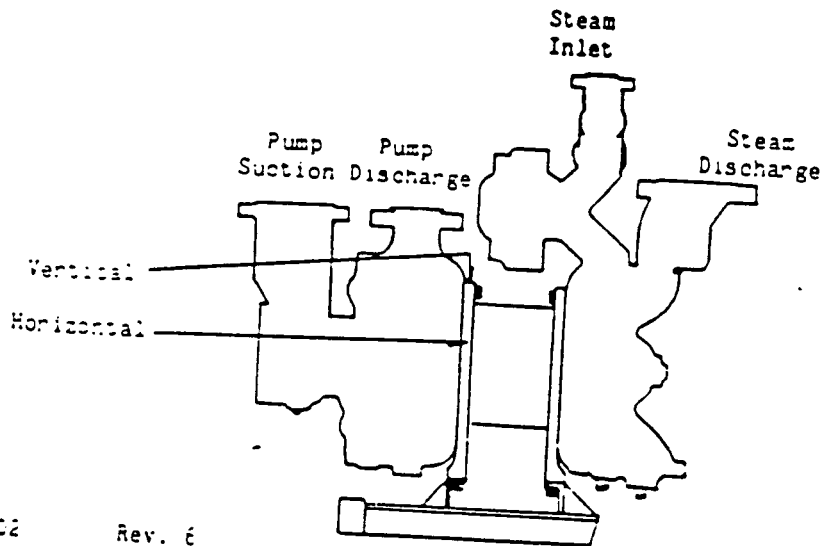
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.15.2	Disch. Press. PI-1426 PSIG	1230	N/A	
7.2.15.2	Steam Inlet Press. PI-1357-2. PSIG	800	N/A	
7.2.16	Feed to Steam ΔP, PSI (1)	430	±310	
7.2.18	Pump Turbine Speed, RPM	4500	±9550 ±9400	
7.2.19	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1550	N/A	
	Pump Suct. Press. PI-1478, PSIG	2.5	±2.0	
	Header Press PI-1421B, PSIG	1560	N/A	
	C:1 Press to Regulator, PSIG	20	N/A	
	C:1 Press from Regulator, PSIG	8	N/A	
	C:1 Temp to Cooler, °F	120	N/A	
	C:1 Temp. from Cooler, °F	100	N/A	
	Cooling Water Outlet Temp.	60	N/A	
	Vibration Mils*			
		Horizontal	.5	±1.2
	Vertical	.6	±1.0	
7.2.20	Pump ΔP, PSI, (2)	1547.5	±1412 ±1548	

Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)

(2) Pump ΔP - [Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



30

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) IA²³ 1-19 pgs 20-24 pgs Returned to service per DWP Due to repair of oil leak on Governor

2395242700043

Test Performed by	Initials	Name (Print)	Date
	<u>MR</u>	<u>Mark Rohardt</u>	<u>1-5-88</u>
	<u>JEM</u>	<u>B. Mulligan</u>	<u>1-5-88</u>
	<u>D</u>	<u>K. O'Rourke</u>	<u>1/5/88</u>
	<u>f</u>	<u>Flegette</u>	<u>1-5-88</u>

Test Complete: Date 1/5/88 Time 1545

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 1-5-88 Time 1725
Unit 2 - Shift Foreman


Comments: (Required if results were unsatisfactory) Step 7.2.2 pressure reading for Turb-Aux oil pump reads 5 psig

Approved by: [Signature] Date 1/19/88
Unit 2 - Operating Supervisor

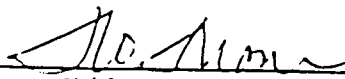
Reviewed by: [Signature] Date 1/21/88
ISI Coordinator

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

W E STURK (Print)  1-20-88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

 1-20-88
Shift Foreman Date

0 2 3 1
4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

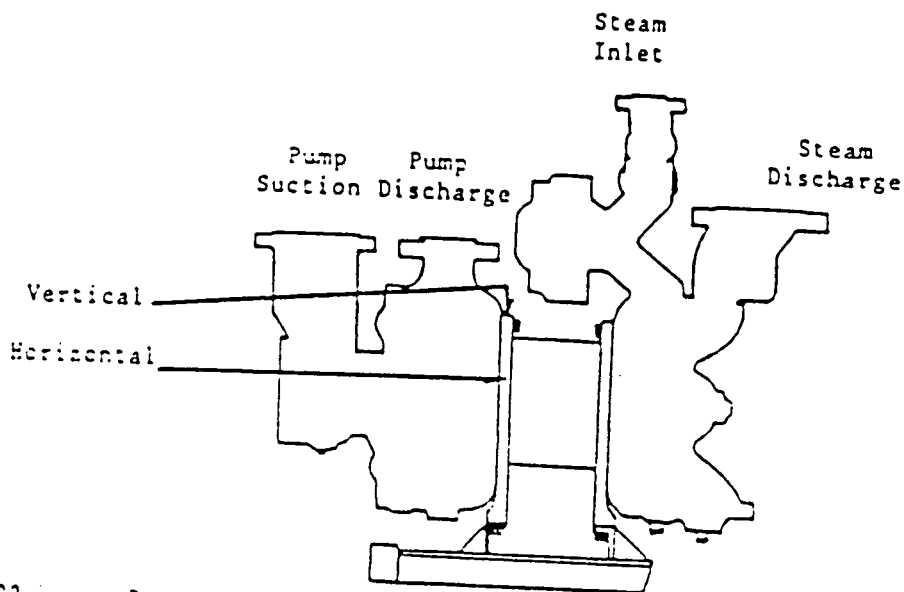
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.16.2	Disch. Press. PI-1426 PSIG	1300	N/A	
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	980	N/A	
7.2.17	Feed to Steam ΔP, PSI (1)	320	≥310	
7.2.19	Pump Turbine Speed, RPM	9500	≤9550 ≥9400	
7.2.20	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1550	N/A	
	Pump Suct. Press. PI-1478, PSIG	2.0	≥2.0	
	Header Press PI-1421B, PSIG	1550	N/A	
	Oil Press to Regulator, PSIG	21	N/A	
	Oil Press from Regulator, PSIG	8	N/A	
	Oil Temp to Cooler, °F	117	N/A	
	Oil Temp. from Cooler, °F	97	N/A	
	Cooling Water Outlet Temp.	75	N/A	
	Vibration Mils*	Horizontal	0.7	≤1.2
		Vertical	.55	≤1.0
7.2.21	Pump ΔP, PSI, (2)	1548	≥1412 ≤1548	

Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)
 (2) Pump ΔP = [Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



SDAFW PUMP DATA

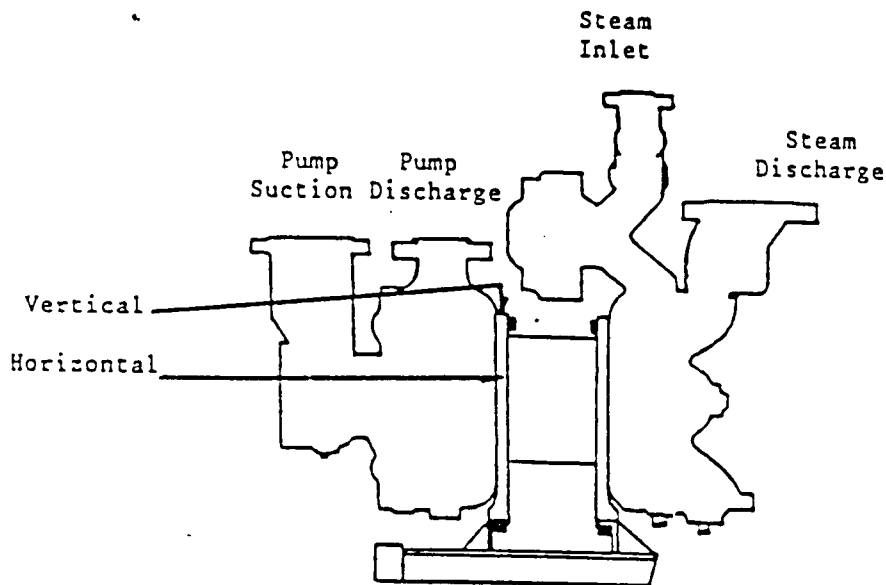
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.16.2	Disch. Press. PI-1426 PSIG	1370	N/A	
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	1030	N/A	
7.2.17	Feed to Steam ΔP, PSI (1)	340	≥310	
7.2.19	Pump Turbine Speed, As Found RPM	9600	≤9550	
	As Left	9530	≥9400	
7.2.20	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1550	N/A	
	Pump Suct. Press. PI-1478, PSIG	5	≥2.0	
	Header Press PI-1421B, PSIG	1575	N/A	
	Oil Press to Regulator, PSIG	21	N/A	
	Oil Press from Regulator, PSIG	8	N/A	
	Oil Temp to Cooler, °F	130	N/A	
	Oil Temp. from Cooler, °F	120	N/A	
	Cooling Water Outlet Temp.	63	N/A	
	Vibration Mils*	Horizontal	9	≤1.2
		Vertical	5	≤1.0
7.2.21	Pump ΔP, PSI, (2)	1545	≥1412 ≤1548	

0994
2473

- Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)
 (2) Pump ΔP - [Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) Pressure test for CP-005 1-21

Test Performed by	Initials	Name (Print)	Date
	<u>(D)</u>	<u>Paul M. Ducheck</u>	<u>3-10-88</u>
	<u>[Signature]</u>	<u>K. DARWIN</u>	<u>3/10/88</u>
	<u>[Signature]</u>	<u>Todd Higgins</u>	<u>3-10-88</u>
	<u>[Signature]</u> dew	<u>M. Roberts</u> TEWHITE	<u>3-10-88</u> <u>3/10/88</u>

Test Complete: Date 3-10-88 Time 2300

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 3-10-88 Time 2355
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) Pump ran quiet for 15 min -> Used pump to feed 5/6's
Final check on unit 1426A case WR # 88-AD751
Final check on unit 1426B case WR # 88-AD711
SCOP Pump operation satisfactory only pressure was low indicating compressor in A+B lines

Approved by: [Signature] Date 3-22-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 4/6/88
ISI Coordinator

2 4 7 3
0 9 9 7

2450
0240

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

MILONES (Print) *Milones* 3-15-88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 3-15-88
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

SDAFW PUMP DATA

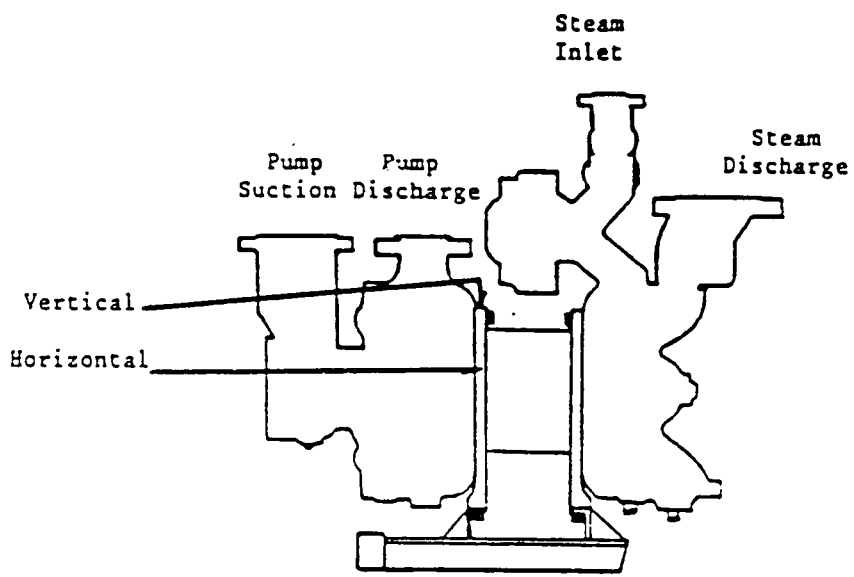
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.16.2	Disch. Press. PI-1426 PSIG	1280	N/A
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	855	N/A
7.2.17	Feed to Steam ΔP, PSI (1)	425	≥310
7.2.19	Pump Turbine Speed, RPM	As Found As Left	≤9550 ≥9400
7.2.20	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1550	N/A
	Pump Suct. Press. PI-1478, PSIG	4.5	≥2.0
	Header Press PI-1421B, PSIG	1550	N/A
	Oil Press to Regulator, PSIG	22	N/A
	Oil Press from Regulator, PSIG	7.5	N/A
	Oil Temp to Cooler, °F	120	N/A
	Oil Temp. from Cooler, °F	100	N/A
	Cooling Water Outlet Temp.	59	N/A
	Vibration Mils*	Horizontal Vertical	0.8 0.6
7.2.21	Pump ΔP, PSI, (2)	1545.5	≥1412 ≤1548

2450 0255

Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)
(2) Pump ΔP - [Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>MM</u>	<u>M JONES</u>	<u>3-15-88</u>
	<u>BCW</u>	<u>BILL WALDSMITH</u>	<u>15 Mar 88</u>
	<u>TC</u>	<u>KODA SMITH</u>	<u>3/16/88</u>
	_____	_____	_____

Test Complete: Date 3/16/88 Time 0122

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 3-16-88 Time 0210
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 3-22-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 3/29/88
ISI Coordinator

2450 0250

3.0

PREREQUISITES (Continued)

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

Steve Allen

(Print)

Steve Allen

Signature

4-18-88

Date

3.5

The Shift Foreman has given his permission to conduct this test.

[Signature]

Shift Foreman

4-18-88

Date

4.0

PRECAUTIONS AND LIMITATIONS

4.1

Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2

Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3

The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4

Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5

After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

1355

2493

6

SDAFW PUMP DATA

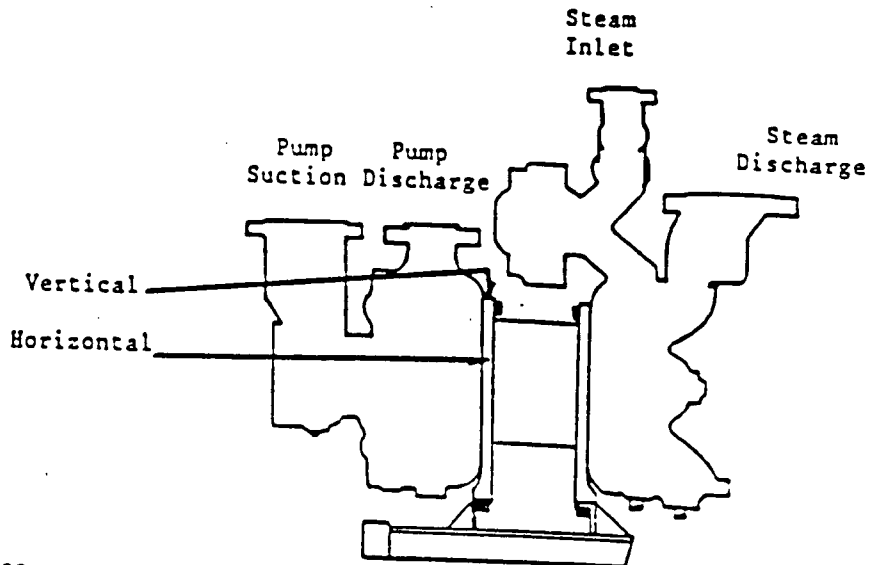
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.16.2	Disch. Press. PI-1426 PSIG	1190	N/A	
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	880	N/A	
7.2.17	Feed to Steam ΔP, PSI (1)	310	≥310	
7.2.19	Pump Turbine Speed, As Found RPM	9400	≥9550	
7.2.20	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1540	N/A	
	Pump Suct. Press. PI-1478, PSIG	3.1	≥2.0	
	Header Press PI-1421B, PSIG	1550	N/A	
	Oil Press to Regulator, PSIG	20	N/A	
	Oil Press from Regulator, PSIG	7.5	N/A	
	Oil Temp to Cooler, °F	123	N/A	
	Oil Temp. from Cooler, °F	107	N/A	
	Cooling Water Outlet Temp.	78	N/A	
	Vibration Mils*	Horizontal	.38	≤1.2
		Vertical	.25	≤1.0
7.2.21	Pump ΔP, PSI, (2)	1536.9	≥1412 ≤1548	

1370
2493

- Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)
 (2) Pump ΔP - [(Discharge Press (Reg. Isolated)) - (Suct. Press)]

Vibration Data Points

*To be taken after 15 minutes of operation.



**SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM**

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	Initials	Name (Print)	Date
	<u>DA</u>	<u>David A. Cook</u>	<u>4/15/88</u>
	<u>AM</u>	<u>Steve A. Lee</u>	<u>4-18-88</u>
	<u>HW</u>	<u>WA Wingard</u>	<u>4/19/88</u>

Test Complete: Date 4-18-88 Time 1545

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 4/18/88 Time 1545
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) ump run > 30 min
due to CS7-704; sensors were led after 30 min run

Approved by: [Signature] Date 4-17-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 4/19/88
ISI Coordinator

2493 1373

253301345

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Mark Robardt (Print) Mark Robardt Signature 5-17-88 Date

3.5 The Shift Foreman has given his permission to conduct this test.

CM Waters Shift Foreman 5/17/88 Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

SDAFW PUMP DATA

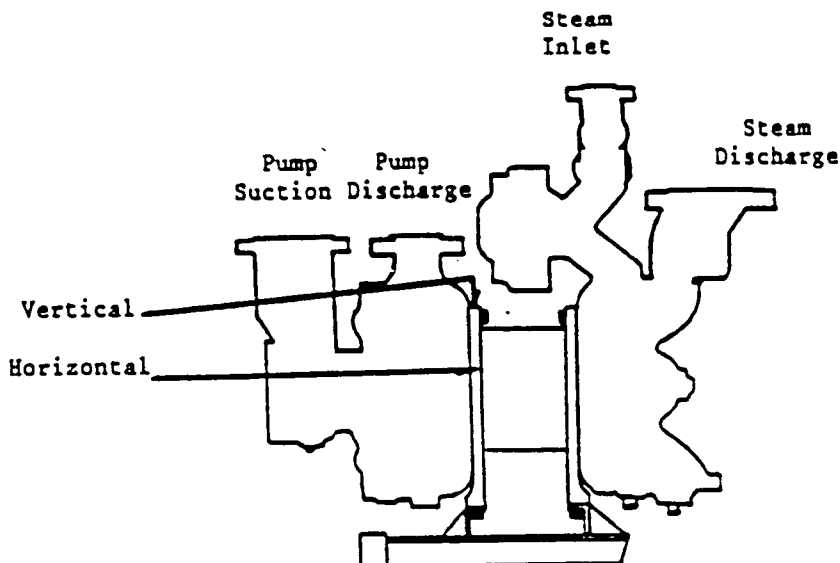
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.16.2	Disch. Press. PI-1426 PSIG	1250	N/A
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	800	N/A
7.2.17	Feed to Steam ΔP, PSI (1)	450	≥310
7.2.19	Pump Turbine Speed, RPM	As Found 9450 As Left 9450	≤9550 ≥9400
7.2.20	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1540	N/A
	Pump Suct. Press. PI-1478, PSIG	3	≥2.0
	Header Press PI-1421B, PSIG	1550	N/A
	Oil Press to Regulator, PSIG	20	N/A
	Oil Press from Regulator, PSIG	8	N/A
	Oil Temp. to Cooler, °F	132	N/A
	Oil Temp. from Cooler, °F	115	N/A
	Cooling Water Outlet Temp.	84	N/A
	Vibration Mils*	Horizontal Vertical	1.0 0.4
7.2.21	Pump ΔP, PSI, (2)	1537	≥1412 ≤1548

1 3 6 0
2 5 3 3

Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)
(2) Pump ΔP - [(Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>Jew</u>	<u>M. Robinson</u>	<u>5-17-88</u>
	<u>[Signature]</u>	<u>P.M. Duchock</u>	<u>5-17-88</u>
	<u>[Signature]</u>	<u>K. DARWIN</u>	<u>5/17/88</u>

Test Complete: Date 5/17/88 Time 2230

Test Satisfactory: Yes No (Circle one)

Reviewed by: [Signature] Date 5/17/88 Time 2300
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) FT 1426A AND FT 1426C
FAULT LINES WILL NOT CLEAN UNOTE W/L # 88-AFT41. DST 202 WAS SATISFACTORY
WITH THE EXCEPTION OF THE FAULT LINES ON FT1426A & C.

Approved by: [Signature] Date 5-24-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 5/31/88
ISI Coordinator

2 5 3 3 1 3 6 3

25600487

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

T. Hocutt (Print) T. Hocutt 6/17/88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 6-17-88
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

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SDAFW PUMP DATA

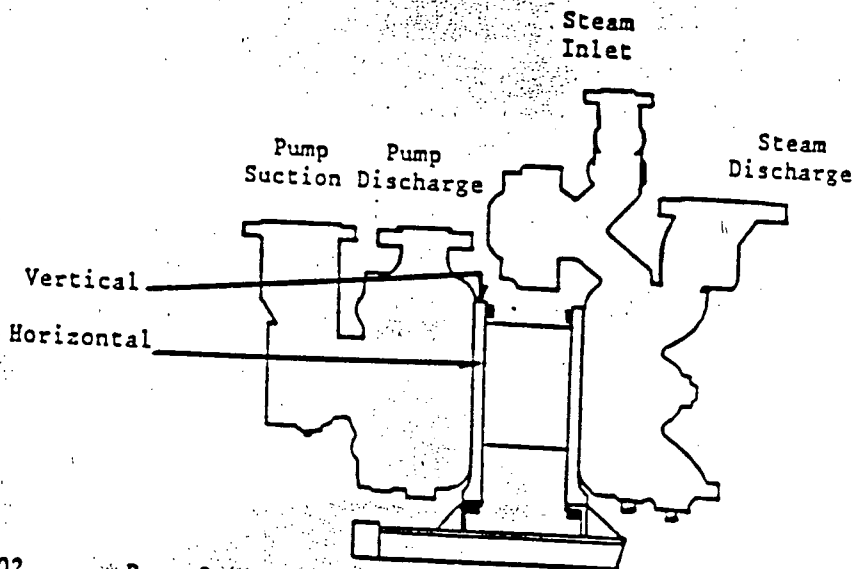
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.16.2	Disch. Press. PI-1426 PSIG	1200	N/A
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	790	N/A
7.2.17	Feed to Steam ΔP, PSI (1)	410	≥310
7.2.19	Pump Turbine Speed, RPM As Found	4325	≤9550
	As Left	4420-9420	≥9400
7.2.20	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1580	N/A
	Pump Suct. Press. PI-1478, PSIG	4.0	≥2.0
	Header Press PI-1421B, PSIG	1550	N/A
	Oil Press to Regulator, PSIG	2.0	N/A
	Oil Press from Regulator, PSIG	7.0	N/A
	Oil Temp to Cooler, °F	135	N/A
	Oil Temp. from Cooler, °F	120	N/A
	Cooling Water Outlet Temp.	100	N/A
7.2.21	Vibration Mils* Horizontal	.8	≤1.2
	Vertical	.5	≤1.0
	Pump ΔP, PSI, (2)	(1576) 546	≥1412 ≤1548

25680502

Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)
 (2) Pump ΔP = [Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	Initials	Name (Print)	Date
	<u>TDH</u>	<u>H.A. SWINGER</u>	<u>6/17/88</u>
	<u>P</u>	<u>T. D. Hocutt</u>	<u>6/17/88</u>
	<u>MS</u>	<u>W. CURTIS</u>	<u>6-17-88</u>
		<u>R. O. Moore</u>	<u>6-17-88</u>

Test Complete: Date 6/17/88 Time 1846

Test Satisfactory: Yes No (Circle one)

Reviewed by: [Signature] Date 6-17-88 Time 1900
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory)
ⓐ Pump was run for more than 30 minutes in order to get engineering data while feeding steam generators.
ⓑ SDAW pump declared inoperable at 1900 hrs due to High Pump DP.

Approved by: [Signature] Date 6-24-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 6/29/88
ISI Coordinator

0505

2563

2 5 7 2 1 3 7 9

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Rich Bernell (Print) *Rich Bernell* 6/17/88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 6-17-88
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

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SDAF PUMP DATA

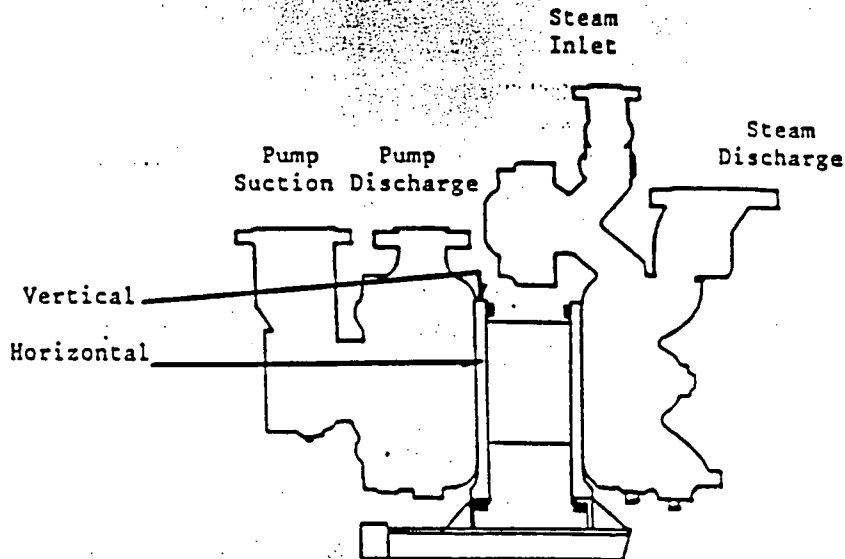
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.16.2	Disch. Press. PI-1426 PSIG	1270	N/A
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	845	N/A
7.2.17	Feed to Steam ΔP, PSI (1)	425	≥310
7.2.19	Pump Turbine Speed, As Found RPM As Left	9350 9100	≤9550 ≥9400
7.2.20	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1540	N/A
	Pump Suct. Press. PI-1478, PSIG	4.2	≥2.0
	Header Press PI-1421B, PSIG	1560	N/A
	Oil Press to Regulator, PSIG	22	N/A
	Oil Press from Regulator, PSIG	7.5	N/A
	Oil Temp to Cooler, °F	136	N/A
	Oil Temp. from Cooler, °F	122	N/A
	Cooling Water Outlet Temp.	98	N/A
	Vibration Horizontal	1.5	≤1.2
	Vibration Vertical	0.8	≤1.0
7.2.21	Pump ΔP, PSI, (2)	1535.8	≥1412 ≤1548

2572
1391

Calculations: (1) Feed to Steam ΔP = (Discharge Press) - (Steam Inlet Press)
(2) Pump ΔP - [Discharge Press (Reg. Isolated)] - (Suct. Press)

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) Test performed in place SDAFW pump back in service. Pages 1-17, 21, 22, 24
Att. 8.2 NA's due to testing done on previous 202

Test Performed by	Initials	Name (Print)	Date
	<u>DBS</u>	<u>Rick Burnell</u>	<u>6-17-88</u>
	<u>SM</u>	<u>Shirley Allen</u>	<u>6-17-88</u>
	<u>B</u>	<u>D Billings</u>	<u>6-17-88</u>

Test Complete: Date 6-17-88 Time 2255

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 6-17-88 Time 2330
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) SDAFW pump back
checked Page 16 Step 7.2.27 AMT-1426C
work request # 88-ABQIP-1 submitted

Approved by: [Signature] Date 6-24-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 6/29/88
ISI Coordinator

2572 / 1393

3.0

PREREQUISITES (Continued)

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

R.P. FEMAL (Print)

Name

R.P. F
Signature

7-19-88
Date

3.5

The Shift Foreman has given his permission to conduct this test.

R.P. F
Shift Foreman

Shift Foreman

7-19-88
Date

4.0

PRECAUTIONS AND LIMITATIONS

4.1

Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2

Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3

The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4

Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5

After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

00714
2603

SDAFW PUMP DATA

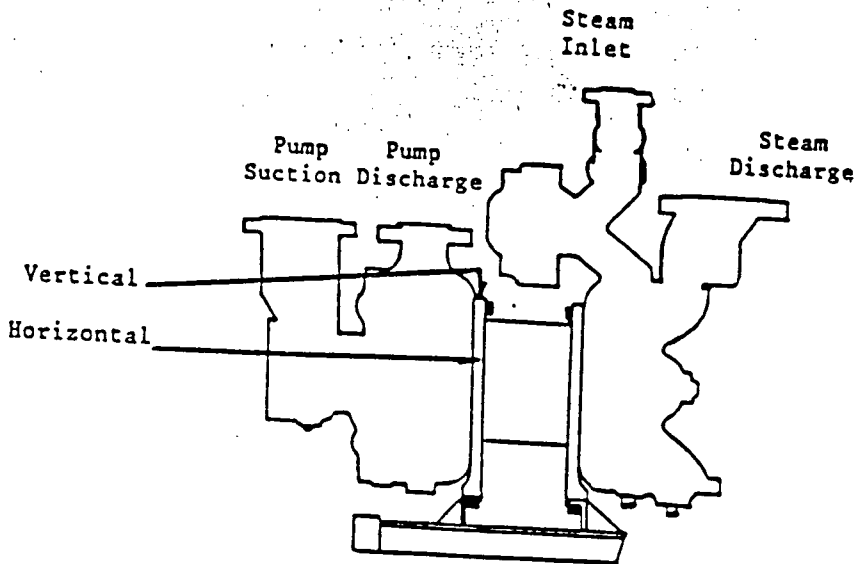
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.16.2	Disch. Press. PI-1426 PSIG	780	N/A	
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	810	N/A	
7.2.17	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	30	≥310	
7.2.19	Pump Turbine Speed, As Found RPM	9500	≤9550	
7.2.20	Header Press. PI-1421B, PSIG	9500	≥9400	
	Oil Press. to Regulator, PSIG	1570	N/A	
	Oil Press. from Regulator, PSIG	20	N/A	
	Oil Temp. to Cooler, °F	115	N/A	
	Oil Temp. from Cooler, °F	136	N/A	
	Cooling Water Outlet Temp.	124	N/A	
	Vibration Mils*	Horizontal	48	N/A
		Vertical	55	≤1.2
		Disch. Press. PI-1426, PSIG (Reg. Isolated)	136	≤1.0
		Pump Suct. Press. PI-1478, PSIG	1560	N/A
7.2.21	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	1.5	≥2.0	
		1538.5	≥1412 ≤1548	

*
*

CSI 54%

Vibration Data Points

*To be taken after 15 minutes of operation.



26030089

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

0092
2603

Test Performed by	Initials	Name (Print)	Date
	MS	D. Billings	7-20-88
	CP	M.S. RADLIFF	7-20-88
	MB	C. Pritchard	7-20-88
	MB	R. Haley	7-20-88

Test Complete: Date 7/20/88 Time 0300

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature]
Unit 2 - Shift Foreman Date 7-20-88 Time 0330


Comments: (Required if results were unsatisfactory) DIP unannounced due to low Disch and steam inlet press. After isol Regulator and then unisolating Regulator Pressures were 1100 for Disch and 720 for steam inlet. Pump suction while isolated was 1.5", unisolated was 2.0" Air Regulator press unisolated was 37# WPs BR-AHLZ1 and BR-AHMA1 for pump controller and FI-M2CA respectively.

Approved by: [Signature]
Unit 2 - Operating Supervisor Date 7-25-88

Reviewed by: [Signature]
ISI Coordinator Date 8/5/88

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

W.E. STOVER (Print)  8-16-88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

 8-16-88
Shift Foreman Date

26211048

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

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SBAFW PUMP DATA

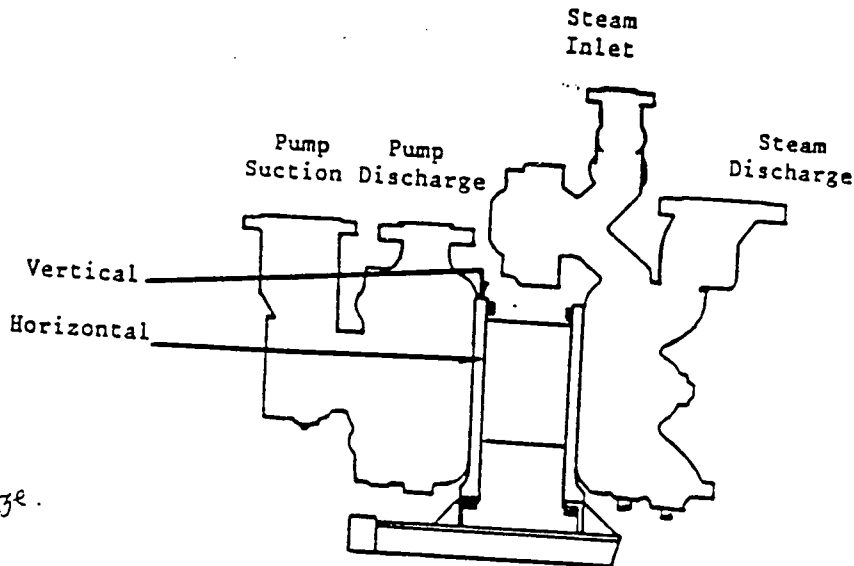
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.16.2	Disch. Press. PI-1426 PSIG	1530	N/A	
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	775	N/A	
7.2.17	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	755	≥310	
7.2.19	Pump Turbine Speed, RPM	As Found 9300	≤9550	
7.2.20	Header Press PI-1421B, PSIG	As Left 9500	≥9400	
	Oil Press to Regulator, PSIG	1575	N/A	
	Oil Press from Regulator, PSIG	20	N/A	
	Oil Temp to Cooler, °F	7.2	N/A	
	Oil Temp. from Cooler, °F	144	N/A	
	Cooling Water Outlet Temp.	128	N/A	
	Vibration Mils*	Horizontal	1.0	N/A
		Vertical	0.5	≤1.2
	7.2.21	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1.7	≤1.0
		Pump Suct. Press. PI-1478, PSIG	1530	N/A
7.2.21	Pump ΔP, PSI,	3.0	≥2.0	
	Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	1527	≥1412 ≤1548	

3
9
0
1

1
2
9
2

Vibration Data Points

*To be taken after 15 minutes of operation.



⊙ Alert range.

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>WET</u>	<u>W.E. STONE</u>	<u>8-16-88</u>
	<u>DM</u>	<u>David A. Cook</u>	<u>8/17/88</u>
	<u>TDH</u>	<u>Tilmon D. Hocutt</u>	<u>8/17/88</u>
	<u>D</u>	<u>W. CARTRIGHT</u>	<u>8-17-88</u>
	<u>Tom</u>	<u>L.A. WINGER</u>	<u>8/17/88</u>

Test Complete: Date 8/17/88 Time 0205

Test Satisfactory: Yes / No (Circle one)

Reviewed by: E. McCall Date 8/17/88 Time 0245
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____
Horiz. vibs on SP AFW Pump is in the alert range.
FT-1426A has a fault light that will not clear.
TT # 88-AIM X 1. All other acceptance criteria met.

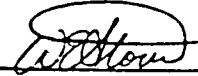
Approved by: ED Deloach Date 8-26-88
Unit 2 - Operating Supervisor

Reviewed by: W. McCutcher Date 8/17/88
ISI Coordinator


2621
1066

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

W.F. Stock (Print)  8/17/89
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

 8/17/89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

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2621 1072

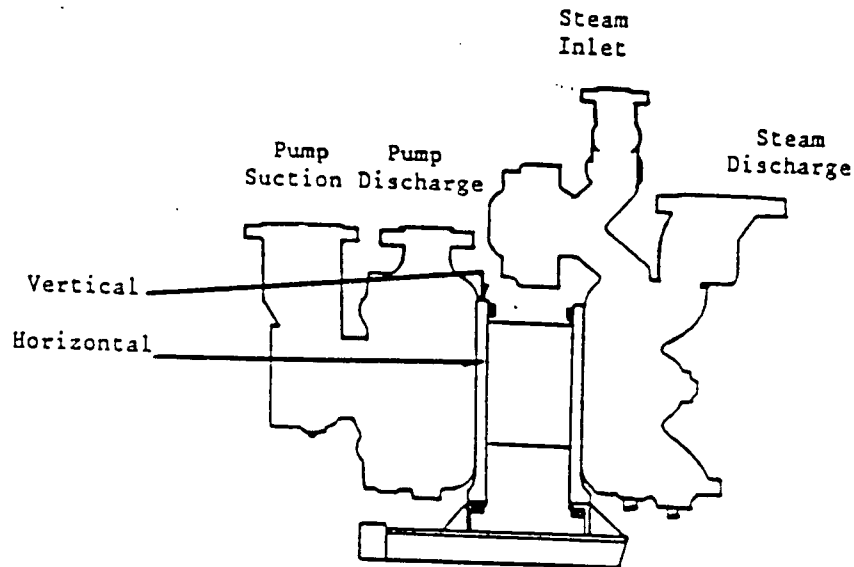
SDAEW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.16.2	Disch. Press. PI-1426 PSIG	1520	N/A	
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	775	N/A	
7.2.17	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	745	≥310	
7.2.19	Pump Turbine Speed, RPM	As Found 9500	≤9550	
7.2.20	Header Press PI-1421B, PSIG	As Left 9500	≥9400	
	Oil Press to Regulator, PSIG	1500	N/A	
	Oil Press from Regulator, PSIG	2	N/A	
	Oil Temp to Cooler, °F	75	N/A	
	Oil Temp. from Cooler, °F	145	N/A	
	Cooling Water Outlet Temp.	120	N/A	
	Vibration Mils*	Horizontal	103	N/A
		Vertical	1.2	≤1.2
		Disch. Press. PI-1426, PSIG (Reg. Isolated)	0.9	≤1.0
		Pump Suct. Press. PI-1478, PSIG	1490	N/A
7.2.21	Pump ΔP, PSI,	3.0	≥2.0	
	Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	1487	≥1412 ≤1548	

1087
2521

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) All PAGES USED To RUN SDAFW Pump FOR VIBRATION ANALYSIS. (P. 1-24)

2 6 2 1
1 0 9 0

Test Performed by	Initials	Name (Print)	Date
	<u>TH</u>	<u>M. J. KURPIS</u>	<u>17 AUG 88</u>
	<u>RM</u>	<u>R. P. [unclear]</u>	<u>17 AUG 88</u>
	<u>WJ</u>	<u>W. E. STOWER</u>	<u>8-17-88</u>
	<u>MC</u>	<u>M. W. KIRK</u>	<u>17 AUG 88</u>

Test Complete: Date 8-17-88 Time 1311

Test Satisfactory: Yes No (Circle one)

Reviewed by: [Signature] Date 8-17-88 Time 1548
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory)

Approved by: [Signature] Date 8-26-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 8/18/88
ISI Coordinator

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

B. MULLIGAN (Print) B. Mulligan 8-29-88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 8-29-88
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

- 4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.
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2653 1902

SDAFW PUMP DATA

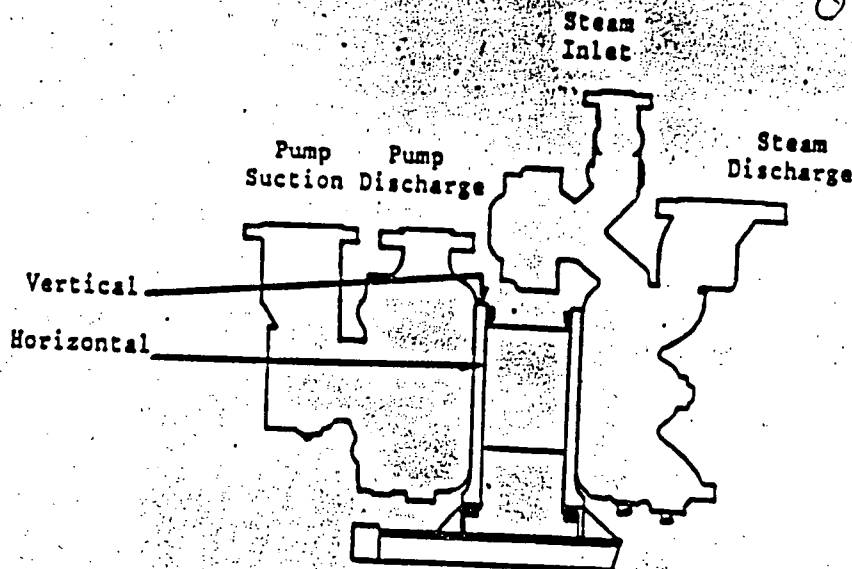
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.16.2	Disch. Press. PI-1426 PSIG	1500	N/A
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	780	N/A
7.2.17	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	720	≥310
7.2.19	Pump Turbine Speed, RPM As Found	9200	≤9550
7.2.20	Header Press. PI-1421B, PSIG	7500	≥9400
	Oil Press. to Regulator, PSIG	1550	N/A
	Oil Press. from Regulator, PSIG	21	N/A
	Oil Temp. to Cooler, °F	7	N/A
	Oil Temp. from Cooler, °F	143	N/A
	Cooling Water Outlet Temp.	125	N/A
	Vibration Horizontal	9.6	N/A
	Vibration Vertical	1.5	≤1.2
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1550	≤1.0
	Pump Suct. Press. PI-1478, PSIG	1.2	≥2.0
7.2.21	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	1545.8 1445.8	≥1412 ≥1548

2653 119117

Vibration Data Points

*To be taken after 15 minutes of operation.

- ① SF Informed, speed was adjusted.
- ② SF Informed.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled (Circle one) Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) All pages used to run SAFES Pump Due To VIBRATIONS IN THE ALERT RANGE

2653 1920

Test Performed by	Initials	Name (Print)	Date
	<u>BM</u>	<u>B. Molligan</u>	<u>8-29-88</u>
	<u>WJL</u>	<u>RT. Davis</u>	<u>8-29-88</u>
	<u>mt</u>	<u>mi Arnold</u>	<u>29-Aug-88</u>
	<u>MA</u>	<u>M. GANN</u>	<u>8/29/88</u>
	<u>H</u>	<u>MW Success</u>	<u>8/29/88</u>

Test Complete: Date 8-29-88 Time 1016 ETAWEB

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 8-29-88 Time 1154
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) Stop 7.2.2
4.5 Spands, 0933 commenced feeding stops TT 88-ALXPI written
0932 commenced feeding stops Horizontal and Vertical vibrations are
within the ALERT Range on Page 21, Pump used to
Feed stops by ISI personnel to gather data
ON PUMP VIBRATIONS

Approved by: [Signature] Date 8-30-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 8/30/88
ISI Coordinator

0127
0542

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

C. Pritchard (Print) C. Pritchard 9-18-88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 9-18-88
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

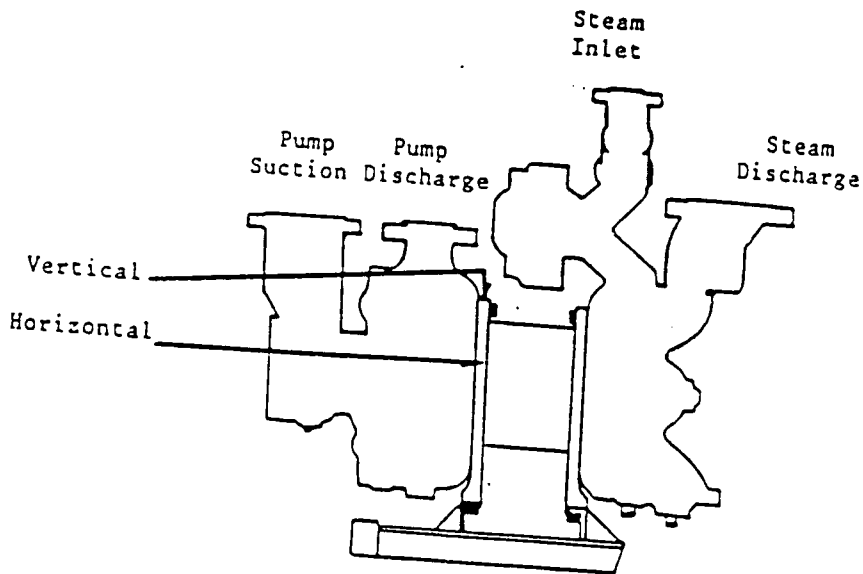
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.16.2	Disch. Press. PI-1426 PSIG		N/A	
7.2.16.2	Steam Inlet Press. PI-1357-2. PSIG	1520	N/A	
7.2.17	Feed to Steam ΔP, PSI, (Discharge Pressure Pi-1426) - (Steam Inlet Pressure PI-1357-2)	970	N/A	
7.2.19	Pump Turbine Speed, RPM	550	≥310	
7.2.20	Header Press PI-1421B, PSIG	As Found	≤9550	
		As Left	≥9400	
7.2.20	Oil Press to Regulator, PSIG	1550	N/A	
	Oil Press from Regulator, PSIG	21	N/A	
	Oil Temp to Cooler, °F	7	N/A	
	Oil Temp. from Cooler, °F	135	N/A	
	Cooling Water Outlet Temp.	120	N/A	
	Vibration Mils*	Horizontal	86	N/A
		Vertical	.9	≤1.2
		Disch. Press. PI-1426, PSIG (Reg. Isolated)	.9	≤1.0
	Pump Suct. Press. PI-1478, PSIG	1530	N/A	
7.2.21	Pump ΔP, PSI,	3.0	≥2.0	
	Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	1527	≥1412 ≤1548	

0143
0643

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) R - P - 6A-005

0143
0043
00

Test Performed by	Initials	Name (Print)	Date
	<u>WS</u>	<u>Larry D. Smith</u>	<u>9/19/88</u>
	<u>ML</u>	<u>M. Robardt</u>	<u>9-19-88</u>
	<u>PH</u>	<u>Pat Haley</u>	<u>9/19/88</u>
	<u>EM/LS</u>	<u>F.A. Schwan / D.B. Hines</u>	<u>9-19-88 / 9-19-88</u>

Test Complete: Date 9-19-88 Time 0802

Test Satisfactory: Yes / No (Circle one)

Reviewed by: D. M. C. Dill Date 9/19/88 Time 0815
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory)
Steam Driven Pump was run beyond 30 minutes with lead to
Steam Generators in compliance with OST-200

Approved by: D. Nelson Date 9-20-88
Unit 2 - Operating Supervisor

Reviewed by: W. M. C. Cutcheon Date 9/23/88
ISI Coordinator

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

M.S. RADCLIFF (Print) *M.S. Radcliff* 10-4-88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

D. McCall 10/4/88
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

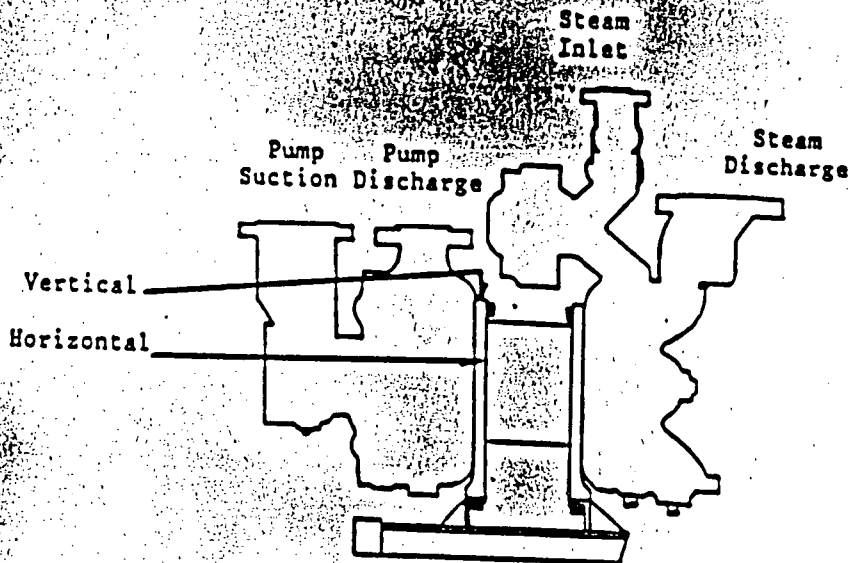
2653 0681

SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.16.2	Disch. Press. PI-1426 PSIG	1520	N/A
7.2.16.2	Steam Inlet Press. PI-1357-2 PSIG	790	N/A
7.2.17	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	730	2310
7.2.19	Pump Turbine Speed, RPM	9450	59550
7.2.20	Header Press. PI-1421B, PSIG	9450	29400
	Oil Press to Regulator, PSIG	1560	N/A
7.2.20	Oil Press from Regulator, PSIG	20	N/A
	Oil Temp to Cooler, °F	175	N/A
7.2.20	Oil Temp. from Cooler, °F	138	N/A
	Cooling Water Outlet Temp.	122	N/A
7.2.20	Vibration Horizontal Milg*	84	N/A
	Vibration Vertical Milg*	2.2	≤1.2
7.2.20	Disch. Press. PI-1426, PSIG (Reg. Isolated)	0.88	≤1.0
	Pump Suct. Press. PI-1478, PSIG	1550	N/A
7.2.21	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	3.5	22.0
		1546.5 1542.5 1540.48	21412 21548

Vibration Data Points

*To be taken after 15 minutes of operation.



2650 0699

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test scheduled due to identified frequency
as a result of vibration in the alert range on
previous test (pages 1-24)

0702
2658

Test Performed by	Initials	Name (Print)	Date
	<u>MSA</u>	<u>M.S. RADCLIFF</u>	<u>10-4-88</u>
	<u>(A)</u>	<u>P.M. D... ..</u>	<u>10-4-88</u>
	<u>MM</u>	<u>B. Hale</u>	<u>10-4-88</u>

Test Complete: Date 10-4-88 Time 1130

Test Satisfactory: Yes No (Circle one)

Reviewed by: D. M. D. U. Date 10/4/88 Time 1245
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) WR # 88-ARJ61
Due to High Vibration 5th Floor AFW P-8

Approved by: [Signature] Date 10-5-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 10/10/88
ISI Coordinator

3.0 PREREQUISITES (Continued)

3.1 This revision is the latest revision available and has been verified against the Revision Status List.

Mark King (Print) [Signature] 1800728
Name Signature Date

3.2 The Shift Foreman has given his permission to conduct this test.

[Signature] 16-18-88
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 After the pump has run and is stopped, and the discharge valves closed, flashing of the empty and/or fault lights may occur. This is caused by turbulence due to voids that were formed and backleakage past the discharge valve seats. This condition is temporary and will clear.

11694
2605

SDAFW PUMP DATA

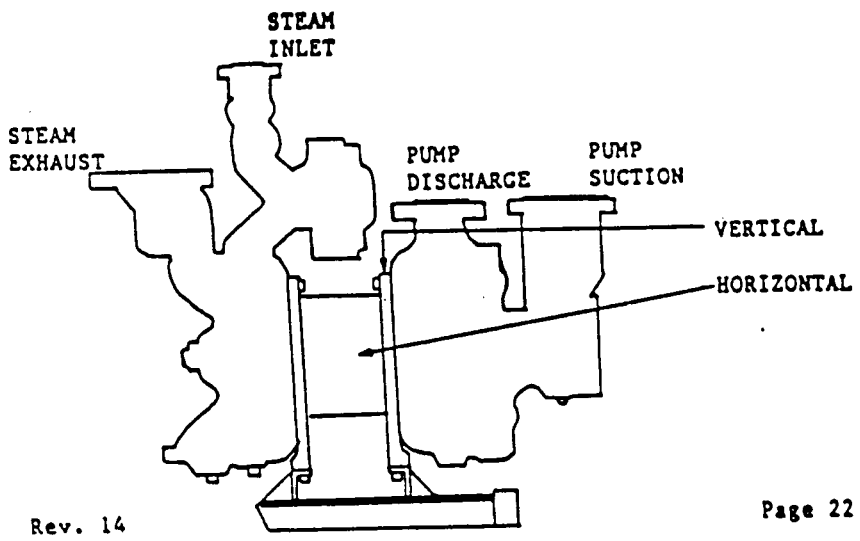
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.19.2	Disch. Press. PI-1426 PSIG	1530	N/A	
7.2.19.2	Steam Inlet Press. PI-1357-2. PSIG	842	N/A	
7.2.20	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	688	≥310	
7.2.22	Pump Turbine Speed, RPM	As Found	≤9550	
		As Left.	≥9400	
7.2.23	Header Press PI-1421B, PSIG	1500	N/A	
	Oil Press to Regulator, PSIG	21	N/A	
	Oil Press from Regulator, PSIG	7.4	N/A	
	Oil Temp to Cooler, °F	140	N/A	
	Oil Temp. from Cooler, °F	130	N/A	
	Cooling Water Outlet Temp.	92	N/A	
	Vibration Mils*	Horizontal	.9	≤3.0
		Vertical	.7.0	≤1.4
	Vibration in/sec*	Horizontal	(1) .17	N/A
Vertical		(1) .21	N/A	
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1590	N/A	
	Pump Suct. Press. PI-1478, PSIG	5.4	≥2.0	
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	1524.6	≥1412 ≤1548	

1710
2685

(1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>AM</u>	<u>A.M. MUSER</u>	<u>10-19-88</u>
	<u>BTM</u>	<u>B. M. MULLIGAN</u>	<u>10-19-88</u>
	<u>m</u>	<u>max kirk</u>	<u>12 OCT 88</u>

Test Complete: Date 10-19-88 Time 0174

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 10-19-88 Time 0621
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) Component FERRING
S/G B 5041, 110000 REPAIR S/G B AT 0412 i W/R 98 AHWEL
WAS INSTALLED ON AMT-1426 B FOR FAULT LIGHT THAT
WAS NOT OPERABLE ON STOP 7.2.29 - AMT-
1426 B DECLARED INOPERABLE AT 0412 HOURS

Approved by: [Signature] Date 10-27-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 11/4/88
ISI Coordinator

1713
2685

2 9 1 1 1 0 3 4

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

DAN AKERS (Print) *Dan Akers* 2/10/89
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 2-10-89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

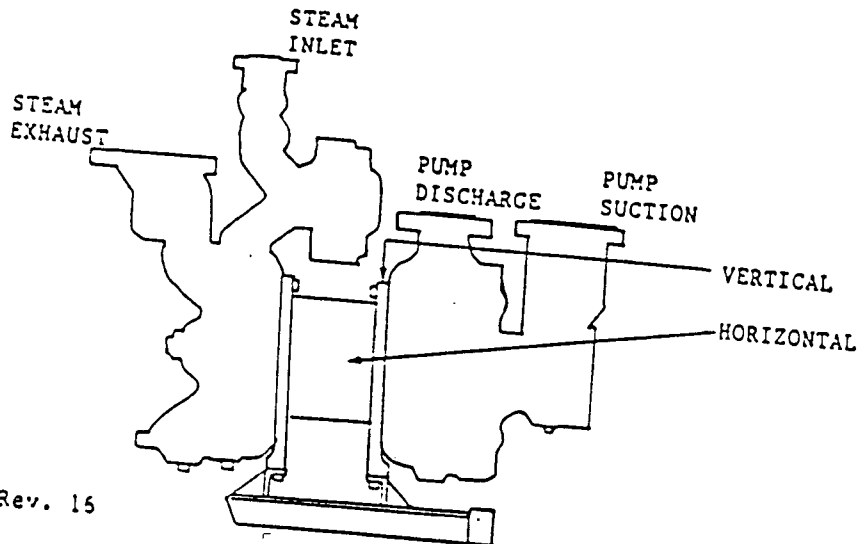
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.19.2	Disch. Press. PI-1426 PSIG	109 4/14/89 1255/290	N/A
7.2.19.2	Steam Inlet Press. PI-1357-2. PSIG	970	N/A
7.2.20	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	320	≥310
7.2.22	Pump Turbine Speed, RPM	As Found 9600	≤9550
7.2.23	Header Press PI-1421B, PSIG	As Left 9450	≥9400
	Oil Press to Regulator, PSIG	1500	N/A
	Oil Press from Regulator, PSIG	21	N/A
	Oil Temp to Cooler, °F	2	N/A
	Oil Temp. from Cooler, °F	110	N/A
	Cooling Water Outlet Temp.	90	N/A
	Vibration Mils*	Horizontal 54	N/A
		Vertical 89	≤3.0
	Vibration in/sec*	Horizontal (1) 0.50	≤1.4
		Vertical (1) 0.26	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	(1) 0.19	N/A
	Pump Suct. Press. PI-1478, PSIG	1480	N/A
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	3.1	≥2.0
		1476.9	≥1412 ≤1548

(1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>DD</u>	<u>DAN AYERS</u>	<u>2/10/89</u>
	<u>DM</u>	<u>D. MULLIGAN</u>	<u>2-10-89</u>
	<u>MLA</u>	<u>Martini. Arnold</u>	<u>2-10-89</u>

Test Complete: Date 2/10/89 Time 1330

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 2-10-89 Time 16:50
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____
Scheduled per 01-015

Approved by: [Signature] Date 2/13/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 2/22/89
ISI Coordinator

2061112

2854 0970

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

B. Molligan (Print) B. Molligan 2-24-89
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

D. McDell 2-24-89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

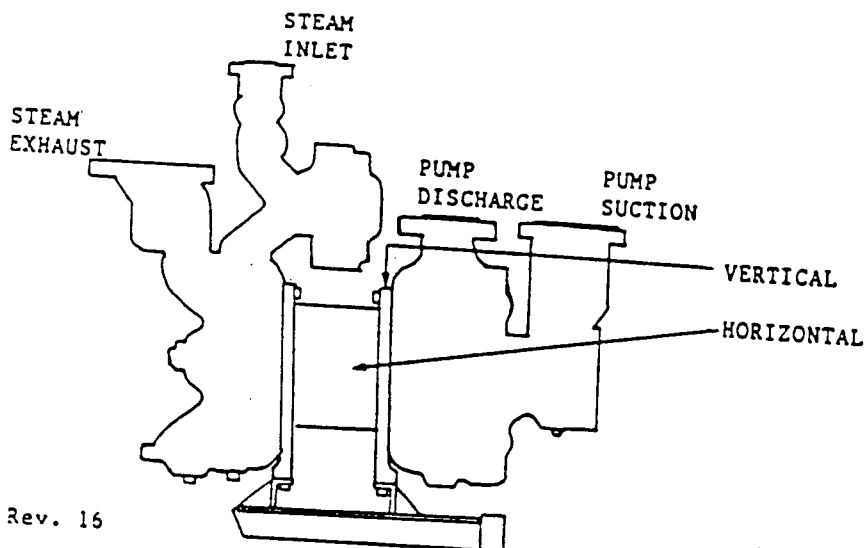
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.19.2	Disch. Press. PI-1426 PSIG		N/A
7.2.19.2	Steam Inlet Press. PI-1357-2. PSIG	1490	N/A
7.2.20	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	980	≥310
7.2.22	Pump Turbine Speed, RPM	As Found 9400	≤9550
7.2.23	Header Press PI-1421B, PSIG	As Left 9400	≥9400
	Oil Press to Regulator, PSIG	1500	N/A
	Oil Press from Regulator, PSIG	20	N/A
	Oil Temp to Cooler, °F	8	N/A
	Oil Temp. from Cooler, °F	112	N/A
	Cooling Water Outlet Temp.	90	N/A
	Vibration Mils* Horizontal	110	N/A
	Vibration Mils* Vertical	.55	≤3.0
	Vibration in/sec* Horizontal	.6	≤1.4
	Vibration in/sec* Vertical	(1) .15	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	(1) .15	N/A
	Pump Suct. Press. PI-1478, PSIG	1490	N/A
	Pump ΔP, PSI,	3.5	≥2.0
7.2.24	Disch. Press. PI-1426 (Reg. Isolated). Pump Suct. Press. PI-1478	1486.5	≥1412 ≤1548

(1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.

Vibration Data Points

*To be taken after 15 minutes of operation.



20640985

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) All pages.

stopwatch serial # 488-4 Cal. DATE 2-1-25-89
Return SD AFU pump to service.

Test Performed by	Initials	Name (Print)	Date
	<u>MTN</u>	<u>M S. RAMLUFF</u>	<u>2-24-89</u>
	<u>BTM</u>	<u>B. MULLIGAN</u>	<u>2-24-89</u>
	<u>u</u>	<u>J F METTS</u>	<u>2-24-89</u>
	<u>m</u>	<u>M W KIRK</u>	<u>2-24-89</u>

Test Complete: Date 2/24/89 Time 1630

Test Satisfactory: Yes / No (Circle one)

Reviewed by: D. M. Dill Date 2/24/89 Time 1640
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) Bm 2-24-89
sol Bm 2-24-89 IT 88-AIKYI written

Approved by: J. R. Stala Date 3-23-89
Unit 2 - Operating Supervisor

Reviewed by: W. McCutcheon Date 3/24/89
ISI Coordinator

2864 0988

2854 0994

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

M.G. Kiar (Print) [Signature] 21 MAR 89
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

D. McDill 3/21/89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

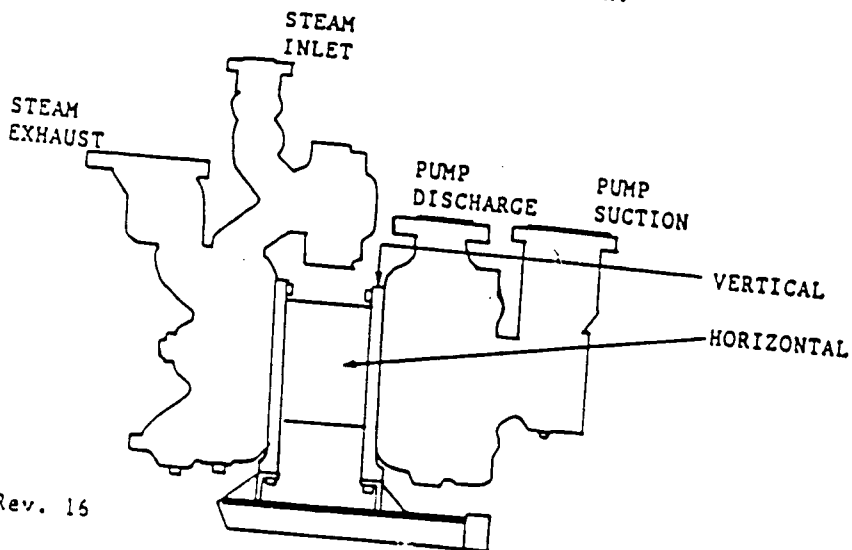
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.19.2	Disch. Press. PI-1426 PSIG		N/A
7.2.19.2	Steam Inlet Press. PI-1357-2. PSIG	1480	N/A
7.2.20	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	780	N/A
7.2.22	Pump Turbine Speed, RPM	700	≥310
7.2.23	Header Press PI-1421B, PSIG	As Found 9400	≤9550 ≥9400
	Oil Press to Regulator, PSIG	1550	N/A
	Oil Press from Regulator, PSIG	22	N/A
	Oil Temp to Cooler, °F	8	N/A
	Oil Temp. from Cooler, °F	121	N/A
	Cooling Water Outlet Temp.	103	N/A
	Vibration Mils*	Horizontal	N/A
		Vertical	1.2
	Vibration in/sec*	Horizontal	≤3.0
		Vertical	0.7
		(1) .17	≤1.4
		(1) .19	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)		N/A
	Pump Suct. Press. PI-1478, PSIG	1540	N/A
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	3.6	≥2.0
		1536.4	≥1412 ≤1548

(1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.

Vibration Data Points

*To be taken after 15 minutes of operation.



2064 1009

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>JKH</u>	<u>M. GANN</u>	<u>3/22/89</u>
	<u>AK</u>	<u>M.W. KIRK</u>	<u>22 MAR 89</u>
	<u>TS</u>	<u>M.S. RADCLIFF</u>	<u>3-22-89</u>
	<u>JK</u>	<u>J.F. METTS</u>	<u>3-22-89</u>
	<u>AK</u>	<u>R. Haley</u>	<u>5-22-89</u>

Test Complete: Date 3/22/89 Time 0505

Test Satisfactory: Yes / No (Circle one)

Reviewed by: D. M. G. [Signature] Date 3/22/89 Time 0630
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____
Stopwatch used for this OST wa. HBR #5.

Approved by: Bob Steele [Signature] Date 3-21-89
Unit 2 - Operating Supervisor

Reviewed by: W. McCubbin [Signature] Date 4/10/89
ISI Coordinator

2864 1012

2:77 1704

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

E. Loyette (Print) [Signature] 4-18-89
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 4-18-89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

SDAFW PUMP DATA

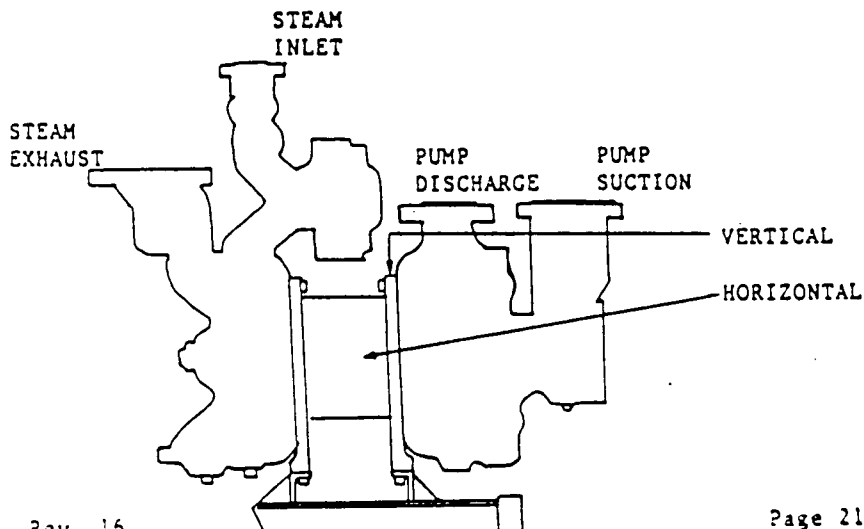
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.19.2	Disch. Press. PI-1426 PSIG	1520	N/A	
7.2.19.2	Steam Inlet Press. PI-1357-2. PSIG	800	N/A	
7.2.20	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	720	≥310	
7.2.22	Pump Turbine Speed, RPM	As Found	4500	
		As Left	9500	
7.2.23	Header Press PI-1421B, PSIG	1540	N/A	
	Oil Press to Regulator, PSIG	22	N/A	
	Oil Press from Regulator, PSIG	7.5	N/A	
	Oil Temp to Cooler, °F	135	N/A	
	Oil Temp. from Cooler, °F	120	N/A	
	Cooling Water Outlet Temp.	94	N/A	
	Vibration Mils*	Horizontal	1.0	≤3.0
		Vertical	0.8	≤1.4
	Vibration in/sec*	Horizontal	(1) 0.22	N/A
		Vertical	(1) 0.25	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1540	N/A	
	Pump Suct. Press. PI-1478, PSIG	2.0	≥2.0	
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	1538	≥1412 ≤1548	

2 8 7 7 1 7 1 9

(1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>M</u>	<u>M. Robandt</u>	<u>4-19-89</u>
	<u>HW</u>	<u>H. C. Fletcher</u>	<u>4-19-89</u>
	<u>f</u>	<u>F. Legette</u>	<u>4-19-89</u>
	<u>SW</u>	<u>White</u>	<u>4/19/89</u>

Test Complete: Date 4/19/89 Time 0220

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 4-19-89 Time 02.50
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 4/19/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 4/24/89
ISI Coordinator

2 8 7 7 1 7 2 2

2389 0127

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

DAN AYERS (Print) *Dan Ayers* 5/16/89
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

CM/mtg 5/16/89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, but shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

SDAFW PUMP DATA

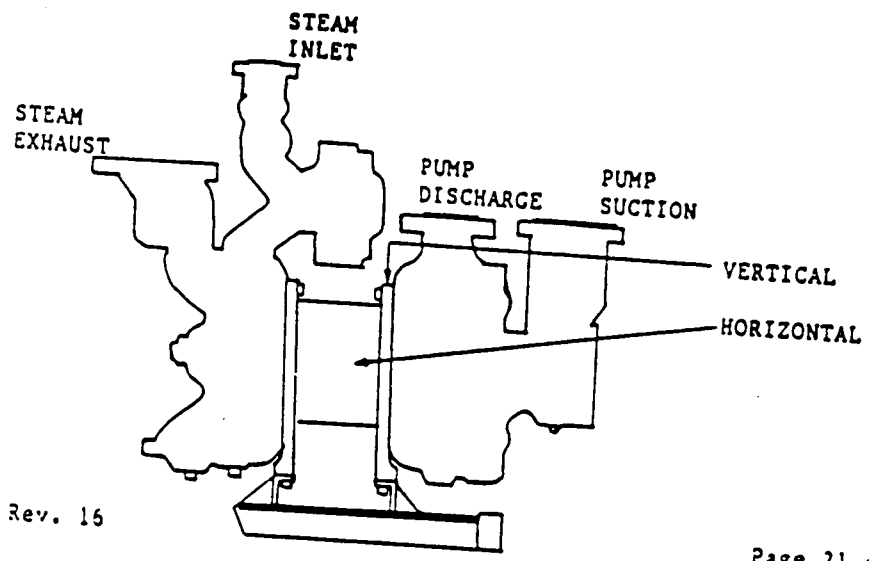
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA	
7.2.19.2	Disch. Press. PI-1426 PSIG		N/A	
7.2.19.2	Steam Inlet Press. PI-1357-2. PSIG	1530	N/A	
7.2.20	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	78.5	≥310	
7.2.22	Pump Turbine Speed, RPM	As Found 9350	≤9550	
7.2.23	Header Press PI-1421B, PSIG	As Left 9425	≥9400	
	Oil Press to Regulator, PSIG	1575	N/A	
	Oil Press from Regulator, PSIG	21	N/A	
	Oil Temp to Cooler, °F	7	N/A	
	Oil Temp. from Cooler, °F	130	N/A	
	Cooling Water Outlet Temp.	117	N/A	
	Vibration Mils*	Horizontal	80	N/A
		Vertical	6.5	≤3.0
	Vibration in/sec*	Horizontal	2.5	≤1.4
		Vertical	(1), 2	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	(1), 2 1530	N/A	
	Pump Suct. Press. PI-1478, PSIG	7550 R/S/17/89	N/A	
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	3.5 - 1526.5	≥2.0 ≥1412 ≤1548	

2389 0142

(1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

Test Performed by	Initials	Name (Print)	Date
	<u>JD</u>	<u>DAN AKERS</u>	<u>5/17/89</u>
	<u>W</u>	<u>K ORRWIN</u>	<u>5/17/89</u>
	<u>B</u>	<u>STEVE BIEDENBACH</u>	<u>5/17/89</u>
	<u>CMW</u>	<u>COMINGS</u>	<u>5/17/89</u>

Test Complete: Date 5/17/89 Time 0220
0220 Low strikes

Test Satisfactory: Yes / No (Circle one)

Reviewed by: CMW
Unit 2 - Shift Foreman Date 5/17/89 Time 0400

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature]
Unit 2 - Operating Supervisor Date 5/19/89

Reviewed by: W McCutcheon
ISI Coordinator Date 5/24/89

0145
2889

3.0

PREREQUISITES (Continued)

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

HCFletcher (Print) [Signature] 6-17-89
 Name Signature Date

3.5

The Shift Foreman has given his permission to conduct this test.

[Signature] 6-17-89
 Shift Foreman Date

4.0

PRECAUTIONS AND LIMITATIONS

4.1

Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2

Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3

The Steam Driven Pump shall be run for a minimum of 15 minutes, on recirc, before any pump data is recorded. Maintain recirc mode while obtaining data. This will allow heating between the casing and impeller to stabilize. Secure the pump after data is obtained to minimize run time while on recirc.

4.4

Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

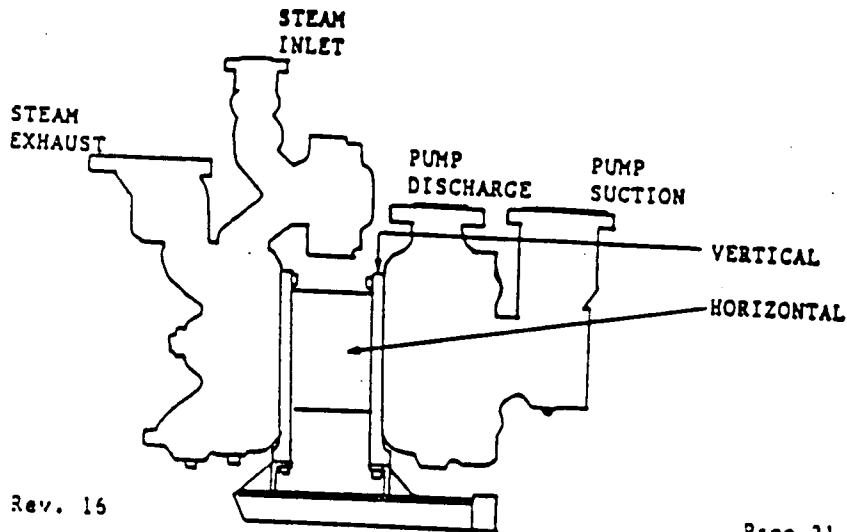
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.19.2	Disch. Press. PI-1426 PSIG	1590	N/A
7.2.19.2	Steam Inlet Press. PI-1357-2. PSIG	775	N/A
7.2.20	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	815	≥310
7.2.22	Pump Turbine Speed, RPM	As Found 9400	≥9350
7.2.23 1196	Header Press PI-1421B, PSIG	As Left 9450	≥9400
	Oil Press to Regulator, PSIG	1600	N/A
	Oil Press from Regulator, PSIG	20	N/A
	Oil Temp to Cooler, °F	7.5	N/A
	Oil Temp. from Cooler, °F	135	N/A
	Cooling Water Outlet Temp.	117	N/A
	Vibration Mils*	90	N/A
	Horizontal	1.5	≤3.0
	Vertical	0.75	≤1.4
	Vibration in/sec*	(1) 0.24 (1) 0.2	N/A
7.2.24	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1590	N/A
	Pump Suct. Press. PI-1478, PSIG	3.2	≥2.0
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated). Pump Suct. Press. PI-1478	1586.8	≥1412 ≤1548

(1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.

Vibration Data Points

*To be taken after 15 minutes of operation.



SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) OST performed on pump only as part of Maintenance trouble shooting, all pages included

Test Performed by	^{HTP} Initials	^{HCC/OTHER} Name (Print)	Date
	<u>B.M.</u>	<u>B. Mulligan</u>	<u>6-17-89</u>
	<u>[Signature]</u>	<u>F. Lesette</u>	<u>6-17-89</u>
	<u>[Signature]</u>	<u>M. Rabouett</u>	<u>6-17-89</u>
	<u>[Signature]</u>	<u>R.O. Moore</u>	<u>6-17-89</u>

Test Complete: Date 6-17-89 Time 0346

Test Satisfactory: Yes No (Circle one)

Reviewed by: [Signature] Date 6-17-89 Time 0442
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) ① Pump SP High in the Required Action Range, Pump WAS ALREADY declared inoperable due to Pump SP and Vibrations being in the Required Action Range on OST-206. Work Requests # 89-AFXZ1 and 89-AFXW1 have been submitted

Approved by: [Signature] Date 7/4/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 7/6/89
ISI Coordinator

1800 6/17/89 This test accepted IAW OMM-015.
See Attached sheet.

24

2933 1949

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

M.K. Conze (Print) M.K. Cloud 6-20-87
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

C. White 6/20/87
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, on recirc, before any pump data is recorded. Maintain recirc mode while obtaining data. This will allow heating between the casing and impeller to stabilize. Secure the pump after data is obtained to minimize run time while on recirc.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

SDAFW PUMP DATA

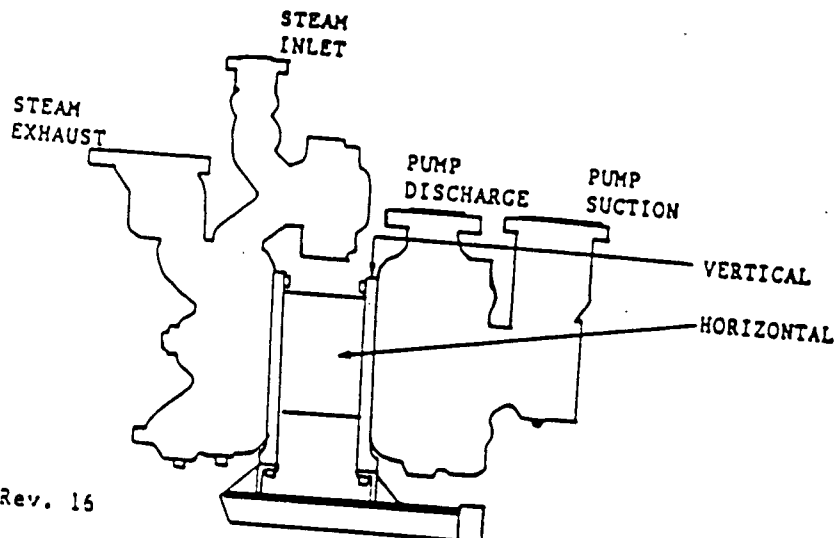
REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.19.2	Disch. Press. PI-1426 PSIG	1570	N/A
7.2.19.2	Steam Inlet Press. PI-1357-2. PSIG	780	N/A
7.2.20	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	790	≥310
7.2.22	Pump Turbine Speed, RPM	As Found 96cc (1)	≥9550
7.2.23	Header Press PI-1421B, PSIG	As Left 74cc	≥9400
	Oil Press to Regulator, PSIG	1500	N/A
	Oil Press from Regulator, PSIG	22	N/A
	Oil Temp to Cooler, °F	7.5	N/A
	Oil Temp. from Cooler, °F	136	N/A
	Cooling Water Outlet Temp.	119	N/A
	Vibration Mils*	Horizontal 96	N/A
		Vertical 0.8	≤3.0
	Vibration in/sec*	Horizontal (1) .28	≤1.4
		Vertical (1) .21	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1500	N/A
	Pump Suct. Press. PI-1478, PSIG		N/A
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	42	≥2.0
		1445.8	≥1412 ≤1548

(1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.

Vibration Data Points

(1) SEE COMMENTS

*To be taken after 15 minutes of operation.



2933 1964

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	Initials	Name (Print)	Date
	<u>TL</u>	<u>KOON SMITH</u>	<u>6/20/89</u>
	<u>Mc</u>	<u>M.K. Conrad</u>	<u>6/20/89</u>
	<u>RCI</u>	<u>RANDY C. JONES</u>	<u>6/20/89</u>
	<u>EV</u>	<u>L. WIEGAND</u>	<u>6-20-89</u>

Test Complete: Date 6-20-89 Time 1720

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 1989 Time 6/20/89
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) SK'S WERE FED AT
VARIOUS FLOW RATES AFTER STOP 7.2.25 FOR DATA COLLECTION BY
SYSTEMS ENGINEER
① PUMP SPEED FOUND @ 9000 RPM AND 11.1 @ 9400 WHICH IS
WITHIN ACCEPTANCE CRITERIA.

Approved by: [Signature] Date 7/4/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 7/6/89
ISI Coordinator

1967
2933

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

RAWLEY C IVEY (Print) Rawley C Ivey 7-18-89
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 7-18-89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, on recirc, before any pump data is recorded. Maintain recirc mode while obtaining data. This will allow heating between the casing and impeller to stabilize. Secure the pump after data is obtained to minimize run time while on recirc.

4.4 If the annual frequency bearing temperature test, EST-013 is due, then continue to run the pump on recirc. with instrument air isolated to the Masoneilan Pressure Controller until all data is collected for EST-013. When EST-013 is complete, then continue with this OST to complete the remaining steps.

4.5 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

0209
2955

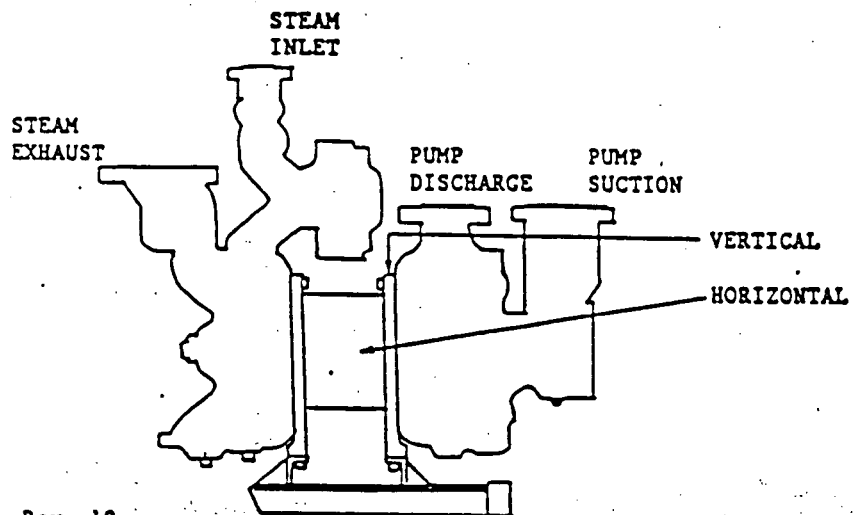
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.18.2	Disch. Press. PI-1426 PSIG	1500	N/A
7.2.18.2	Steam Inlet Press. PI-1357-2. PSIG	780	N/A
7.2.18.2	Pump Turbine Speed, RPM	9250	N/A
7.2.19	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	720	≥310
7.2.21	Pump Turbine Speed, As Found	9380	N/A
7.2.22.1	RPM As Left	9400	(2)
7.2.23	Header Press PI-1421B, PSIG	810 1530	N/A
	Oil Press to Regulator, PSIG	21	N/A
	Oil Press from Regulator, PSIG	7.5	N/A
	Oil Temp to Cooler, °F	137	N/A
	Oil Temp. from Cooler, °F	120	N/A
	Cooling Water Outlet Temp.	98	N/A
	Vibration Mils* Horizontal	65	≤3.0
	Vertical	28	≤1.4
	Vibration in/sec* Horizontal	(1) 0.16	N/A
	Vertical	(1) 0.22	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1500 1540 1500	N/A
	Pump Suct. Press. PI-1478, PSIG	3.6	≥2.0
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	1506.4	≥1412 ≤1548

- (1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.
- (2) Pump speed must be able to be adjusted to within the range of 9400 to 9550 RPM (e.g. if As Found at 9600 RPM, the pump must be able to be adjusted back into range. If As Found is in range, then no need for adjustment, except as directed in this OST).

Vibration Data Points

*To be taken after 15 minutes of operation.



2955 0224

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>PK</u>	<u>M.K. CLOUSE</u>	<u>7-18-89</u>
	<u>RCI</u>	<u>RANDY C IVEY</u>	<u>7-18-89</u>
	<u>MIA</u>	<u>Martin L. Arnold</u>	<u>7-18-89</u>
	<u>BCW</u>	<u>P. E. WALDSMITH</u>	<u>7-18-89</u>

Test Complete: Date 7-18-89 Time 2306

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 7-18-89 Time 2354
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory)

① Valves V2-14 A, B, C AND V1-8 A, B, C timed with
HBR # 4
Valve TCN-1902-A timed with HBR #3

Approved by: [Signature] Date 7/19/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 7/31/89
ISI Coordinator

29550227

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

W. C. Wright (Print) W. C. Wright 8-15-89
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

C. M. Smith 8/15/89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, on recirc, before any pump data is recorded. Maintain recirc mode while obtaining data. This will allow heating between the casing and impeller to stabilize. Secure the pump after data is obtained to minimize run time while on recirc.

4.4 If the annual frequency bearing temperature test, EST-013 is due, then continue to run the pump on recirc. with instrument air isolated to the Masoneilan Pressure Controller until all data is collected for EST-013. When EST-013 is complete, then continue with this OST to complete the remaining steps.

4.5 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

0533
2933

SDAFW PUMP DATA

ATTACHMENT 8.1

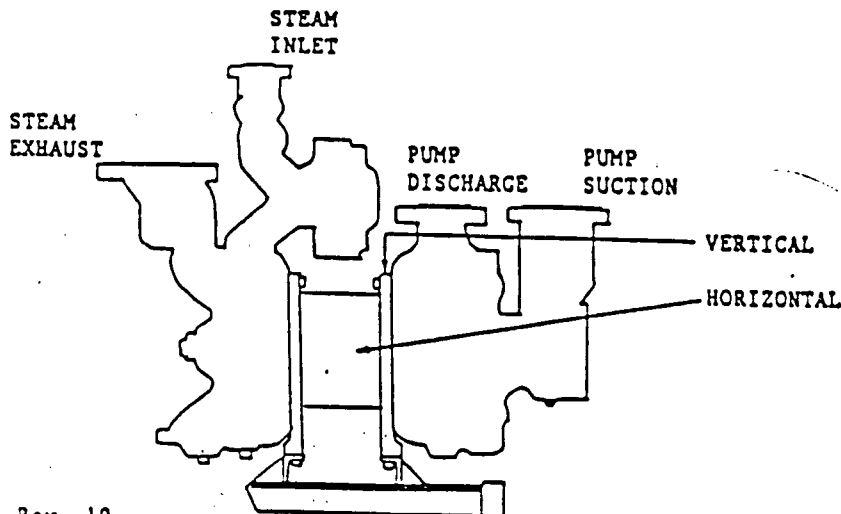
Page 1 of 1

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.18.2	Disch. Press. PI-1426 PSIG	1480	N/A
7.2.18.2	Steam Inlet Press. PI-1357-2. PSIG	780	N/A
7.2.18.2	Pump Turbine Speed, RPM	9250	N/A
7.2.19	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	700	≥310
7.2.21	Pump Turbine Speed, RPM	As Found 9400	N/A
7.2.22.1	As Left	7900	(2)
7.2.23	Header Press PI-1421B, PSIG	1525	N/A
	Oil Press to Regulator, PSIG	.22	N/A
	Oil Press from Regulator, PSIG	.2	N/A
	Oil Temp to Cooler, °F	136	N/A
	Oil Temp. from Cooler, °F	118	N/A
	Cooling Water Outlet Temp.	94	N/A
	Vibration Mils* Horizontal	.2	≤3.0
	Vertical	.6	≤1.4
	Vibration in/sec* Horizontal	(1) .22	N/A
	Vertical	(1) .2	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1520	N/A
	Pump Suct. Press. PI-1478, PSIG	3.1	≥2.0
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated)- Pump Suct. Press. PI-1478	1516.1	≥1412 ≤1548

- (1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.
 (2) Pump speed must be able to be adjusted to within the range of 9400 to 9550 RPM (e.g. if As Found at 9600 RPM, the pump must be able to be adjusted back into range. If As Found is in range, then no need for adjustment, except as directed in this OST).

Vibration Data Points

*To be taken after 15 minutes of operation.



2938 0548

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>DeW</u>	<u>T. White</u>	<u>8/16/89</u>
	<u>Fay</u>	<u>F. B. SCHWEN</u>	<u>8-16-89</u>
	<u>W</u>	<u>W. CURTIS</u>	<u>8-16-89</u>

Test Complete: Date 8/16/89 Time 0245

Test Satisfactory: Yes / No (Circle one)

Reviewed by: C. [Signature] Date 8/16/89 Time 05:18
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 8/17/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 8/25/89
ISI Coordinator

0551
2993

3.0 PREREQUISITES (Continued)

3.4 This revision is the latest revision available and has been verified against the Revision Status List.

W. CURRIGAN (Print) W. Currier 8-15-89
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

CMW 8/15/89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 15 minutes, on recirc, before any pump data is recorded. Maintain recirc mode while obtaining data. This will allow heating between the casing and impeller to stabilize. Secure the pump after data is obtained to minimize run time while on recirc.

4.4 If the annual frequency bearing temperature test, EST-013 is due, then continue to run the pump on recirc. with instrument air isolated to the Masonellan Pressure Controller until all data is collected for EST-013. When EST-013 is complete, then continue with this OST to complete the remaining steps.

4.5 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

0533
2933

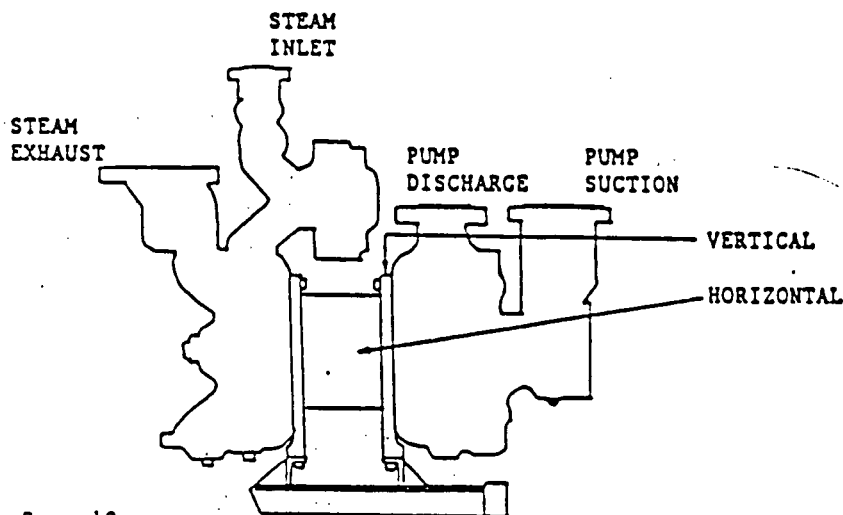
SDAFW PUMP DATA

REF. STEP NO.	PARAMETER	DATA	ACCEPTANCE CRITERIA
7.2.18.2	Disch. Press. PI-1426 PSIG	1480	N/A
7.2.18.2	Steam Inlet Press. PI-1357-2. PSIG	780	N/A
7.2.18.2	Pump Turbine Speed, RPM	9250	N/A
7.2.19	Feed to Steam ΔP, PSI, (Discharge Pressure PI-1426) - (Steam Inlet Pressure PI-1357-2)	700	≥310
7.2.21	Pump Turbine Speed, RPM	As Found 9400	N/A
7.2.22.1	RPM	As Left 9400	(2)
7.2.23	Header Press PI-1421B, PSIG	1525	N/A
	Oil Press to Regulator, PSIG	.22	N/A
	Oil Press from Regulator, PSIG	.3	N/A
	Oil Temp to Cooler, °F	136	N/A
	Oil Temp. from Cooler, °F	118	N/A
	Cooling Water Outlet Temp.	99	N/A
	Vibration Mils*		
	Horizontal	.2	≤3.0
	Vertical	.6	≤1.4
	Vibration in/sec*		
	Horizontal	(1) .22	N/A
	Vertical	(1) .2	N/A
	Disch. Press. PI-1426, PSIG (Reg. Isolated)	1520	N/A
	Pump Suct. Press. PI-1478, PSIG	3.5	≥2.0
7.2.24	Pump ΔP, PSI, Disch. Press. PI-1426 (Reg. Isolated) - Pump Suct. Press. PI-1478	1516.5	≥1412 ≤1548

- (1) If vibration exceeds 0.3 in/sec, notify Technical Support-Systems.
 (2) Pump speed must be able to be adjusted to within the range of 9400 to 9550 RPM (e.g. if As Found at 9600 RPM, the pump must be able to be adjusted back into range. If As Found is in range, then no need for adjustment, except as directed in this OST).

Vibration Data Points

*To be taken after 15 minutes of operation.



29380548

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>deu</u>	<u>T. White</u>	<u>8/16/89</u>
	<u>Fay</u>	<u>F. B. SCHWEN</u>	<u>8-16-89</u>
	<u>W</u>	<u>W. CUTRIBATI</u>	<u>8-16-89</u>

Test Complete: Date 8/16/89 Time 0245

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 8/16/89 Time 0318
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 8/17/89
Unit 2 - Operating Supervisor

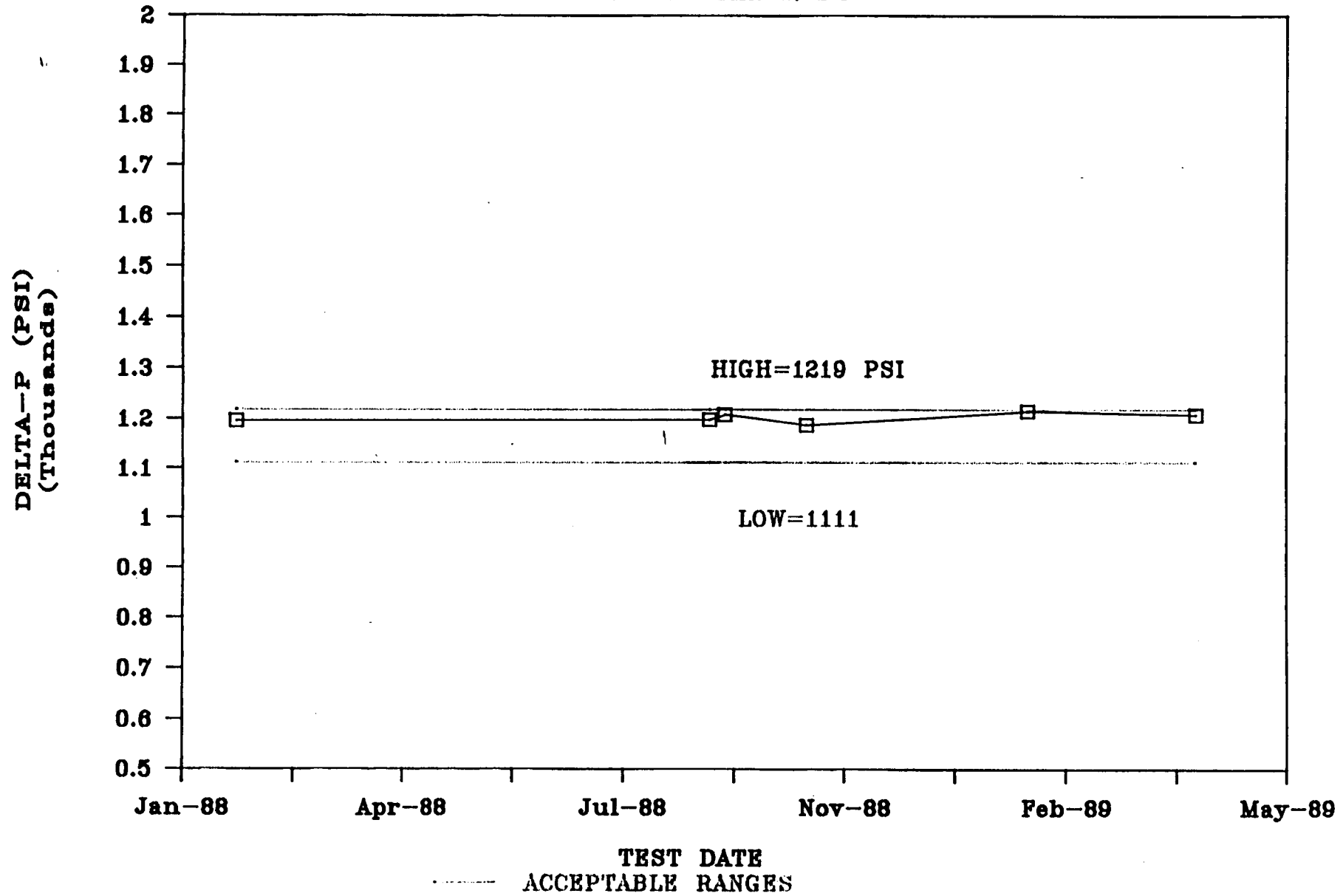
Reviewed by: [Signature] Date 8/25/89
ISY Coordinator

29030551

Attachment 17

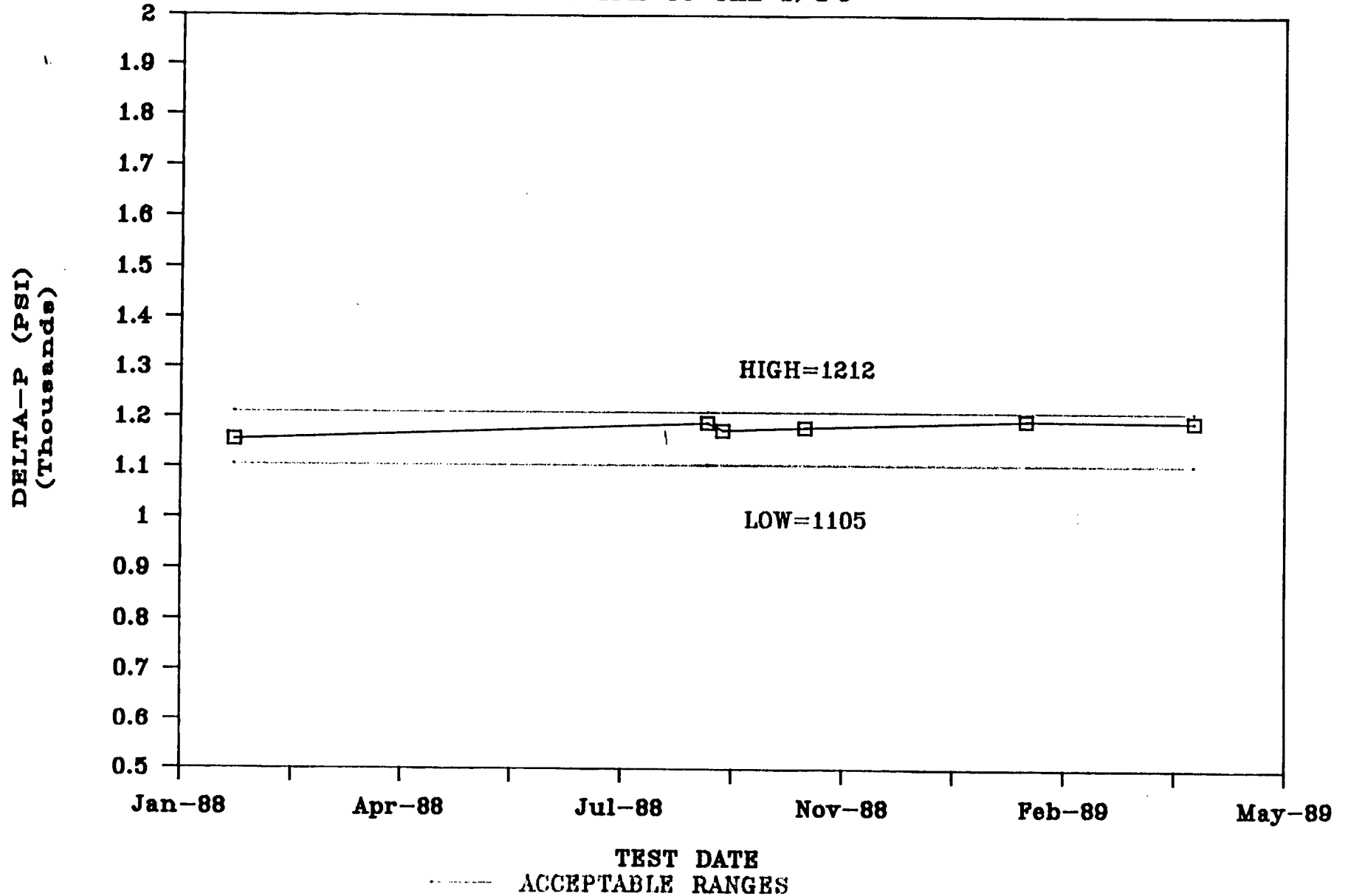
"A" MOTOR DRIVEN AFW PUMP (OST-207)

325 GPM TO THE S/G's



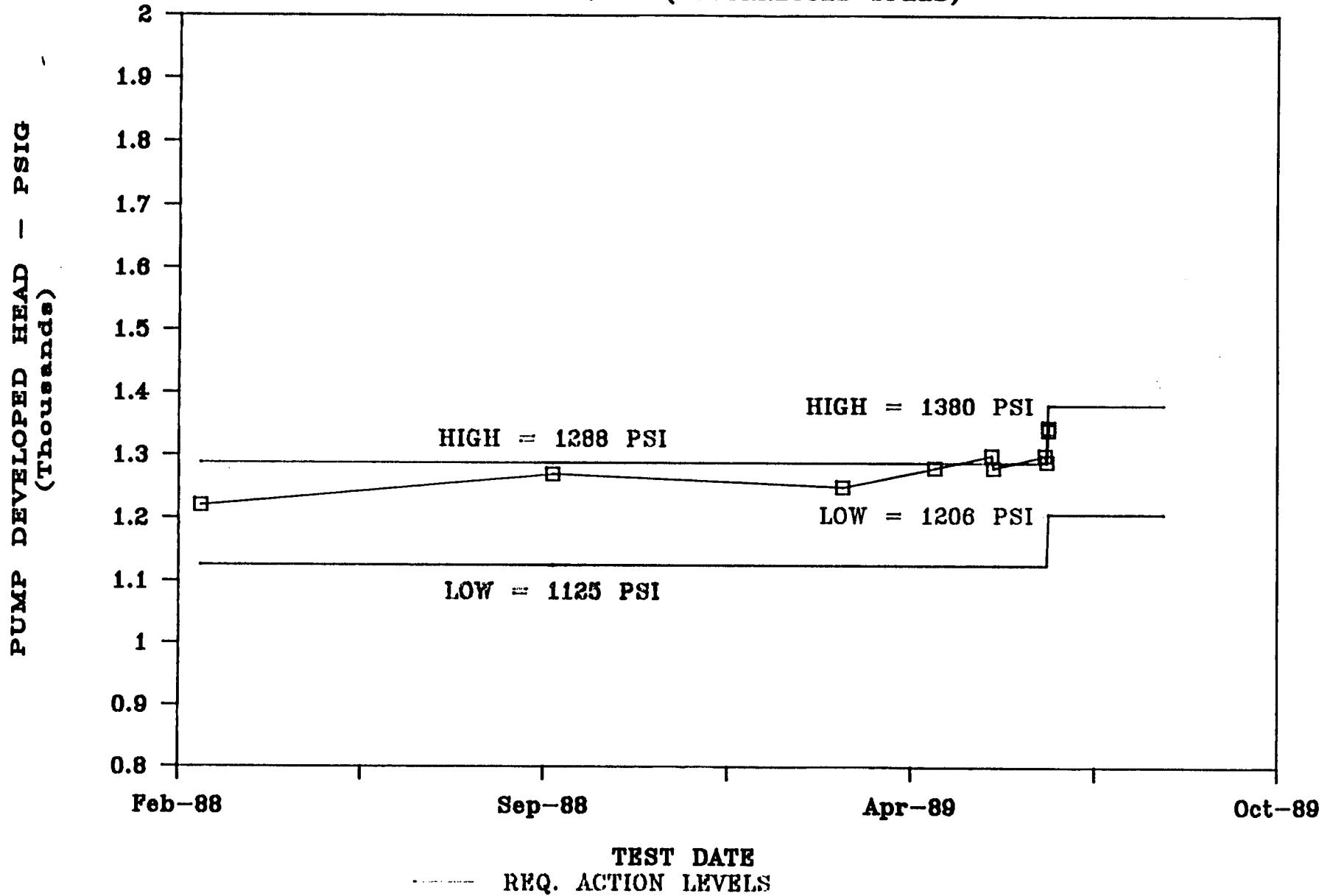
"B" MOTOR DRIVEN AFW PUMP (OST-207)

325 GPM TO THE S/G's



SDAFW PUMP DELTA-P (OST-206)

600 GPM TO S/G'S (UNCORRECTED SPEED)



1.0 PURPOSE

1.1 To verify mechanical performance and assess operational readiness of components to fulfill their required safeguard functions.

1.2 The steam driven auxiliary feedwater pump will be tested for flow and differential pressure in accordance with Section XI ASME Code. Check valve AFW-84 will also be checked for forward flow.

2.0 REFERENCES

2.1 ASME Section XI, Subsections IWP and IWV, 1977 Edition, Summer 1978 Addenda

2.2 OP-402 Auxiliary Feedwater

2.3 Engineering Flow Diagrams G-190197, Feedwater, Condensate, and Air Evacuation

3.0 PREREQUISITES

3.1 The AFW system is aligned in accordance with OP-402, ATTACHMENT 9.1.

3.2 Only the steam driven pump shall be run during this test. The motor driven AFW pumps should not be operated during this test.

3.3 The Plant is in a power operation condition.

3.4 The steam driven pump flow controller, FIC-6-16, shall be set at 600 gpm and in auto.

3.5 This revision is the latest revision available and has been verified against the Revision Status List.

Flazette (Print) [Signature] 3-10-88
Name Signature Date

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Time Piece

5.2 RPM Indicator

5.3 Two-way Radios

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥ 1162.5 ≤ 1275 psig	Low ≥ 1125 , < 1162.5 psig High > 1275 , ≤ 1287.5 psig	< 1125 , > 1287.5 psig

6.1.1 If the differential pressure calculated in Step 7.2.21 is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.1.2 If the differential pressure calculated in Step 7.2.21 falls within the ALERT RANGE of Step 6.1, the frequency of testing shall be revised to monthly until the cause of the deviation is determined and corrected and either of the existing reference values reverified or a new set established per IWP-3111 (ASME Section XI).

6.1.3 If the differential pressure calculated in Step 7.2.21 falls within the REQUIRED ACTION RANGE of 6.1, the pump shall be declared inoperable and not returned to service until the condition has been corrected.

6.1.4 The corrective action shall be considered completed when a satisfactory inservice test has been conducted in accordance with IWP-3111 (ASME Section XI) or an analysis is performed that demonstrates that the condition does not impair pump operability and that the pump will still fulfill its function.

FOR INFORMATION ONLY

1597
245

7.0 PROCEDURE (Continued) INITIALS

7.2.10 START the SDAFW pump by opening the following valves:

- 1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A OPEN *W*
- 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B OPEN *B*
- 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C OPEN *B*

7.2.11 OPEN the following auxiliary feedwater supply valves:

- 1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A
V2-14A OPEN *B*
- 2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B
V2-14B OPEN *B*
- 3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C
V2-14C OPEN *B*

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12 SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm. *B*

7.2.13 Record the following data after 5 minutes of operation at 600 gpm:

Shaft RPM 9115 RPM *B*
 SDAFW Pump Discharge Pressure (PI-1426) 1220 psig *BWR*
 SDAFW Pump Suction Pressure (PI-1478) 0 psig *B*

NOTE

Step 7.2.13 confirms the opening of check valve AFW-84.

FOR INFORMATION

245 1602

7.0 PROCEDURE (Continued) INITIALS VERIFIED BY

7.2.14 CLOSE AFW-17, SDAFW Pump Recirculation Isolation. ZAR

7.2.15 Allow the SDAFW pump discharge to stabilize and record the indicated discharge pressure, flow and speed.
PI-1426 1290 13.2 psig FI-6416 600 gpm
Speed 9150 RPM

7.2.16 OPEN AFW-17, SDAFW Pump Recirculation Isolation. ZAR B

- 7.2.17 STOP the SDAFW pump by closing the following valves:
1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A CLOSED B
 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B CLOSED B
 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C CLOSED B

- 7.2.18 CLOSE the following valves:
1. SDAFW Pump Feedwater Discharge to S/G "A",
V2-14A V2-14A CLOSED B
 2. SDAFW Pump Feedwater Discharge to S/G "B",
V2-14B V2-14B CLOSED B
 3. SDAFW Pump Feedwater Discharge to S/G "C",
V2-14C V2-14C CLOSED B

7.2.19 FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIC-6416 in MANUAL.
AFW-FCV-6416 OPEN deu 0

7.2.20 Return FIC-6416 to AUTO mode and set at 600 gpm.
FIC-6416 IN AUTO deu B
FIC-6416 AT 600 GPM deu B

7.2.21 Calculate pump ΔP from the data gathered in Step 7.2.13.

$$\frac{1220}{\text{Discharge Pressure (PI-1426)}} - \frac{0}{\text{Suction Pressure (PI-1478)}} = \frac{1220}{\Delta P}$$

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) GP-005 REQUIRED
pages (1-14)

2450
1605

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>(D)</u>	<u>Paul M. Avchock</u>	<u>3-10-88</u>
	<u>(P)</u>	<u>K. ORENIN</u>	<u>3-10-88</u>
	<u>(JW)</u>	<u>TE White</u>	<u>3/10/88</u>
	<u>(MR)</u>	<u>M. Rohardt</u>	<u>3-10-88</u>

Test Complete: Date 3-10-88 Time 2330

Test Satisfactory: (Yes) / No (Circle one)

Reviewed by: (Signature) Date 3-10-88 Time 2335
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory)

Approved by: (Signature) Date 3-11-88
Unit 2 - Operating Supervisor

Reviewed by: (Signature) Date 3/23/88
ISI Coordinator

FOR INFORMATION ONLY

3.0 PREREQUISITES (Continued)

3.5 This revision is the latest revision available and has been verified against the Revision Status List.

C. Pritchard (Print) C. Pritchard Signature 9/18/88 Date

3.6 The Shift Foreman has given his permission to conduct this test.

BEA Shift Foreman 9-18-88 Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the tailtake drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump run time shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 Ensure that the Condensate Storage Tank chemistry is within required specifications prior to feeding the Steam Generators.

4.6 Closely monitor steam generator level indicators to ensure the desired level is maintained during the test.

4.7 Reactor Power and Turbine/Generator output should be closely monitored during performance of this OST since the colder feedwater may affect power and output.

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Time Piece

5.2 RPM Indicator

5.3 Two-way Radios

5.4 Vibration Detector

5.5 Pyrometer

5.6 EST-013

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥ 1162.5 ≤ 1275 psig	Low ≥ 1125 , < 1162.5 psig High > 1275 , ≤ 1287.5 psig	< 1125 , > 1287.5 psig

6.1.1 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2 If the differential pressure calculated in Step 7.2³³ is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.1.3 If the differential pressure calculated in Step 7.2³³ falls within the ALERT RANGE of Step 6.1, the frequency of testing shall be revised to monthly until the cause of the deviation is determined and corrected and either of the existing reference values reverified or a new set established per IWP-3111 (ASME Section XI).

7-3551
7-3551

7.0 PROCEDURE (Continued)

INITIALS

7.2.10 START the SDAFW pump by opening the following valves:

- 1. S/C "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A OPEN WJ
- 2. S/C "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B OPEN WJ
- 3. S/C "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C OPEN WJ

7.2.11 OPEN the following auxiliary feedwater supply valves:

- 1. SDAFW Pump Feedwater Discharge to S/C "A", V2-14A
V2-14A OPEN WJ
- 2. SDAFW Pump Feedwater Discharge to S/C "B", V2-14B
V2-14B OPEN WJ
- 3. SDAFW Pump Feedwater Discharge to S/C "C", V2-14C
V2-14C OPEN WJ

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12 SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm. WJ

7.2.13 Record the following data after 5 minutes of operation at 600 gpm:

	Shaft RPM	<u>9400</u>	RPM	<u>WJ</u>
SDAFW Pump Discharge Pressure (PI-1426)		<u>1270</u>	psig	<u>WJ</u>
SDAFW Pump Suction Pressure (PI-1478)		<u>40</u>	psig	<u>WJ</u>

NOTE

Step 7.2.13 confirms the opening of check valve AFW-84.

1931
26

- 7.0 PROCEDURE (Continued) INITIALS VERIFIED BY
- 7.2.14 Record SDAFW Pump vibration on ATTACHMENT 8.1. WJ
- 7.2.15 Record bearing temperature per EST-013. FM
- 7.2.16 CLOSE AFW-17, SDAFW Pump Recirculation Isolation. WJ
- 7.2.17 Allow the SDAFW pump discharge to stabilize and record the indicated discharge pressure, flow and speed.
PI-1426 1330 psig FI-6416 725 gpm
Speed 9500 RPM
- 7.2.18 OPEN AFW-17, SDAFW Pump Recirculation Isolation. WJ MSK
- 7.2.19 STOP the SDAFW pump by closing the following valves:
1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A CLOSED MSK
 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B CLOSED MSK
 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C CLOSED MSK
- 7.2.20 CLOSE the following valves:
1. SDAFW Pump Feedwater Discharge to S/G "A",
V2-14A V2-14A CLOSED MSK
 2. SDAFW Pump Feedwater Discharge to S/G "B",
V2-14B V2-14B CLOSED MSK
 3. SDAFW Pump Feedwater Discharge to S/G "C",
V2-14C V2-14C CLOSED MSK
- 7.2.21 FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIC-6416 in MANUAL.
AFW-FCV-6416 OPEN MSK MSK
- 7.2.22 Return FIC-6416 to AUTO mode and set at 600 gpm.
FIC-6416 IN AUTO MSK MSK
FIC-6416 AT 600 GPM MSK MSK
- 7.2.23 Calculate pump ΔP from the data gathered in Step 7.2.13.

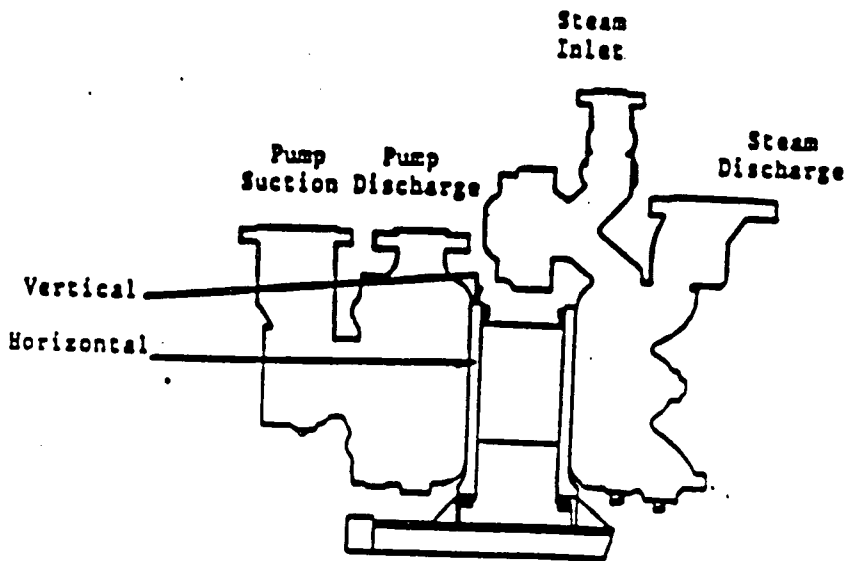
$$\frac{1270}{\text{Discharge Pressure (PI-1426)}} - \frac{0}{\text{Suction Pressure (PI-1478)}} = \frac{1270}{\Delta P}$$

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2653
1932

VIBRATION DATA

PUMP	DATA		ACCEPTANCE CRITERIA
	SDAFW	HORIZONTAL	.25 MILS
VERTICAL		.4 MILS	N/A

VIBRATION DATA POINTS



1934
26

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

on: 9-19-88
Scheduled ~~Unscheduled~~ (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) GP-005

Test Performed by	Initials	Name (Print)	Date
	<u>TVB</u>	<u>Larry D. Smith</u>	<u>9/19/88</u>
	<u>MD</u>	<u>M. S. RADCLIFF</u>	<u>9-19-88</u>
	<u>MR</u>	<u>M Rabandt</u>	<u>9-18-88</u>
	<u>PH/TA</u>	<u>PH/TA / S.A. SCHWAB</u>	<u>9-19-88 / 9-20-88</u>

Test Complete: Date 9-19-88 Time 0750

Test Satisfactory: Yes / No (Circle one)

Reviewed by: D. M. Dill Date 9/19/88 Time 0820
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: D. Nelson Date 9-20-88
Unit 2 - Operating Supervisor

Reviewed by: W. McCutcheon Date 9/23/88
ISI Coordinator

FOR INFORMATION ONLY

1935
26

3.0 PREREQUISITES (Continued)

3.5 This revision is the latest revision available and has been verified against the Revision Status List.

B. Mollica (Print) B. Mollica 2-24-89
Name Signature Date

3.6 The Shift Foreman has given his permission to conduct this test.

D. McCull 2-24-89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump run time shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 Ensure that the Condensate Storage Tank chemistry is within required specifications prior to feeding the Steam Generators.

4.6 Closely monitor steam generator level indicators to ensure the desired level is maintained during the test.

4.7 Reactor Power and Turbine/Generator output should be closely monitored during performance of this OST since the colder feedwater may affect power and output.

2210
6182

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Stop Watch

5.2 RPM Indicator

5.3 Two-way Radios

5.4 Vibration Detector with magnetic probe

5.5 Pyrometer

5.6 EST-013

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥ 1162.5 ≤ 1275 psig	Low ≥ 1125 , < 1162.5 psig High > 1275 , ≤ 1287.5 psig	< 1125 , > 1287.5 psig

6.1.1 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2 If the differential pressure calculated in Step 7.2.23 is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.1.3 If the differential pressure calculated in Step 7.2.23 falls within the ALERT RANGE of Step 6.1, the frequency of testing shall be revised to monthly until the cause of the deviation is determined and corrected and either of the existing reference values reverified or a new set established per IWP-3111 (ASME Section XI).

FOR INFORMATION ONLY

7.0 PROCEDURE (Continued) INITIALS

7.2.10 START the SDAFW pump by opening the following valves:

1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A OPEN jm
2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B OPEN jm
3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C OPEN jm

7.2.11 OPEN the following auxiliary feedwater supply valves:

1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A
V2-14A OPEN jm
2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B
V2-14B OPEN jm
3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C
V2-14C OPEN jm

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12 SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm. jm

7.2.13 Record the following data after 5 minutes of operation at 600 gpm:

Shaft RPM	<u>9400</u>	RPM	<u>Bm</u>
SDAFW Pump Discharge Pressure (PI-1426)	<u>1250</u>	psig	<u>Bm</u>
SDAFW Pump Suction Pressure (PI-1478)	<u>0</u>	psig	<u>Bm</u>

NOTE

Step 7.2.13 confirms the opening of check valve AFW-84.

INITIALS VERIFIED BY

- 7.0 PROCEDURE (Continued)
- 7.2.14 Record SDAFW Pump vibration on ATTACHMENT 8.1. Bm
- 7.2.15 Record bearing temperature per EST-013. NA
- 7.2.16 CLOSE AFW-17, SDAFW Pump Recirculation Isolation. Bm
- 7.2.17 Allow the SDAFW pump discharge to stabilize and record the indicated discharge pressure, flow and speed.
PI-1426 1300 psig FI-6416 660 gpm
Speed 9400 RPM
- 7.2.18 OPEN AFW-17, SDAFW Pump Recirculation Isolation. MA Bm
- 7.2.19 STOP the SDAFW pump by closing the following valves:
1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A CLOSED MA
 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B CLOSED MA
 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C CLOSED MA
- 7.2.20 CLOSE the following valves:
1. SDAFW Pump Feedwater Discharge to S/G "A",
V2-14A V2-14A CLOSED MA
 2. SDAFW Pump Feedwater Discharge to S/G "B",
V2-14B V2-14B CLOSED MA
 3. SDAFW Pump Feedwater Discharge to S/G "C",
V2-14C V2-14C CLOSED MA
- 7.2.21 FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIC-6416 in MANUAL.
AFW-FCV-6416 OPEN MA MA
- 7.2.22 Return FIC-6416 to AUTO mode and set at 600 gpm.
FIC-6416 IN AUTO MA MA
FIC-6416 AT 600 GPM MA MA
- 7.2.23 Calculate pump HP from the data gathered in Step 7.2.13.

$$\frac{1250}{\text{Discharge Pressure (PI-1426)}} - \frac{0}{\text{Suction Pressure (PI-1478)}} = \frac{1250}{\text{HP}}$$

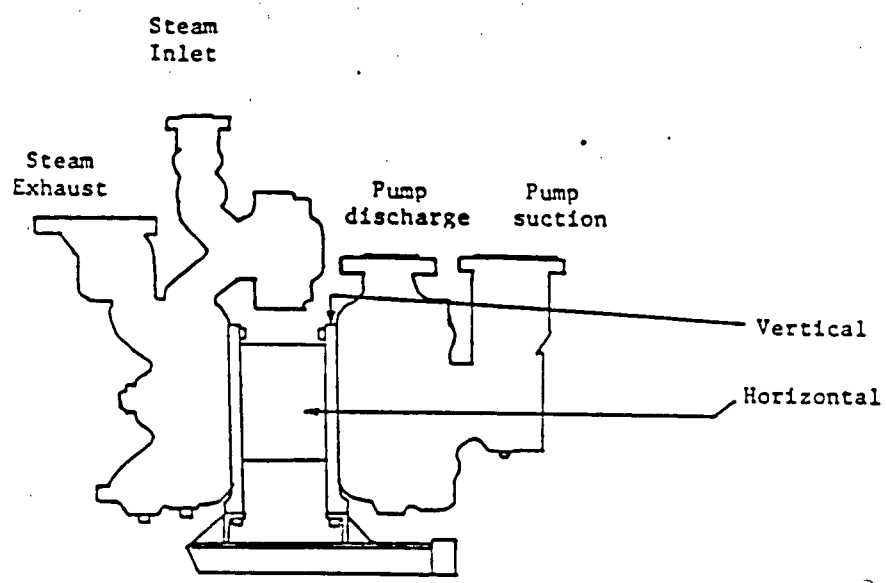
201910134

VIBRATION DATA

PUMP	DATA		ACCEPTANCE CRITERIA
SDAFW	HORIZONTAL	.2 MILS	N/A
	VERTICAL	.25 MILS	N/A
SDAFW	HORIZONTAL	(1) .1 IN/SEC	N/A
	VERTICAL	(1) .06 IN/SEC	N/A

(1) If vibration exceeds 0.3 in/sec. notify Technical Support - Systems.

VIBRATION DATA POINTS



FOR INFORMATION ONLY

281900186

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>MA</u>	<u>M.S. LARLEY</u>	<u>2-24-89</u>
	<u>BM</u>	<u>B. MULLIGAN</u>	<u>2-24-89</u>
	<u>m</u>	<u>MARKER</u>	<u>2-24-89</u>

Test Complete: Date 2/24/89 Time 1630

Test Satisfactory: (Yes) / No (Circle one)

Reviewed by: D. McDILL Date 2/24/89 Time 1637
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) TT 88-AIX Y1 written for L.O. Press After Regulator (reads 5th)

Approved by: [Signature] Date 2/28/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 2/28/89
ISI Coordinator

01187
2819

3.0 PREREQUISITES (Continued)

3.5 This revision is the latest revision available and has been

verified against the Revision Status List.

Callaway (Print) Callaway Signature 4/15/68 Date

3.6 The Shift Foreman has given his permission to conduct this test.

Callaway Shift Foreman 4/15/68 Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump run time shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 Ensure that the Condensate Storage Tank chemistry is within required specifications, prior to feeding the Steam Generators.

4.6 Closely monitor steam generator level indicators to ensure the desired level is maintained during the test.

4.7 Reactor Power and Turbine/Generator output should be closely monitored during performance of this OST since the colder feedwater may affect power and output.

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Calibrated Stop Watch No. 1162-4 Cal. Date 3-31-88 (Within 12 mo.)

5.2 RPM Indicator

5.3 Two-way Radios

5.4 Vibration Detector with magnetic probe

5.5 Pyrometer

5.6 EST-013

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥ 1162.5 ≤ 1275 psig	Low ≥ 1125 , < 1162.5 psig High > 1275 , ≤ 1287.5 psig	< 1125 , > 1287.5 psig

6.1.1 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2 If the differential pressure calculated in Step 7.2.23 is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.1.3 If the differential pressure calculated in Step 7.2.23 falls within the ALERT RANGE of Step 6.1, the frequency of testing shall be revised to monthly until the cause of the deviation is determined and corrected and either of the existing reference values reverified or a new set established per IWP-3111 (ASME Section XI).

FOR INFORMATION ONLY

2883
0708

7.0 PROCEDURE (Continued)

INITIALS

7.2.10 START the SDAFW pump by opening the following valves:

- 1. S/G "A" Steam Supply to SDAFW Pump, V1-8A V1-8A OPEN AS
- 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B V1-8B OPEN AS
- 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C V1-8C OPEN AS

7.2.11 OPEN the following auxiliary feedwater supply valves:

- 1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A V2-14A OPEN AS
- 2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B V2-14B OPEN AS
- 3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C V2-14C OPEN AS

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12 SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm.

7.2.13 Record the following data after 5 minutes of operation at 600 gpm:

	Shaft RPM	<u>9460</u>	RPM	<u>AS</u>
SDAFW Pump Discharge Pressure (PI-1426)		<u>12'00</u>	psig	<u>AS</u>
SDAFW Pump Suction Pressure (PI-1478)		<u>0</u>	psig	<u>AS</u>

NOTE

Step 7.2.13 confirms the opening of check valve AFW-84.

FOR INFORMATION ONLY

0713
2833

- 7.0 PROCEDURE (Continued) INITIALS VERIFIED BY
- 7.2.14 Record SDAFW Pump vibration on ATTACHMENT 8.1. AP
- 7.2.15 Record bearing temperature per EST-013. TR
- 7.2.16 CLOSE AFW-17, SDAFW Pump Recirculation Isolation. TR
- 7.2.17 Allow the SDAFW pump discharge to stabilize and record the indicated discharge pressure, flow and speed.
PI-1426 1360 psig FI-6416 625 gpm
Speed 9325 RPM
- 7.2.18 OPEN AFW-17, SDAFW Pump Recirculation Isolation. TR TR
- 7.2.19 STOP the SDAFW pump by closing the following valves:
1. S/G "A" Steam Supply to SDAFW Pump, VI-8A
VI-8A CLOSED B
 2. S/G "B" Steam Supply to SDAFW Pump, VI-8B
VI-8B CLOSED B
 3. S/G "C" Steam Supply to SDAFW Pump, VI-8C
VI-8C CLOSED B
- 7.2.20 CLOSE the following valves:
1. SDAFW Pump Feedwater Discharge to S/G "A",
V2-14A V2-14A CLOSED B
 2. SDAFW Pump Feedwater Discharge to S/G "B",
V2-14B V2-14B CLOSED B
 3. SDAFW Pump Feedwater Discharge to S/G "C",
V2-14C V2-14C CLOSED B
- 7.2.21 FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIC-6416 in MANUAL.
AFW-FCV-6416 OPEN B AP
- 7.2.22 Return FIC-6416 to AUTO mode and set at 600 gpm.
FIC-6416 IN AUTO B AP
FIC-6416 AT 600 GPM B AP
- 7.2.23 Calculate pump ΔP from the data gathered in Step 7.2.13.

$$\frac{1280}{\text{Discharge Pressure (PI-1426)}} - \frac{0}{\text{Suction Pressure (PI-1478)}} = \frac{1280}{\Delta P}$$

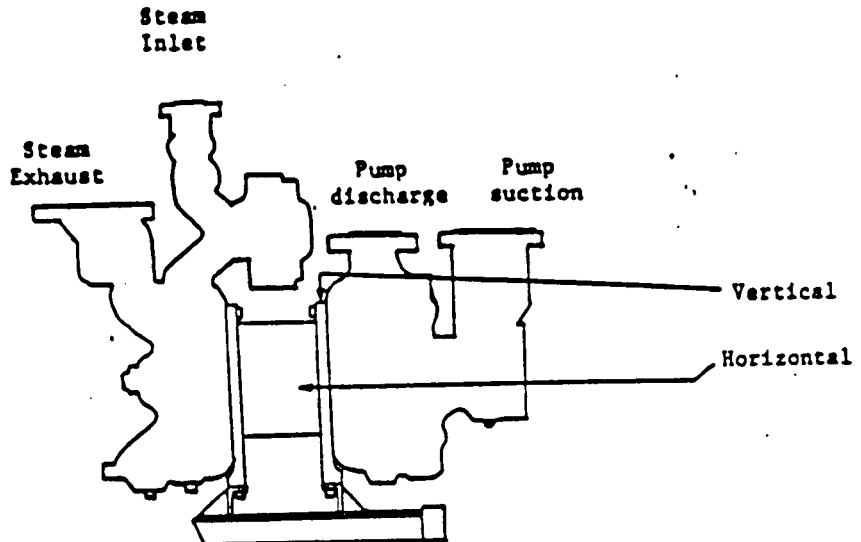
0714
 2333
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 2333

VIBRATION DATA

PUMP	DATA			ACCEPTANCE CRITERIA
	SDAFW	HORIZONTAL	.33	MILS
VERTICAL		.3	MILS	N/A
SDAFW	HORIZONTAL	(1) .09	IN/SEC	N/A
	VERTICAL	(1) .085	IN/SEC	N/A

(1) If vibration exceeds 0.3 in/sec. notify Technical Support - Systems.

VIBRATION DATA POINTS



2383, 0.716

FOR INFORMATION ONLY

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>[Signature]</u>	<u>J. BARRY</u>	<u>4-15-89</u>
	<u>[Signature]</u>	<u>D. Billings</u>	<u>4-15-89</u>
	<u>[Signature]</u>	<u>Ben Parvial</u>	<u>4-15-89/ISI/MCS</u>

Test Complete: Date 4-15-89 Time 2100

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 4/14/89 Time 2250
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) DP Step 7.2.2.5
is in Alert Range W# 85-ALXU1

Approved by: [Signature] Date 4/19/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 5/4/89
ISI Coordinator

FOR INFORMATION ONLY

07-17
28333

2388 0199

5.0

SPECIAL TOOLS AND EQUIPMENT

5.1

Calibrated Stop Watch, No. 11B2-4 Cal. Date 3/30/69 (Within 12 mo.)

5.2

RPM Indicator

5.3

Two-way Radios

5.4

Vibration Detector with magnetic probe

5.5

Pyrometer

5.6

EST-013

6.0

ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥1162.5 ≤1275 psig	Low ≥1125, <1162.5 psig High >1275, ≤1287.5 psig	<1125, >1287.5 psig

6.1.1

If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2

If the differential pressure calculated in Step 7.2.23 is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.1.3

If the differential pressure calculated in Step 7.2.23 falls within the ALERT RANGE of Step 6.1, the frequency of testing shall be revised to monthly until the cause of the deviation is determined and corrected and either of the existing reference values reverified or a new set established per IWP-3111 (ASME Section XI).

7.0 PROCEDURE (Continued)

INITIALS

7.2.10 START the SDAFW pump by opening the following valves:

- 1. S/G "A" Steam Supply to SDAFW Pump, V1-8A V1-8A OPEN R
- 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B V1-8B OPEN R
- 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C V1-8C OPEN R

7.2.11 OPEN the following auxiliary feedwater supply valves:

- 1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A V2-14A OPEN R
- 2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B V2-14B OPEN R
- 3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C V2-14C OPEN R

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12 SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm.

7.2.13 Record the following data after 5 minutes of operation at 600 gpm:

Shaft RPM 9450 RPM R
 SDAFW Pump Discharge Pressure (PI-1426) 1300 psig R
 SDAFW Pump Suction Pressure (PI-1478) 20 psig R

NOTE

Step 7.2.13 confirms the opening of check valve AFW-84.

0204
2388

- 7.0 PROCEDURE (Continued) INITIALS VERIFIED BY
- 7.2.14 Record SDAFW Pump vibration on ATTACHMENT 8.1. B
- 7.2.15 Record bearing temperature per EST-013. N/A
- 7.2.16 CLOSE AFW-17, SDAFW Pump Recirculation Isolation. B
- 7.2.17 Allow the SDAFW pump discharge to stabilize and record the indicated discharge pressure, flow and speed.
 PI-1426 ~~1400~~^{1380 @ 616} psig FI-6416 645 gpm
 Speed 9400 RPM
- 7.2.18 OPEN AFW-17, SDAFW Pump Recirculation Isolation. OS B
- 7.2.19 STOP the SDAFW pump by closing the following valves:
1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A CLOSED B
 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B CLOSED B
 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C CLOSED B
- 7.2.20 CLOSE the following valves:
1. SDAFW Pump Feedwater Discharge to S/G "A",
V2-14A V2-14A CLOSED B
 2. SDAFW Pump Feedwater Discharge to S/G "B",
V2-14B V2-14B CLOSED B
 3. SDAFW Pump Feedwater Discharge to S/G "C",
V2-14C V2-14C CLOSED B
- 7.2.21 FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIG-6416 in MANUAL.
AFW-FCV-6416 OPEN B 1/2
- 7.2.22 Return FIG-6416 to AUTO mode and set at 600 gpm.
FIG-6416 IN AUTO B 1/2
FIG-6416 AT 600 GPM B 1/2
- 7.2.23 Calculate pump ΔP from the data gathered in Step 7.2.13.

$$\frac{1300}{\text{Discharge Pressure (PI-1426)}} - \frac{20}{\text{Suction Pressure (PI-1478)}} = \frac{1300}{\Delta P}$$

2888 0205

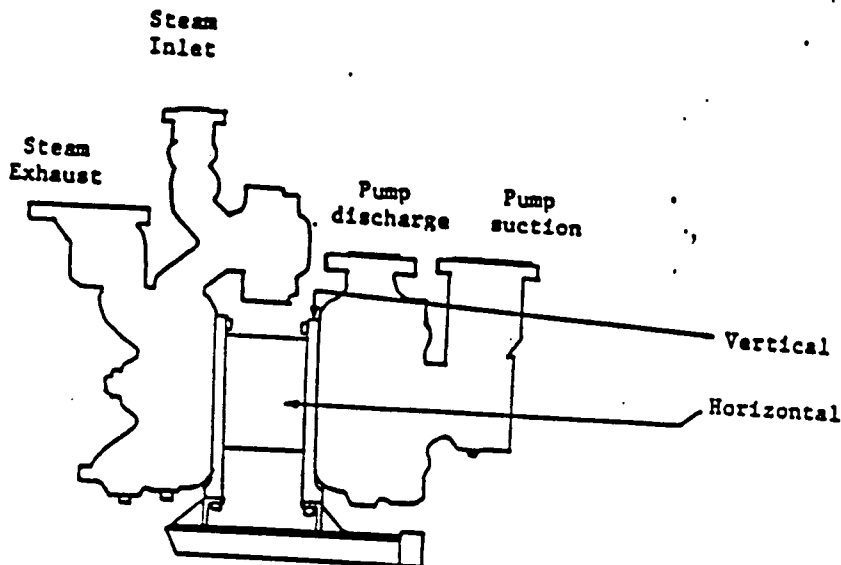
FOR INFORMATION ONLY

VIBRATION DATA

PUMP	DATA		ACCEPTANCE CRITERIA
	SDAFW	HORIZONTAL	.35 MILS
VERTICAL		.3 MILS	N/A
SDAFW	HORIZONTAL	(1) .095 IN/SEC	N/A
	VERTICAL	(1) .15 IN/SEC	N/A

(1) If vibration exceeds 0.3 in/sec. notify Technical Support - Systems.

VIBRATION DATA POINTS



28888 0207

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed by	Initials	Name (Print)	Date
1/2 H.A. Lindner 5/16/89	<u>[Signature]</u>	DAN AKERS	5/16/89
	<u>[Signature]</u>	STEVE BIEDERBACH	5/16/89
	<u>[Signature]</u>	KORWIN	5/16/89
	<u>[Signature]</u>	C. WINTER	5/16/89

Test Complete: Date 5/16/89 Time 2330

Test Satisfactory: Yes / No (Circle one)

Reviewed by: C. Winter Date 5/16/89 Time 2330
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) DP IN DIE REQUIRED
NOON RINSE, WASH WATER - AFFL. EXHAUST SUMP PUMP INOPERABLE

Approved by: [Signature] Date 5/18/89
Unit 2 - Operating Supervisor

Reviewed by: W. McCutcheon Date 5/19/89
ISI Coordinator

FOR INFORMATION ONLY

0208
2888

2888 01213

3.0 PREREQUISITES (Continued)

3.5 This revision is the latest revision available and has been verified against the Revision Status List.

Steve Biedon Rach (Print) [Signature] 5-17-89
Name Signature Date

3.6 The Shift Foreman has given his permission to conduct this test.

[Signature] 5/17/89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump run time shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 Ensure that the Condensate Storage Tank chemistry is within required specifications prior to feeding the Steam Generators.

4.6 Closely monitor steam generator level indicators to ensure the desired level is maintained during the test.

4.7 Reactor Power and Turbine/Generator output should be closely monitored during performance of this OST since the colder feedwater may affect power and output.

2888 0214

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Calibrated Stop Watch No. 1162-4 Cal. Date 3/30/89 (Within 12 mo.)

5.2 RPM Indicator

5.3 Two-way Radios

5.4 Vibration Detector with magnetic probe

5.5 Pyrometer

5.6 EST-013

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥1162.5 ≤1275 psig	Low ≥1125, <1162.5 psig High >1275, ≤1287.5 psig	<1125, >1287.5 psig

6.1.1 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2 If the differential pressure calculated in Step 7.2.23 is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.1.3 If the differential pressure calculated in Step 7.2.23 falls within the ALERT RANGE of Step 6.1, the frequency of testing shall be revised to monthly until the cause of the deviation is determined and corrected and either of the existing reference values reverified or a new set established per IWP-3111 (ASME Section XI).

FOR INFORMATION ONLY

7.0 PROCEDURE (Continued)

INITIALS

7.2.10 START the SDAFW pump by opening the following valves:

- 1. S/G "A" Steam Supply to SDAFW Pump, V1-8A V1-8A OPEN 10
- 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B V1-8B OPEN 10
- 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C V1-8C OPEN 10

7.2.11 OPEN the following auxiliary feedwater supply valves:

- 1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A V2-14A OPEN 10
- 2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B V2-14B OPEN 10
- 3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C V2-14C OPEN 10

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12 SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm.

7.2.13 Record the following data after 5 minutes of operation at 600 gpm:

Shaft RPM 9250 RPM 10

SDAFW Pump Discharge Pressure (PI-1426) 1280 psig 10

SDAFW Pump Suction Pressure (PI-1478) 40 psig 10

NOTE

Step 7.2.13 confirms the opening of check valve AFW-84.

2888 0219

7.0 PROCEDURE (Continued)

INITIALS VERIFIED BY

7.2.14 Record SDAFW Pump vibration on ATTACHMENT 8.1.

B

7.2.15 Record bearing temperature per EST-013.

N/A

7.2.16 CLOSE AFW-17, SDAFW Pump Recirculation Isolation.

B

7.2.17 Allow the SDAFW pump discharge to stabilize and record the indicated discharge pressure, flow and speed.

PI-1426 1340 psig FI-6416 645 gpm
Speed 9400 RPM

7.2.18 OPEN AFW-17, SDAFW Pump Recirculation Isolation.

B SW

7.2.19 STOP the SDAFW pump by closing the following valves:

1. S/G "A" Steam Supply to SDAFW Pump, V1-8A

V1-8A CLOSED B

2. S/G "B" Steam Supply to SDAFW Pump, V1-8B

V1-8B CLOSED B

3. S/G "C" Steam Supply to SDAFW Pump, V1-8C

V1-8C CLOSED B

7.2.20 CLOSE the following valves:

1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A

V2-14A CLOSED B

2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B

V2-14B CLOSED B

3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C

V2-14C CLOSED B

7.2.21 FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIC-6416 in MANUAL.

AFW-FCV-6416 OPEN B SW

7.2.22 Return FIC-6416 to AUTO mode and set at 600 gpm.

FIC-6416 IN AUTO B SW

7.2.23 Calculate pump AP from the data gathered in Step 7.2.13.

FIC-6416 AT 600 GPM B SW

$$\frac{1280}{\text{Discharge Pressure (PI-1426)}} - \frac{40}{\text{Suction Pressure (PI-1478)}} = \frac{1280}{\text{AP}}$$

2888 0220

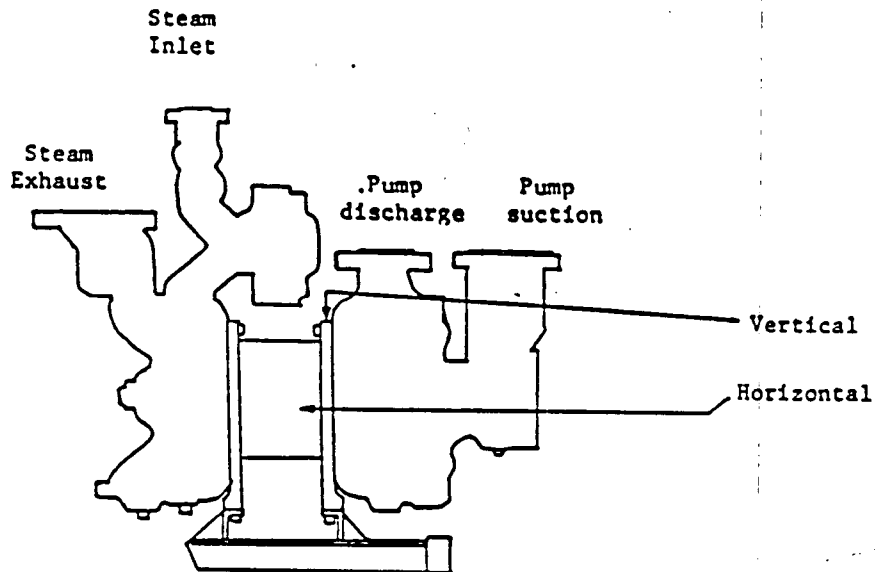
EQUIPMENT ONLY

VIBRATION DATA

PUMP	DATA		ACCEPTANCE CRITERIA
SDAFW	HORIZONTAL	.28 MILS	N/A
	VERTICAL	.3 MILS	N/A
SDAFW	HORIZONTAL	(1) .12 IN/SEC	N/A
	VERTICAL	(1) .1 IN/SEC	N/A

(1) If vibration exceeds 0.3 in/sec. notify Technical Support - Systems.

VIBRATION DATA POINTS



28881-02222

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) All PAGES - PLATE SCREW PUMP B13 AFTER CALIBRATION OF P1-1426.

02223
2888

Test Performed by	Initials	Name (Print)	Date
	<u>R</u>	<u>Steve RIMMABACH</u>	<u>5-17-89</u>
	<u>M</u>	<u>K ORRIN</u>	<u>5/17/89</u>
	<u>H</u>	<u>H.A. WINGEN</u>	<u>5/17/89</u>
	<u>W</u>	<u>O AKERS</u>	<u>5/17/89</u>

Test Complete: Date 5/17/89 Time 0115

Test Satisfactory: Yes / No (Circle one)

Reviewed by: CMW/utb
Unit 2 - Shift Foreman Date 5/17/89 Time 0115

Comments: (Required if results were unsatisfactory)

Approved by: [Signature]
Unit 2 - Operating Supervisor Date 5/18/89

Reviewed by: W. McCutcheon
ISI Coordinator Date 5/19/89

ATION ONLY

29150329

3.0 PREREQUISITES (Continued)

3.5 This revision is the latest revision available and has been verified against the Revision Status List.

D. McSkill (Print) *D. McSkill* 6/14/89
Name Signature Date

3.6 The Shift Foreman has given his permission to conduct this test.

D. McSkill 6/14/89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump run time shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 Ensure that the Condensate Storage Tank chemistry is within required specifications prior to feeding the Steam Generators.

4.6 Closely monitor steam generator level indicators to ensure the desired level is maintained during the test.

4.7 Reactor Power and Turbine/Generator output should be closely monitored during performance of this OST since the colder feedwater may affect power and output.

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Calibrated Stop Watch No. H62-3 Cal. Date 3-30-87 (Within 12 mo.)

5.2 RPM Indicator

5.3 Two-way Radios

5.4 Vibration Detector with magnetic probe

5.5 Pyrometer

5.6 EST-013

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥ 1162.5 ≤ 1275 psig	Low ≥ 1125 , < 1162.5 psig High > 1275 , ≤ 1287.5 psig	< 1125 , > 1287.5 psig

6.1.1 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2 If the differential pressure calculated in Step 7.2.23 is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.1.3 If the differential pressure calculated in Step 7.2.23 falls within the ALERT RANGE of Step 6.1, the frequency of testing shall be revised to monthly until the cause of the deviation is determined and corrected and either of the existing reference values reverified or a new set established per IWP-3111 (ASME Section XI).

2915 0330

7.0 PROCEDURE (Continued)

INITIALS

7.2.10 START the SDAFW pump by opening the following valves:

1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A OPEN Min
2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B OPEN Min
3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C OPEN Min

7.2.11 OPEN the following auxiliary feedwater supply valves:

1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A
V2-14A OPEN Min
2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B
V2-14B OPEN Min
3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C
V2-14C OPEN Min

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12 SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm. Min

7.2.13 Record the following data after 5 minutes of operation at 600 gpm:

Shaft RPM	<u>9800</u>	RPM	<u>7c</u>
SDAFW Pump Discharge Pressure (PI-1426)	<u>1300</u>	psig	<u>7c</u>
SDAFW Pump Suction Pressure (PI-1478)	<u>0</u>	psig	<u>7c</u>

NOTE

Step 7.2.13 confirms the opening of check valve AFW-84.

29150335

INITIALS VERIFIED BY

7.0 PROCEDURE (Continued)

- 7.2.14 Record SDAFW Pump vibration on ATTACHMENT 8.1. JK
- 7.2.15 Record bearing temperature per EST-013. N/A ^⓪
- 7.2.16 CLOSE AFW-17, SDAFW Pump Recirculation Isolation. JK
- 7.2.17 Allow the SDAFW pump discharge to stabilize and record the indicated discharge pressure, flow and speed.
PI-1426 1340 psig FI-6416 645 gpm
Speed 9810 RPM
- 7.2.18 OPEN AFW-17, SDAFW Pump Recirculation Isolation. JK JK
- 7.2.19 STOP the SDAFW pump by closing the following valves:
1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A CLOSED JK
 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B CLOSED JK
 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C CLOSED JK
- 7.2.20 CLOSE the following valves:
1. SDAFW Pump Feedwater Discharge to S/G "A",
V2-14A V2-14A CLOSED JK
 2. SDAFW Pump Feedwater Discharge to S/G "B",
V2-14B V2-14B CLOSED JK
 3. SDAFW Pump Feedwater Discharge to S/G "C",
V2-14C V2-14C CLOSED JK
- 7.2.21 FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIC-6416 in MANUAL.
AFW-FCV-6416 OPEN JK BCW
- 7.2.22 Return FIC-6416 to AUTO mode and set at 600 gpm.
FIC-6416 IN AUTO JK BCW
FIC-6416 AT 600 GPM JK BCW
- 7.2.23 Calculate pump ΔP from the data gathered in Step 7.2.13.

$$\frac{1300}{\text{Discharge Pressure (PI-1426)}} - \frac{0}{\text{Suction Pressure (PI-1478)}} = \frac{1300}{\Delta P}$$

2.915 0.33.6

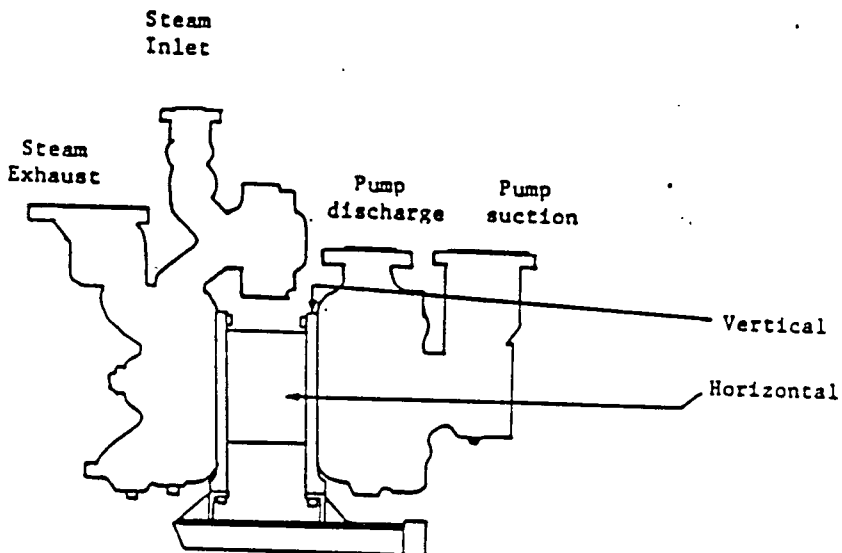
FOR INFORMATION ONLY

VIBRATION DATA

PUMP	DATA			ACCEPTANCE CRITERIA
	SDAFW	HORIZONTAL	.5	MILS
VERTICAL		.5	MILS	N/A
SDAFW	HORIZONTAL	(1) .1	IN/SEC	N/A
	VERTICAL	(1) .14	IN/SEC	N/A

(1) If vibration exceeds 0.3 in/sec. notify Technical Support - Systems.

VIBRATION DATA POINTS



2915, 0338

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test): Scheduled due to increased frequency

Initials	Name (Print)	Date
<u>Min</u>	<u>M. J. RADCLIFF</u>	<u>6-14-89</u>
<u>BCW</u>	<u>L. C. WALDSMITH</u>	<u>6-14-89</u>
<u>TC</u>	<u>KON A. SMITH</u>	<u>6/14/89</u>
<u>AC</u>	<u>M.K. CURVE</u>	<u>6-14-89</u>

Test Complete: Date 6-14-89 Time 2225

Test Satisfactory: Yes / No (Circle one)

Reviewed by: D.M. McGill Date 6/14/89 Time 2235
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) EST-CIB WAS PERFORMED ON 1-26-89 AND IS AN ANNUAL TEST. THIS OST WAS PERFORMED TO MEASURE DP WHICH WAS IN THE ALERT RANGE AT LAST TESTING. WR # 87 - A FEW H I TO VERIFY PI1426 Calibration. WR # 89 - A FEW I - SINCE GROUP IS REQUIRED ACTION RANGE AND OPERABLE.

Approved by: [Signature] Date 6/14/89
Unit 2 - Operating Supervisor

Reviewed by: W. McCutcheon Date 6/19/89
ISI Coordinator

FOR INFORMATION ONLY

29150339

2933 1987

3.0 PREREQUISITES (Continued)

3.5 This revision is the latest revision available and has been verified against the Revision Status List.

Ben Parviz (Print) [Signature] 6-15-89
Name Signature Date

3.6 The Shift Foreman has given his permission to conduct this test.

[Signature] 6/15/89
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump run time shall not exceed 30 minutes while on mini-flow recirculation.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 Ensure that the Condensate Storage Tank chemistry is within required specifications prior to feeding the Steam Generators.

4.6 Closely monitor steam generator level indicators to ensure the desired level is maintained during the test.

4.7 Reactor Power and Turbine/Generator output should be closely monitored during performance of this OST since the colder feedwater may affect power and output.

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Calibrated Stop Watch No. NA Cal. Date NA (Within 12 mo.)

5.2 RPM Indicator

5.3 Two-way Radios

5.4 Vibration Detector with magnetic probe

5.5 Pyrometer

5.6 EST-013

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥ 1162.5 ≤ 1275 psig	Low ≥ 1125 , < 1162.5 psig High > 1275 , ≤ 1287.5 psig	< 1125 , > 1287.5 psig

6.1.1 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2 If the differential pressure calculated in Step 7.2.23 is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.1.3 If the differential pressure calculated in Step 7.2.23 falls within the ALERT RANGE of Step 6.1, the frequency of testing shall be revised to monthly until the cause of the deviation is determined and corrected and either of the existing reference values reverified or a new set established per IWP-3111 (ASME Section XI).

7.0

PROCEDURE (Continued)

INITIALS

7.2.10

START the SDAFW pump by opening the following valves:

1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
3. S/G "C" Steam Supply to SDAFW Pump, V1-8C

V1-8A OPEN JP
V1-8B OPEN JP
V1-8C OPEN JP

7.2.11

OPEN the following auxiliary feedwater supply valves:

1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A
2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B
3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C

V2-14A OPEN JP
V2-14B OPEN JP
V2-14C OPEN JP

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12

SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm.

7.2.13

Record the following data after 5 minutes of operation at 600 gpm:

Shaft RPM 9550 RPM 770
SDAFW Pump Discharge Pressure (PI-1426) 1290 psig 724
SDAFW Pump Suction Pressure (PI-1478) 20 psig 724

NOTE

Step 7.2.13 confirms the opening of check valve AFW-8A.

2933 1-9-93

7.0 PROCEDURE (Continued) INITIALS VERIFIED BY

7.2.14 Record SDAFW Pump vibration on ATTACHMENT 8.1. NA ⓐ

7.2.15 Record bearing temperature per EST-013. NA ⓐ

7.2.16 CLOSE AFW-17, SDAFW Pump Recirculation Isolation. NA ⓐ

7.2.17 Allow the SDAFW pump discharge to stabilize and record the indicated discharge pressure, flow and speed.
PI-1426 1290 psig PI-6416 600 gpm
Speed 9550 RPM

7.2.18 OPEN AFW-17, SDAFW Pump Recirculation Isolation. NA ⓐ

7.2.19 STOP the SDAFW pump by closing the following valves: ⓐ SECCOMENS

1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A CLOSED AB

2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B CLOSED AB

3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C CLOSED AB

7.2.20 CLOSE the following valves:

1. SDAFW Pump Feedwater Discharge to S/G "A",
V2-14A V2-14A CLOSED AB

2. SDAFW Pump Feedwater Discharge to S/G "B",
V2-14B V2-14B CLOSED AB

3. SDAFW Pump Feedwater Discharge to S/G "C",
V2-14C V2-14C CLOSED AB

7.2.21 FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIC-6416 in MANUAL.
AFW-FCV-6416 OPEN AB nd

7.2.22 Return FIC-6416 to AUTO mode and set at 600 gpm.
FIC-6416 IN AUTO AB nd
FIC-6416 AT 600 GPM AB nd

7.2.23 Calculate pump ΔP from the data gathered in Step 7.2.13.

$$\frac{1290}{\text{Discharge Pressure (PI-1426)}} - \frac{< 6}{\text{Suction Pressure (PI-1478)}} = > 1290 \Delta P$$

1995 2:29:33

SUNSHINE CITY

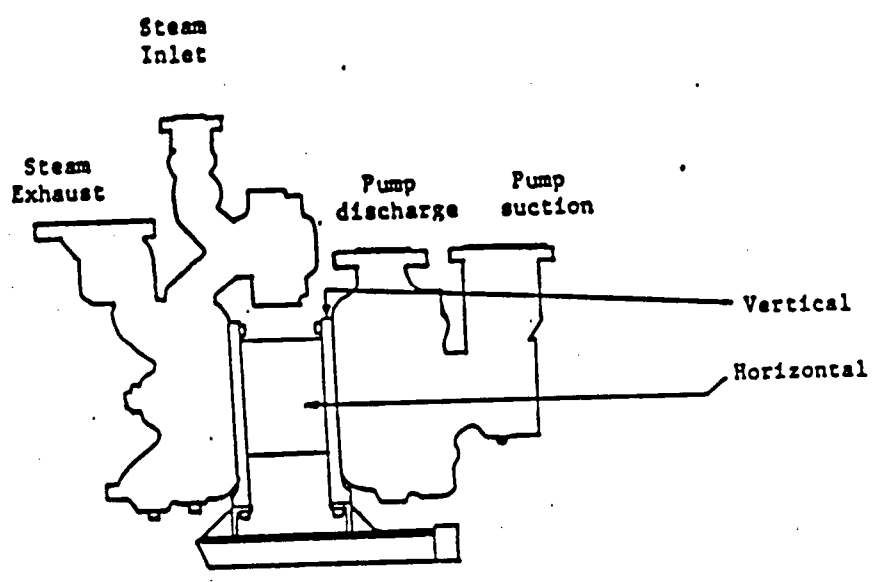
VIBRATION DATA

PUMP	DATA		ACCEPTANCE CRITERIA
SDAFW	HORIZONTAL	① NA MILS	N/A
	VERTICAL	① NA MILS	N/A
SDAFW	HORIZONTAL	(1) ① NA IN/SEC	N/A
	VERTICAL	(1) ① NA IN/SEC	N/A

(1) If vibration exceeds 0.3 in/sec. notify Technical Support - Systems.

① SEE COMMENTS

VIBRATION DATA POINTS



29331-1996

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) Performed to test SD AEW Pump after
repair of P1-1426 Discharge Pressure gauge (CALIBRATION)
ALL PAGES INCLUDED

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>MB</u>	<u>M. GANN</u>	<u>6/15/89</u>
	<u>AS</u>	<u>D. Dillings</u>	<u>6-15-89</u>
	<u>CM</u>	<u>COMINTAS</u>	<u>6/15/89</u>

Test Complete: Date 6/15/89 Time 1615

Test Satisfactory: Yes No (Circle one)

Reviewed by: CMWmtas Date 6/15/89 Time 1620
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) PUMP STILL IN
REQUIRED PERON RANGE WAB9-APN I I

SDRAW PUMP RUN TO VERIFY PROPER DP ONLY, NO OTHER DATA
REQUIRED. NA ON STEPS NOT ^{done} ~~done~~ IN OMMOIS SECT 5.2.2.
DATE 6/15/89

Approved by: Paul Stee Date 7/4/89
Unit 2 - Operating Supervisor

Reviewed by: W McCutcheon Date 7/6/89
ISI Coordinator

1-9-97
2-9-33

3.0 PREREQUISITES (Continued)

3.1 This revision is the latest revision available and has been verified against the Revision Status List.

E. A. Yarnick (Print) [Signature] 6-16-19
Name Signature Date

3.2 The Shift Foreman has given his permission to conduct this test.

[Signature] 6/16/19
Shift Foreman Date

4.0 PRECAUTIONS AND LIMITATIONS

4.1 Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2 Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3 The Steam Driven Pump shall be run for a minimum of 5 minutes while feeding the S/C's before any pump or vibration data is recorded. Maintain load mode while obtaining data. This 5 minute requirement will satisfy the ISI Code.

4.4 Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5 Ensure that the Condensate Storage Tank chemistry is within required specifications prior to feeding the Steam Generators.

4.6 Closely monitor steam generator level indicators to ensure the desired level is maintained during the test.

4.7 Reactor Power and Turbine/Generator output should be closely monitored during performance of this OST since the colder feedwater may affect power and output.

1972
2933

5.0 SPECIAL TOOLS AND EQUIPMENT

5.1 Calibrated Stop Watch No. HSP-3 Cal. Date 3-30-89 (Within 12 mo.)

5.2 RPM Indicator

5.3 Two-way Radios

5.4 Vibration Detector with magnetic probe

5.5 Pyrometer

5.6 EST-013

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAFW Pump	≥1247 ≤1366 psig	Low ≥1206	<1206
			High >1366 ≤1380 psig	>1380 psig
Vibration	SDAFW Pump	≤1 MILS	>1	>1.5 MILS
			≤1.5 MILS	

6.1.1 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2 If the differential pressure calculated in Step 7.2.23 or the vibration measured is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

FOR INFORMATION ONLY

7.0 PROCEDURE (Continued)

INITIALS

7.2.10 START the SDAFW pump by opening the following valves:

1. S/G "A" Steam Supply to SDAFW Pump, V1-8A V1-8A OPEN ms
2. S/G "B" Steam Supply to SDAFW Pump, V1-8B V1-8B OPEN ms
3. S/G "C" Steam Supply to SDAFW Pump, V1-8C V1-8C OPEN ms

7.2.11 OPEN the following auxiliary feedwater supply valves:

1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A V2-14A OPEN ms
2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B V2-14B OPEN ms
3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C V2-14C OPEN ms

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12 SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm. ms

7.2.13 Record the following data in the S/G feed mode at 600 gpm.
SDAFW Pump Discharge Pressure (PI-1426) 1340 psig ms
SDAFW Pump Suction Pressure (PI-1478-1) 0 psig ms

NOTE

Step 7.2.13 confirms the opening of check valve AFW-84.

7.2.14 CLOSE AFW-17, SDAFW Pump Recirculation Isolation. ms

FOR INFORMATION ONLY

2933 1978

- | 7.0 | <u>PROCEDURE</u> (Continued) | <u>INITIALS</u> | <u>VERIFIED BY</u> |
|--------|---|-----------------|--------------------|
| 7.2.15 | Slowly open AFW-FCV-6416 by adjusting FIC-6416 in manual and set for 645 gpm. | <u>WJ</u> | |
| 7.2.16 | Record SDAFW Pump vibration on ATTACHMENT 8.1 after five minutes of pump operation at 645 gpm. | <u>WJ</u> | |
| 7.2.17 | Maintaining flow at 645 gpm, record the indicated discharge pressure, suction pressure, flow and speed.
PI-1426 <u>139.0</u> psig, FI-6416 <u>645</u> gpm,
PI-1478-1 <u>0</u> , Speed <u>9520</u> RPM | | |
| 7.2.18 | OPEN AFW-17, SDAFW Pump Recirculation Isolation. | <u>Foy</u> | <u>AD</u> |
| 7.2.19 | STOP the SDAFW pump by closing the following valves: | | |
| | 1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A CLOSED | <u>WJ</u> | |
| | 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B CLOSED | <u>WJ</u> | |
| | 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C CLOSED | <u>WJ</u> | |
| 7.2.20 | CLOSE the following valves: | | |
| | 1. SDAFW Pump Feedwater Discharge to S/G "A",
V2-14A V2-14A CLOSED | <u>WJ</u> | |
| | 2. SDAFW Pump Feedwater Discharge to S/G "B",
V2-14B V2-14B CLOSED | <u>WJ</u> | |
| | 3. SDAFW Pump Feedwater Discharge to S/G "C",
V2-14C V2-14C CLOSED | <u>WJ</u> | |
| 7.2.21 | FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIC-6416 in MANUAL.
AFW-FCV-6416 OPEN | <u>WJ</u> | <u>WJ</u> |
| 7.2.22 | Return FIC-6416 to AUTO mode and set at 600 gpm.
FIC-6416 IN AUTO
FIC-6416 AT 600 GPM | <u>WJ</u> | <u>WJ</u> |
| 7.2.23 | Calculate pump ΔP from the data gathered in Step 7.2.17. | | |

$$\frac{1390}{\text{Discharge Pressure (PI-1426)}} - \frac{0}{\text{Suction Pressure (PI-1478-1)}} = \frac{1390}{\Delta P}$$

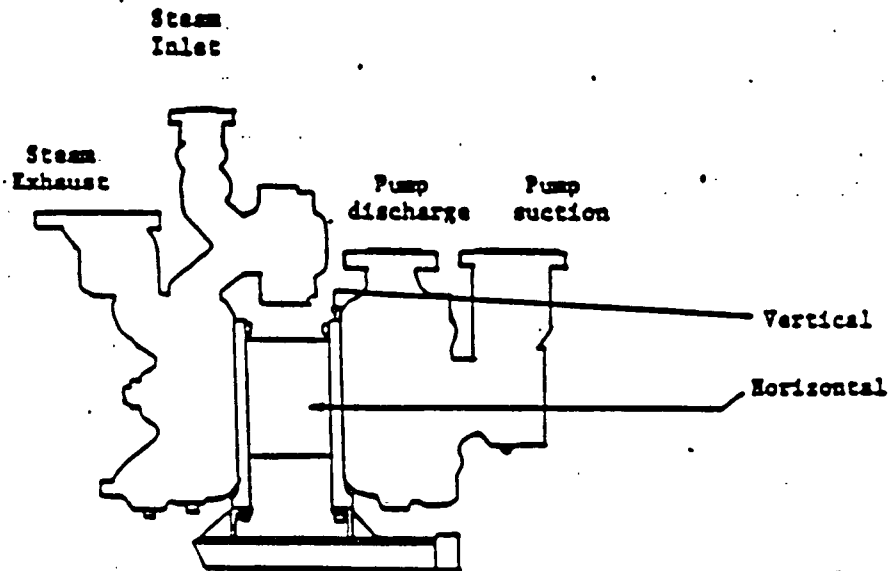
INFO ONLY

*VIBRATION DATA

PUMP	DATA			ACCEPTANCE CRITERIA
SDAFW	HORIZONTAL	1.5	MILS	≤1 MILS
	VERTICAL	2.0	MILS	≤1 MILS
SDAFW	HORIZONTAL	(1) .2	IN/SEC	N/A
	VERTICAL	(1) .14	IN/SEC	N/A

(1) If vibration exceeds 0.3 in/sec. notify Technical Support - Systems.
 *NOTE: SDAFW pump vibrations (displacement and velocity) should only be taken after 3 continuous minutes of feeding the S/C's at 645 gpm, maintaining this feed mode until all vibration readings are obtained.

VIBRATION DATA POINTS



2933 1981

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) All pages included to place SDAFW AIS

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>JD</u>	<u>Jim BERRY</u>	<u>6-16-89</u>
	<u>779</u>	<u>F.B. SCHWIER</u>	<u>6-16-89</u>
	<u>MS</u>	<u>M. GANN</u>	<u>6/16/89</u>

Test Complete: Date 6-16-89 Time 1750

Test Satisfactory: Yes / No (Circle one)

Reviewed by: CMW/mts Date 6/16/89 Time 1843
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) vibrations and pump AP were both in the action required range. The cause is under investigation. AIR #89-AFWI1 AND #89-AFXW1

Approved by: [Signature] Date 7/4/89
Unit 2 - Operating Supervisor

Reviewed by: W McCutcheon Date 7/6/89
ISI Coordinator

2.933 1982

3.0

PREREQUISITES (Continued)

3.5

This revision is the latest revision available and has been verified against the Revision Status List.

<u>David H. Kasey</u>	(Print)	<u>[Signature]</u>	<u>6-16-89</u>
Name		Signature	Date

3.6

The Shift Foreman has given his permission to conduct this test.

<u>[Signature]</u>	<u>6-16-89</u>
Shift Foreman	Date

4.0

PRECAUTIONS AND LIMITATIONS

4.1

Both of the isolation valves on the Service Water and Deep Well Water Backup Systems should be closed with the telltale drain valve open to prevent the Condensate System from being contaminated with untreated water.

4.2

Ensure the Automatic Feedwater Control System is functioning properly while performing this test.

4.3

The Steam Driven Pump shall be run for a minimum of 5 minutes while feeding the S/G's before any pump or vibration data is recorded. Maintain feed mode while obtaining data. This 5 minute requirement will satisfy the ISI Code.

4.4

Before testing the Steam Driven Pump, warm up the steam header and turbine shell.

4.5

Ensure that the Condensate Storage Tank chemistry is within required specifications prior to feeding the Steam Generators.

4.6

Closely monitor steam generator level indicators to ensure the desired level is maintained during the test.

4.7

Reactor Power and Turbine/Generator output should be closely monitored during performance of this OST since the colder feedwater may affect power and output.

5.0

SPECIAL TOOLS AND EQUIPMENT

5.1

Calibrated Stop Watch No. 3 Cal. Date 7/11/87 (Within 12 mo.)

5.2

RPM Indicator

5.3

Two-way Radios

5.4

Vibration Detector with magnetic probe

6.1

Pyrometer

2940

EST-013

6.1

ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure	SDAPW Pump	≥1247	Low ≥1206	<1206
		≤1366 psig	High >1366 ≤1380 psig	>1380 psig
Vibration	SDAPW Pump	≤1 MILS	>1	>1.5 MILS
			≤1.5 MILS	>1.5 MILS

6.1.1

If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.1.2

If the differential pressure calculated in Step 7.2.23 or the vibration measured is greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

7.0 PROCEDURE (Continued)

INITIALS

7.2.10 START the SDAFW pump by opening the following valves:

- 1. S/G "A" Steam Supply to SDAFW Pump, V1-8A
V1-8A OPEN SW
- 2. S/G "B" Steam Supply to SDAFW Pump, V1-8B
V1-8B OPEN SW
- 3. S/G "C" Steam Supply to SDAFW Pump, V1-8C
V1-8C OPEN SW

7.2.11 OPEN the following auxiliary feedwater supply valves:

- 1. SDAFW Pump Feedwater Discharge to S/G "A", V2-14A
V2-14A OPEN SW
- 2. SDAFW Pump Feedwater Discharge to S/G "B", V2-14B
V2-14B OPEN SW
- 3. SDAFW Pump Feedwater Discharge to S/G "C", V2-14C
V2-14C OPEN SW

CAUTION

CLOSELY MONITOR REACTOR POWER, TURBINE/GENERATOR LOAD, AND STEAM GENERATOR LEVELS TO ENSURE NO ABNORMAL CONDITIONS OCCUR FROM FEEDING COLD WATER TO THE STEAM GENERATORS.

7.2.12 SLOWLY OPEN AFW-FCV-6416 by adjusting FIC-6416 in MANUAL and set for 600 gpm. SW

7.2.13 Record the following data in the S/G feed mode at 600 gpm.
SDAFW Pump Discharge Pressure (PI-1426) 1345 psig f
SDAFW Pump Suction Pressure (PI-1478-1) <0 psig f

NOTE

Step 7.2.13 confirms the opening of check valve AFW-84.

7.2.14 CLOSE AFW-17, SDAFW Pump Recirculation Isolation. f

7.0 PROCEDURE (Continued) INITIALS VERIFIED BY

7.2.15 Slowly open AFW-FCV-6416 by adjusting FIC-6416 in manual and set for 645 gpm. SDW

7.2.16 Record SDAFW Pump vibration on ATTACHMENT 8.1 after five minutes of pump operation at 645 gpm. f

7.2.17 Maintaining flow at 645 gpm, record the indicated discharge pressure, suction pressure, flow and speed.
PI-1426 1400 psig, VI-6416 640 gpm,
PI-1478-1 < 0, Speed 9600 RPM

7.2.18 OPEN AFW-17, SDAFW Pump Recirculation Isolation. m f

7.2.19 STOP the SDAFW pump by closing the following valves:

1. S/G "A" Steam Supply to SDAFW Pump, VI-8A
VI-8A CLOSED SDW
2. S/G "B" Steam Supply to SDAFW Pump, VI-8B
VI-8B CLOSED SDW
3. S/G "C" Steam Supply to SDAFW Pump, VI-8C
VI-8C CLOSED SDW

7.2.20 CLOSE the following valves:

1. SDAFW Pump Feedwater Discharge to S/G "A",
V2-14A VI-14A CLOSED SDW
2. SDAFW Pump Feedwater Discharge to S/G "B",
V2-14B VI-14B CLOSED SDW
3. SDAFW Pump Feedwater Discharge to S/G "C",
V2-14C VI-14C CLOSED SDW

7.2.21 FULLY OPEN the Steam Driven Flow Control Valve, AFW-FCV-6416, using FIC-6416 in MANUAL.
AFW-FCV-6416 OPEN SDW f

7.2.22 Return FIC-6416 to AUTO mode and set at 600 gpm.
FIC-6416 IN AUTO SDW f
FIC-6416 AT 600 GPM SDW f

7.2.23 Calculate pump ΔP from the data gathered in Step 7.2.17.

$$\frac{1400}{\text{Discharge Pressure (PI-1426)}} - \frac{0}{\text{Suction Pressure (PI-1478-1)}} = \frac{1400}{\Delta P}$$

ATTN: PRODUCTION ONLY

Vibrations taken when Pump Recirc Valve (Afw-M) WAS opened and flow stable. *DM*

	Mils	Velocity
Horizontal	0.6	0.05
Vertical	0.5	0.05

ATTACHMENT 8.1
Page 1 of 1

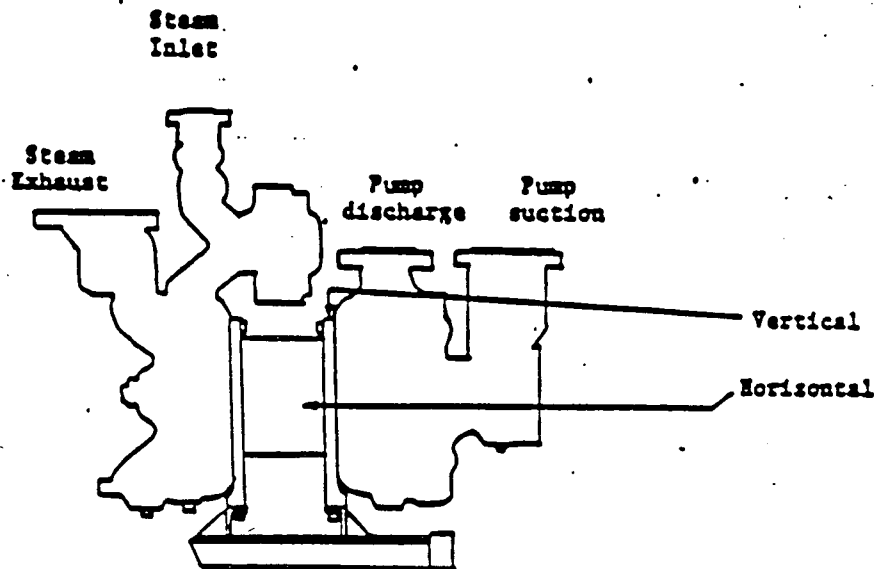
*VIBRATION DATA

PUMP	DATA		ACCEPTANCE CRITERIA
SDAFW	HORIZONTAL	2.0 MILS	≤1 MILS
	VERTICAL	8.2 MILS	≤1 MILS
TDAFW	HORIZONTAL	(1) .15 IN/SEC	N/A
	VERTICAL	(1) .18 IN/SEC	N/A

(1) If vibration exceeds 0.3 in/sec. notify Technical Support - Systems.
NOTE: SDAFW pump vibrations (displacement and velocity) should only be taken after 5 continuous minutes of feeding the S/G's at 645 gpm, maintaining this feed mode until all vibration readings are obtained.

VIBRATION DATA POINTS

2940



ATTENTION ONLY

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) Retest Done as part of Maintenance
trouble shooting, all pages included.

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
1	<u>[Signature]</u>	<u>E. Leggett</u>	<u>6/16/89</u>
1	<u>[Signature]</u>	<u>T. E. White</u>	<u>6/16/89</u>
2	<u>[Signature]</u>	<u>M. Robanick</u>	<u>6-16-89</u>
1	<u>[Signature]</u>	<u>L. O. Moore</u>	<u>6-16-89</u>

Test Complete: Date 6/16/89 Time 2340

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 6-17-89 Time 0152
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) ① SDAGW^{Pump} still
inoperable due to high amp and high
vibrations. - Work Requests # 89-AFWT 4 AFX 21
and 89-AFXW1 have been submitted on 6-17-89
1800 6/17/89 This test is accepted IAW OMM-DIS see attached
sheet. D. McCall

Approved by: [Signature] Date 7/4/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 7/6/89
ISI Coordinator

FROM: I46026 --VMRSCS
TO: I24145 --VMRSCS

DATE AND TIME 06/17/89 17:41:13

SUBJECT: SDAFW PUMP OPERABILITY (OST-202 AND OST-206)

BASED ON MY REVIEW OF THE SDAFW PUMP DATA FROM 6/16/89 AND 6/17/89, THE CONDITION OF THE PUMP IS CONSISTANT WITH ITS CONDITION OVER THE PAST YEAR AND NO OPERABILITY CONCERNS EXIST. DATA FROM OST-206 SINCE 3/10/88 CORRECTED FOR DIFFERENCES IN SPEED HAS AVERAGED SLIGHTLY ABOVE THE PUMP'S SHOP CURVE. THE LAST DATA REVEALS THE PUMP TO BE 2.4% ABOVE THE CURVE, THEREFORE DEMONSTRATING ITS ABILITY TO PERFORM ITS INTENDED FUNCTION. THIS PERFORMANCE VALUE IS ESSENTIALLY THE SAME AS MEASURED ON 3/10/88 AND 5/17/89. PER DISCUSSIONS WITH PACIFIC PUMP, NO MECHANICAL PROBLEM COULD CAUSE A ELEVATED DISCHARGE PRESSURE. ONLY A REDUCED FLOW OR A HIGHER SPEED COULD CAUSE THE HIGHER TDH. THE ACCURACY OF THE RECENT DATA WAS CHECKED USING ADDITIONAL TEST GAUGES AND FLOW MEASURING EQUIPMENT AND CHECKING THE TACH ON PLANT EQUIPMENT OF KNOWN SPEEDS. NO PROBLEMS WERE FOUND WITH THE INSTRUMENTATION. PACIFIC PUMP WAS ALSO CONSULTED CONCERNING THE HIGHER VIBRATIONS OBSERVED WHILE THE PUMP WAS FEEDING THE S/G'S WITH THE RECIRC. CLOSED. PACIFIC PUMP STATED THAT VIBRATION DATA USED TO DETERMINE OPERABILITY SHOULD BE TAKEN IN A MODE OF OPERATION THAT THE PUMP IS REQUIRED TO OPERATE. SINCE THE PUMP IS PROCEDURALLY RESTRICTED FROM OPERATING WITH THE RECIRC. CLOSED, THIS VIBRATION DATA IS NOT AN OPERABILITY CONCERN SINCE IN THE NORMAL MODE (RECIRC. OPENED) THE VIBRATION DATA IS ACCEPTABLE. FOR THESE REASONS OST-206 COMPLETED 2340 ON 6/16/89 AND OST-202 COMPLETED 0346 ON 6/17/89 SHOULD BE ACCEPTED AS SATISFACTORY. BOTH OST-202 AND 206 ACCEPTANCE CRITERIA WILL BE REVISED PRIOR TO THEIR NEXT USE TO ALLOW A MORE ACCURATE DETERMINATION OF PUMP OPERABILITY.

9

2

RICK DAYTON 6/17/89

CC: EB0659
CC: I89970
CC: I87036
CC: I63470

162/16

2412
2162

1.0

PURPOSE

1.1

To verify mechanical performance and assess operational readiness of components to fulfill their required safeguard functions. This test will assess the operation of the motor-driven auxiliary feedwater pumps by measuring flow and differential pressure in accordance with Section XI ASME Code. Check Valves AFW-40, AFW-41, AFW-68, AFW-69, and AFW-70 will also be tested for forward flow.

2.0

REFERENCES

2.1

ASME Section XI, Subsection IWP, 1977 Edition, Summer 1978 Addenda.

2.2

Engineering Flow Diagram, C-190197, Feedwater, Condensate, and Air Evacuation

2.3

OP-402, Auxiliary Feedwater System

3.0

PREREQUISITES

3.1

Only one auxiliary feedwater pump shall be tested at a time.

3.2

The AFW System is aligned per OP-402, ATTACHMENT 9.1.

3.3

The Reactor Coolant System is at cold shutdown (5200°F).

3.4

This revision is the latest revision available and has been verified against the Revision Status List.

W.E. STOVER
Name

(Print)

W.E. Stover
Signature

1-30-88
Date

3.5

The Shift Foreman has given his permission to conduct this test.

John Brown
Shift Foreman

1-30-88
Date

2
4
1
2
2
1
6
4

6.0

ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure (Psig)	A	≥1111, ≤1219 psig	Low ≥1075, <1111 psig High >1219 ≤1231 psig	<1075, >1231 psig
	B	≥1057, ≤1159 psig	Low ≥1023, <1057 psig High >1159, ≤1170 psig	<1023, >1170 psig

- 6.2. Check valves shall exhibit a change of position as required by the data sheet.
- 6.3. If a check valve fails to exhibit the required change of valve position by this testing, then declare the valve inoperable. The condition shall be corrected prior to startup. A retest showing acceptable operation shall be run before the valve is returned to service.
- 6.4. All test data shall be compared with the acceptance criteria contained in this procedure within 96 hours after completion of a test.
- 6.5. The reviewing and approving authorities may accept this test in accordance with the provisions set forth in O&M-015, Operations Surveillance Testing.
- 6.6. When tests show deviations greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.
- 6.7. If the deviations fall within the ALERT RANGE of Step 6.1, the condition shall be evaluated prior to startup.
- 6.8. If the deviations fall within the REQUIRED ACTION RANGE of 6.1, the pump shall be declared inoperable and not returned to service until the condition has been corrected.
- 6.9. The corrective action shall be considered completed when a satisfactory inservice test has been conducted in accordance with IWP-3111 (ASME Section XI) or an analysis is performed that demonstrates that the condition does not impair pump operability and that the pump will still fulfill its function.

PUMP AND VALVE DATA SHEET

REF. STEP NO.	PARAMETER	PUMP TESTED			ACCEPTANCE CRITERIA	
		PI	A	B	A Pump	B Pump
7.2.8 or 7.3.8	Disch. Press.	PI-1424	1200	N/A	N/A	N/A
	PSIG	PI-1425	N/A	1160	N/A	N/A
7.2.9	Suct. Press.	PI-1479	5	N/A	N/A	N/A
	PSIG	PI-1480	N/A	5.5	N/A	N/A
7.2.15	RTCP Flow (Sonic Meter)	PI-1425A	330	N/A	N/A	N/A
7.2.21		PI-1425B	317	N/A	N/A	N/A
7.2.32 or 7.3.19	* Pump AP PSID	X	1195	1154.5	≥1111, ≤1219 psig	≥1057, ≤1159 psig

* Pump AP = (Disch. Press.) - (Suct. Press.)

REF. STEP NO.	CHECK VALVE	VERIFICATION OPEN (INITIALS)
7.2.7	AFW-40	BBB
7.3.7	AFW-41	BBB
7.2.7	AFW-68	BBB
7.2.14	AFW-69	BBB
7.2.20	AFW-70	BBB

**Operability of check valves AFW-40 and AFW-41 OPENING is verified by obtaining a flowrate of 325 GPM through its respective AFW pump. Operability of check valves AFW-68, AFW-69, and AFW-70 OPENING is verified by obtaining a flowrate of 325 GPM to its respective steam generator.

* DR - SI - ABIM

2 1 7 2
2 4 1 2

**SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM**

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

Initials	Name (Print)	DATE
<u>DL</u>	<u>DET. DAVIS</u>	<u>2/1/88</u>
<u>GA</u>	<u>GA...</u>	<u>2/1/88</u>
<u>GA</u>	<u>GA...</u>	<u>2/1/88</u>

Test Complete: Date 2/1/88 Time 1130

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 2-1-88 Time 1134
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory)
In 2-1-88
88-ABTX-1 submitted on 2-1-88
No film indicated

Approved by: [Signature] Date 2-9-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 2/1/88
ISI Coordinator

241202173

1.0 PURPOSE

1.1 To verify mechanical performance and assess operational readiness of components to fulfill their required safeguard functions. This test will assess the operation of the motor driven auxiliary feedwater pumps by measuring flow and differential pressure in accordance with Section XI ASME Code. Check Valves AFW-40, AFW-41, AFW-68, AFW-69, and AFW-70 will also be tested for forward flow.

2.0 REFERENCES

- 2.1 ASME Section XI, Subsection IWP, 1977 Edition, Summer 1978 Addenda.
2.2 Engineering Flow Diagram, G-190197, Feedwater, Condensate, and Air Evacuation
2.3 OP-402, Auxiliary Feedwater System
2.4 EST-013, Auxiliary Feedwater Pump Bearing Temperature Test

3.0 PREREQUISITES

- 3.1 Only one auxiliary feedwater pump shall be tested at a time.
3.2 The AFW System is aligned per OP-402, ATTACHMENT 9.1.
3.3 The Reactor Coolant System is at cold shutdown ($\leq 200^{\circ}\text{F}$).
3.4 This revision is the latest revision available and has been verified against the Revision Status List.

B. Mulligan (Print) B. Mulligan 9-2-88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 9-3-88
Shift Foreman Date

6.0

ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure (Psig)	A	≥1111, ≤1219 psig	Low ≥1075, <1111 psig High >1219 ≤1231 psig	<1075, >1231 psig
	B	≥1057, ≤1159 psig	Low ≥1023, <1057 psig High >1159, ≤1170 psig	<1023, >1170 psig

6.2

Acceptance criteria for vibration will be established after initial performance of this test.

6.3

Check valves shall exhibit a change of position as required by the data sheet.

6.4

If a check valve fails to exhibit the required change of valve position by this testing, then declare the valve inoperable. The condition shall be corrected prior to startup. A retest showing acceptable operation shall be run before the valve is returned to service.

6.5

All test data shall be analyzed within 96 hours after completion of a test.

6.6

The reviewing and approving authorities may accept this test in accordance with the provisions set forth in OCM-015, Operations Surveillance Testing.

6.7

When tests show deviations greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.8

If the deviations fall within the ALERT RANGE of Step 6.1, the condition shall be evaluated prior to startup.

6.9

If the deviations fall within the REQUIRED ACTION RANGE of 6.1, the pump shall be declared inoperable and not returned to service until the condition has been corrected.

6.10

The corrective action shall be considered completed when a satisfactory inservice test has been conducted in accordance with IWP-3111 (ASME Section XI) or an analysis is performed that demonstrates that the condition does not impair pump operability and that the pump will still fulfill its function.

PUMP AND VALVE DATA SHEET

REF. STEP NO.	PARAMETER	PUMP TESTED			ACCEPTANCE CRITERIA	
			A	B		
7.2.8 or 7.3.8	Disch. Press. PSIG	PI-1424	1200	N/A	N/A	
		PI-1425	N/A	1190	N/A	
7.2.9 or 7.3.21	Suct. Press. PSIG	PI-1479	225	N/A	N/A	
		PI-1480	N/A	1.5	N/A	
7.2.9	RTCB Flow (Sonic Meter) Z	FI-1425A	36	N/A	N/A	
7.2.17		FI-1425B	30	N/A	N/A	
7.2.23		FI-1425C	40	N/A	N/A	
7.2.34 or 7.3.21	* Pump ΔP PSID		192.75	1188.5	A Pump ≥1111, ≤1219 psig	B Pump ≥1057, ≤1159 psig
7.2.9 or 7.3.9	Vibration, Mils	Horizontal	.7	.86	N/A	
		Vertical	.16	.13	N/A	

* Pump ΔP = (Disch. Press.) - (Suct. Press.)

REF. STEP NO.	CHECK VALVE	** VERIFICATION OPEN (INITIALS)
7.2.7	AFW-40	BM
7.3.7	AFW-41	BM
7.2.7	AFW-68	BM
7.2.16	AFW-69	BM
7.2.22	AFW-70	BM

**Operability of check valves AFW-40 and AFW-41 OPENING is verified by obtaining a flowrate of 325 GPM through its respective AFW pump.
Operability of check valves AFW-68, AFW-69, and AFW-70 OPENING is verified by obtaining a flowrate of 325 GPM to its respective steam generator.

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) Low partial coil shut down as required
(ALL PAGES 1-16)

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>RPM</u>	<u>R. D. Major</u>	<u>9-3-88</u>
	<u>---</u>	<u>---</u>	<u>---</u>
	<u>---</u>	<u>---</u>	<u>---</u>
	<u>---</u>	<u>---</u>	<u>---</u>

Test Complete: Date 9-3-88 Time 0447

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 9-3-88 Time 0510
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) U. Brown - 15162515251 7-88
13 ATW Unit AP in required action range - (High Air)
Unit was already declared out of service
on 8:30:55 due to air being high on test 201
U. R. 55 - A2 FM1 was originally (scheduled) for AP problem.

Approved by: [Signature] Date 9-10-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 9/20/88
ISI Coordinator

1.0 PURPOSE

1.1 To verify mechanical performance and assess operational readiness of components to fulfill their required safeguard functions. This test will assess the operation of the motor driven auxiliary feedwater pumps by measuring flow and differential pressure in accordance with Section XI ASME Code. Check Valves AFW-40, AFW-41, AFW-6C, AFW-69, and AFW-70 will also be tested for forward flow.

2.0 REFERENCES

- 2.1 ASME Section XI, Subsection IWP, 1977 Edition, Summer 1978 Addenda.
2.2 Engineering Flow Diagram, G-190197, Feedwater, Condensate, and Air Evacuation
2.3 OP-402, Auxiliary Feedwater System
2.4 EST-013, Auxiliary Feedwater Pump Bearing Temperature Test

3.0 PREREQUISITES

- 3.1 Only one auxiliary feedwater pump shall be tested at a time.
3.2 The AFW System is aligned per OP-402, ATTACHMENT 9.1.
3.3 The Reactor Coolant System is at cold shutdown ($\leq 200^{\circ}\text{F}$).
3.4 This revision is the latest revision available and has been verified against the Revision Status List.

HA Wenger (Print) HA Wenger 4/2/88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature] 4/2/88
Shift Foreman Date

6.0

ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure (Psig)	A	≥1111, ≤1219 psig	Low ≥1075, <1111 psig High >1219 ≤1231 psig	<1075, >1231 psig
	B	≥1105, ≤1212 psig	Low ≥1070, <1105 psig High >1212, ≤1224 psig	<1070, >1224 psig

6.2

Acceptance criteria for vibration will be established after initial performance of this test.

6.3

Check valves shall exhibit a change of position as required by the data sheet.

6.4

If a check valve fails to exhibit the required change of valve position by this testing, then declare the valve inoperable. The condition shall be corrected prior to startup. A retest showing acceptable operation shall be run before the valve is returned to service.

6.5

All test data shall be analyzed within 96 hours after completion of a test.

6.6

The reviewing and approving authorities may accept this test in accordance with the provisions set forth in OMM-015, Operations Surveillance Testing.

6.7

When tests show deviations greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.8

If the deviations fall within the ALERT RANGE of Step 6.1, the condition shall be evaluated prior to startup.

6.9

If the deviations fall within the REQUIRED ACTION RANGE of 6.1, the pump shall be declared inoperable and not returned to service until the condition has been corrected.

6.10

The corrective action shall be considered completed when a satisfactory inservice test has been conducted in accordance with IWP-3111 (ASME Section XI) or an analysis is performed that demonstrates that the condition does not impair pump operability and that the pump will still fulfill its function.

PUMP AND VALVE DATA SHEET

REF. STEP NO.	PARAMETER	PUMP TESTED		ACCEPTANCE CRITERIA	
			A B		
7.2.8 or	Disch. Press.	FI-1424	1.7/1.2	N/A	N/A
	PSIG	PI-1425	N/A	1.175	N/A
7.3.8	Suct. Press.	PI-1479	2.3	N/A	N/A
	PSIG	PI-1480	N/A	1.0	N/A
7.2.9	RTGB Flow	FI-1425A	1.0	N/A	N/A
7.2.17	(Sonic Meter)	FI-1425B	1.0	N/A	N/A
7.2.23	Z	FI-1425C	1.0	N/A	N/A
7.2.34 or 7.3.21	* Pump ΔP PSID		1.25/1.1	1174 1174 1174	A Pump B Pump ≥1111, ≥1105, ≤1219 psig ≤1212 psig
7.2.9 or 7.3.9	Vibration, Mils	Horizontal	.32	.36	N/A
		Vertical	.13	.14	N/A

* Pump ΔP = (Disch. Press.) - (Suct. Press.)

REF. STEP NO.	CHECK VALVE	** VERIFICATION OPEN (INITIALS)
7.2.7	AFW-40	SH
7.3.7	AFW-41	SH
7.2.7	AFW-68	SH
7.2.15	AFW-69	SH
7.2.22	AFW-70	SH

**Operability of check valves AFW-40 and AFW-41 OPENING is verified by obtaining a flowrate of 325 GPM through its respective AFW pump. Operability of check valves AFW-68, AFW-69, and AFW-70 OPENING is verified by obtaining a flowrate of 325 GPM to its respective steam generator.

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

2540 . 0393

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>lhw</u>	<u>L.A. WINGAN</u>	<u>9/10/88</u>
	<u>LD</u>	<u>L.V. CUTRIGHT</u>	<u>9-10-88</u>
	<u>DA</u>	<u>David A. Cook</u>	<u>9/10/88</u>
	<u>SM/Min</u>	<u>SMITH/MISS. RAYLIEF</u>	<u>9/10/88 9-10-88</u>
	<u>TH</u>	<u>L. WINGAN</u>	<u>9-10-88</u>

Test Complete: Date 9-10-88 Time 1030

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 9-10-88 Time 1115
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 9-16-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 9/26/88
ISI Coordinator

1.0 PURPOSE

1.1 To verify mechanical performance and assess operational readiness of components to fulfill their required safeguard functions. This test will assess the operation of the motor driven auxiliary feedwater pumps by measuring flow and differential pressure in accordance with Section XI ASME Code. Check Valves AFW-40, AFW-41, AFW-68, AFW-69, and AFW-70 will also be tested for forward flow.

2.0 REFERENCES

- 2.1 ASME Section XI, Subsection IWP, 1977 Edition, Summer 1978 Addenda.
- 2.2 Engineering Flow Diagram, C-190197, Feedwater, Condensate, and Air Evacuation
- 2.3 OP-402, Auxiliary Feedwater System
- 2.4 EST-013, Auxiliary Feedwater Pump Bearing Temperature Test

3.0 PREREQUISITES

- 3.1 Only one auxiliary feedwater pump shall be tested at a time.
- 3.2 The AFW System is aligned per OP-402, ATTACHMENT 9.1.
- 3.3 The Reactor Coolant System is at cold shutdown ($\leq 200^{\circ}\text{F}$).
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

Ralph C. Downey (Print) Ralph C. Downey 10-17-88
Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

W. Till 10-17-88
Shift Foreman Date

2655 1485

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure (Psig)	A	≥1111, ≤1219 psig	Low ≥1075, <1111 psig High >1219 ≤1231 psig	<1075, >1231 psig
	B	≥1105, ≤1212 psig	Low ≥1070, <1105 psig High >1212, ≤1224 psig	<1070, >1224 psig

6.2 Acceptance criteria for vibration will be established after initial performance of this test.

6.3 Check valves shall exhibit a change of position as required by the data sheet.

6.4 If a check valve fails to exhibit the required change of valve position by this testing, then declare the valve inoperable. The condition shall be corrected prior to startup. A retest showing acceptable operation shall be run before the valve is returned to service.

6.5 All test data shall be analyzed within 96 hours after completion of a test.

6.6 The reviewing and approving authorities may accept this test in accordance with the provisions set forth in OHM-015, Operations Surveillance Testing.

6.7 When tests show deviations greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

6.8 If the deviations fall within the ALERT RANGE of Step 6.1, the condition shall be evaluated prior to startup.

6.9 If the deviations fall within the REQUIRED ACTION RANGE of 6.1, the pump shall be declared inoperable and not returned to service until the condition has been corrected.

6.10 The corrective action shall be considered completed when a satisfactory inservice test has been conducted in accordance with IWP-3111 (ASME Section XI) or an analysis is performed that demonstrates that the condition does not impair pump operability and that the pump will still fulfill its function.

2 6 6 5 1 4 8 7

PUMP AND VALVE DATA SHEET

REF. STEP NO.	PARAMETER	PUMP TESTED		ACCEPTANCE CRITERIA	
			A	B	
7.2.8 or 7.3.8	Disch. Press.	PI-1424	1190	N/A	N/A
	PSIG	PI-1425	N/A	1185	N/A
7.2.9 7.2.17 7.2.23	Suct. Press. PSIG	PI-1479	3	N/A	N/A
		PI-1480	N/A	5	N/A
7.2.9 7.2.17 7.2.23	RTCB Flow (Sonic Meter) %	FI-1425A	32	N/A	N/A
		FI-1425B	36	N/A	N/A
		FI-1425C	39	N/A	N/A
7.2.34 or 7.3.21	* Pump ΔP PSID		1157 1190	1180	A Pump ≥1111, ≤1219 psig B Pump ≥1105, ≤1212 psig
7.2.9 or 7.3.9	Vibration, Mils	Horizontal	.3	.32	N/A
		Vertical	.15	.15	N/A

* Pump ΔP = (Disch. Press.) - (Suct. Press.)

1495
2355

REF. STEP NO.	CHECK VALVE	** VERIFICATION OPEN (INITIALS)
7.2.7	AFW-40	<i>JH</i>
7.3.7	AFW-41	<i>JH</i>
7.2.7	AFW-63	<i>JH</i>
7.2.16	AFW-69	<i>JH</i>
7.2.22	AFW-70	<i>JH</i>

**Operability of check valves AFW-40 and AFW-41 OPENING is verified by obtaining a flowrate of 325 GPM through its respective AFW pump. Operability of check valves AFW-63, AFW-69, and AFW-70 OPENING is verified by obtaining a flowrate of 325 GPM to its respective steam generator.

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

Test Performed by	Initials	Name (Print)	Date
	<u>MM</u>	<u>Michael S. Macle</u>	<u>10-17-88</u>
	<u>W</u>	<u>WASH C. Downey</u>	<u>10-17-88</u>
	<u>RH</u>	<u>R. Holey</u>	<u>10-17-88</u>

Test Complete: Date 10-17-88 Time 1205

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 10/17/88 Time 1520
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) _____

Approved by: [Signature] Date 10-18-88
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 10/20/88
ISI Coordinator

1497
2555

2759 2000

1.0 PURPOSE

1.1 To verify mechanical performance and assess operational readiness of components to fulfill their required safeguard functions. This test will assess the operation of the motor driven auxiliary feedwater pumps by measuring flow and differential pressure in accordance with Section XI ASME Code. Check Valves AFW-40, AFW-41, AFW-68, AFW-69, and AFW-70 will also be tested for forward flow.

2.0 REFERENCES

- 2.1 ASME Section XI, Subsection IWP, 1977 Edition, Summer 1978 Addenda.
- 2.2 Engineering Flow Diagram, G-190197, Feedwater, Condensate, and Air Evacuation
- 2.3 OP-402, Auxiliary Feedwater System
- 2.4 EST-013, Auxiliary Feedwater Pump Bearing Temperature Test

3.0 PREREQUISITES

- 3.1 Only one auxiliary feedwater pump shall be tested at a time.
- 3.2 The AFW System is aligned per OP-402, ATTACHMENT 9.1.
- 3.3 The Reactor Coolant System is at cold shutdown ($\leq 200^{\circ}\text{F}$).
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

C. D. Winters (Print) C. D. Winters 1/25/78
 Name Signature Date

3.5 The Shift Foreman has given his permission to conduct this test.

C. D. Winters
 Shift Foreman 1/25/78
 Date

6.0

ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure (Psig)	A	≥ 1111 , ≤ 1219 psig	Low ≥ 1075 , < 1111 psig High > 1219 ≤ 1231 psig	< 1075 , > 1231 psig
	B	≥ 1105 , ≤ 1212 psig	Low ≥ 1070 , < 1105 psig High > 1212 , ≤ 1224 psig	< 1070 , > 1224 psig
Vibration Amplitude (Mils)	A	≤ 1	> 1 ≤ 1.5	> 1.5
	B	≤ 1	> 1 ≤ 1.5	> 1.5

6.2

If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.3

Pump Data taken shall be compared to the appropriate baseline data. Each value shall be categorized into one of the ranges as indicated in Step 6.1.

6.4

Check valves shall exhibit a change of position as required by the data sheet.

6.5

If a check valve fails to exhibit the required change of valve position by this testing, then declare the valve inoperable. The condition shall be corrected prior to startup. A retest showing acceptable operation shall be run before the valve is returned to service.

6.6

All test data shall be analyzed within 96 hours after completion of a test.

6.7

The reviewing and approving authorities may accept this test in accordance with the provisions set forth in OHM-015, Operations Surveillance Testing.

6.8

When tests show deviations greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

PUMP AND VALVE DATA SHEET

REF. STEP NO.	PARAMETER	PUMP TESTED		ACCEPTANCE CRITERIA		
			A	B		
7.2.8 or 7.3.8	Disch. Press. PSIG	PI-1424	1220	N/A	N/A	
		PI-1425	N/A	1200	N/A	
7.2.11 or 7.2.17 or 7.2.23	Suct. Press. PSIG	PI-1479	5.5	N/A	N/A	
		PI-1480	N/A	6.5	N/A	
7.2.34 or 7.3.21	RTGB Flow GPM	FI-1425A	365	N/A	N/A	
		FI-1425B	375	N/A	N/A	
		FI-1425C	375	N/A	N/A	
7.2.9 or 7.3.9	* Pump ΔP PSID		1245	1193.5	A Pump ≥1111, ≤1219 psig	B Pump ≥1105, ≤1212 psig
		Horizontal	36	.3	≤1	
		Vertical	.12	.32	≤1	

* Pump ΔP = (Disch. Press.) - (Suct. Press.)

REF. STEP NO.	CHECK VALVE	** VERIFICATION OPEN (INITIALS)
7.2.7	AFW-40	*
7.3.7	AFW-41	ELW
7.2.7	AFW-68	*
7.2.16	AFW-69	*
7.2.22	AFW-70	*

**Operability of check valves AFW-40 and AFW-41 OPENING is verified by obtaining a flowrate of 325 GPM through its respective AFW pump.
Operability of check valves AFW-68, AFW-69, and AFW-70 OPENING is verified by obtaining a flowrate of 325 GPM to its respective steam generator.

2011
2739

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

DONE PRIOR TO HEAT-UP
ALL PAGES (1-17)

Test Performed by	Initials	Name (Print)	Date
	<u>ada</u>	<u>Steve A. Lee</u>	<u>1-25-89</u>
	<u>SMW / TL</u>	<u>C. Winick / K. Sank</u>	<u>1/25/89 1/25/89</u>
	<u>4/BSM</u>	<u>G Taylor / D. Mulligan</u>	<u>1-25-89 1-25-89</u>
	<u>DLBCW</u>	<u>R. Brown / B. ...</u>	<u>1/25/89</u>

Test Complete: Date 1-25-89 Time 2130

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 1-25-89 Time 2157
Unit 2 Shift Foreman

Comments: (Required if results were unsatisfactory)

Approved by: [Signature] Date 1-26-89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 1/30/89
ISI Coordinator

2377 1735

1.0 PURPOSE

1.1 To verify mechanical performance and assess operational readiness of components to fulfill their required safeguard functions. This test will assess the operation of the motor driven auxiliary feedwater pumps by measuring flow and differential pressure in accordance with Section XI ASME Code. Check Valves AFW-40, AFW-41, AFW-68, AFW-69, and AFW-70 will also be tested for forward flow.

2.0 REFERENCES

- 2.1 ASME Section XI, Subsection IWP, 1977 Edition, Summer 1978 Addenda.
- 2.2 Engineering Flow Diagram, G-190197, Feedwater, Condensate, and Air Evacuation
- 2.3 OP-402, Auxiliary Feedwater System
- 2.4 EST-013, Auxiliary Feedwater Pump Bearing Temperature Test

3.0 PREREQUISITES

- 3.1 Only one auxiliary feedwater pump shall be tested at a time.
- 3.2 The AFW System is aligned per OP-402, ATTACHMENT 9.1.
- 3.3 The Reactor Coolant System is at cold shutdown (≤200°F).
- 3.4 This revision is the latest revision available and has been verified against the Revision Status List.

W.E. STOVER

(Print)

W.E. Stover

4-10-89

Name

Signature

Date

3.5 The Shift Foreman has given his permission to conduct this test.

[Signature]
Shift Foreman

4-10-89
Date

6.0 ACCEPTANCE CRITERIA

6.1

PARAMETER	PUMP	ACCEPTABLE RANGE	ALERT RANGE	REQUIRED ACTION RANGE
Differential Pressure (Psig)	A	≥1111, ≤1219 psig	Low ≥1075, <1111 psig High >1219 ≤1231 psig	<1075, >1231 psig
	B	≥1105, ≤1212 psig	Low ≥1070, <1105 psig High >1212, ≤1224 psig	<1070, >1224 psig
Vibration Amplitude (Mils)	A	≤1	>1 ≤1.5	>1.5
	B	≤1	>1 ≤1.5	>1.5

6.2 If pump fails to start and achieve its rated speed upon the first attempt to start it, declare it inoperable and initiate a work request to determine the cause of the problem.

6.3 Pump Data taken shall be compared to the appropriate baseline data. Each value shall be categorized into one of the ranges as indicated in Step 6.1.

6.4 Check valves shall exhibit a change of position as required by the data sheet.

6.5 If a check valve fails to exhibit the required change of valve position by this testing, then declare the valve inoperable. The condition shall be corrected prior to startup. A retest showing acceptable operation shall be run before the valve is returned to service.

6.6 All test data shall be analyzed within 96 hours after completion of a test.

6.7 The reviewing and approving authorities may accept this test in accordance with the provisions set forth in OMM-015, Operations Surveillance Testing.

6.8 When tests show deviations greater than allowed in 6.1, the instruments involved may be recalibrated and the test rerun.

2377-1737

PUMP AND VALVE DATA SHEET

REF. STEP NO.	PARAMETER	PUMP TESTED			ACCEPTANCE CRITERIA	
			A	B		
7.2.8 or 7.3.8	Disch. Press. PSIG	PI-1424	1210	N/A	N/A	
		PI-1425	N/A	1195	N/A	
7.2.11 7.2.17 7.2.23	Suct. Press. PSIG	PI-1479	3.5	N/A	N/A	
		PI-1480	N/A	3.2	N/A	
7.2.34 or 7.3.21	RTCB Flow GPM	PI-1425A	315	N/A	N/A	
		PI-1425B	335	N/A	N/A	
		PI-1425C	330	N/A	N/A	
7.2.9 or 7.3.9	* Pump ΔP PSID		1205	1191.8	A Pump ≥1111, ≤1219 psig	B Pump ≥1105, ≤1212 psig
7.2.9 or 7.3.9	Vibration, Mils	Horizontal	.35	.5	≤1	
		Vertical	.15	.3	≤1	

* Pump ΔP = (Disch. Press.) - (Suct. Press.)

REF. STEP NO.	CHECK VALVE	** VERIFICATION OPEN (INITIALS)
7.2.7	AFW-40	<i>JW</i>
7.3.7	AFW-41	<i>JW</i>
7.2.7	AFW-68	<i>JW</i>
7.2.16	AFW-69	<i>JW</i>
7.2.22	AFW-70	<i>JW</i>

**Operability of check valves AFW-40 and AFW-41 OPENING is verified by obtaining a flowrate of 325 GPM through its respective AFW pump. Operability of check valves AFW-68, AFW-69, and AFW-70 OPENING is verified by obtaining a flowrate of 325 GPM to its respective steam generator.

2177 1746

SURVEILLANCE TEST PROCEDURE
CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed by	<u>[Signature]</u>	<u>F Leggett</u>	<u>4/11/89</u>
	<u>[Signature]</u>	<u>TE White</u>	<u>4/11/89</u>
	<u>[Signature]</u>	<u>HCFletcher</u>	<u>4-11-89</u>

Test Complete: Date 4/11/89 Time 0630.

Test Satisfactory: Yes / No (Circle one)

Reviewed by: [Signature] Date 4/11/89 Time 0630
Unit 2 - Shift Foreman

Comments: (Required if results were unsatisfactory) EST-013 MDAFW Portion Done 1-26-89 EST-013 NOT REQUIRED PER CONVERSATION WITH STAN PRUITT. 4-10-89

Approved by: [Signature] Date 5/2/89
Unit 2 - Operating Supervisor

Reviewed by: [Signature] Date 5/4/89
ISI Coordinator

2377 1748

Attachment 18

"A" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	^{TDA} _{1/20/58} 88.8 98.8	^{TDA} _{1/20/58} 87.4 97.4
2	98.8	97.5
4	98.9	97.4
6	98.9	97.5
8	98.8	97.5
10	98.8	97.5
12	98.8	97.5
14	98.9	97.5
16	98.7	97.4
18	98.7	97.6
20	98.8	97.6
22	98.7	97.5
24	98.6	97.6
26	98.8	97.5
28	98.7	97.4
30	98.8	97.6
32		
34		
36		
38		

"B" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	N/A	N/A
2		
4		
6		
8		
10		
12		
14		
16		
18		
20		
22		
24		
26		
28		
30		
32		
34		
36		
38	✓	✓

STEAM DRIVEN AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE
INTERVAL TIME	OIL COOLER INLET
Initial Time - Zero	NA
2	}
4	
6	
8	
10	
12	
14	
16	
18	
20	
22	
24	
26	
28	
30	
32	
34	
36	
38	✓

CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed By:	<u>DH</u>	<u>T. D. Horvath</u>	<u>1/20/88</u>
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

Test Complete: Date: NA Time: NA

Test Satisfactory: Yes / No (Circle one)

Reviewed By: [Signature] Date: 1/20/88
Shift Foreman

Reviewed By: _____ Date: _____
ISI Coordinator

Comments: (Required if results were unsatisfactory) TEST IS TO BE RESCHEDULED TO LATER DATE, DUE TO REQUIREMENT TO FEED THE STEAM GENERATORS DURING THIS TEST DUE TO THE PLANT BEING SHUT DOWN

Approved By: _____ Date: _____
Engineering Supervisor - Performance

"A" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: 2020	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	64.4	62.9
2	71.3	69.2
4	75.9	70.2
6	83.4	75.0
8	86.0	78.0
10	88.7	78.5
12	90.5	79.1
14	92.7	81.7
16	97.4	82.5
18	92.5	80.0
20	95.9	83.8
22	96.7	79.6
24	97.1	85.3
26	98.3	82.4
28	96.8	83.2
30	97.3	80.9
32	N/A	N/A
34	↓	↓
36	↓	↓
38	↓	↓

"B" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: 0101	TEMPERATURE	
	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	65.2	64.6
2	65.8	63.5
4	71.3	66.6
6	73.5	70.8
8	77.8	73.2
10	79.0	74.6
12	81.6	74.2
14	83.7	76.5
16	81.8	77.2
18	82.8	77.5
20	85.3	77.6
22	83.1	77.9
24	83.6	76.9
26	85.7	76.2
28	85.2	80.1
30	88.4	80.4
32	N/A	N/A
34	↓	↓
36	↓	↓
38	↓	↓

CERTIFICATION AND REVIEW FORM

Scheduled / Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test)

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed By:	<u>ML</u>	<u>MW KIRK</u>	<u>17 FEB 88</u>
	<u>RM</u>	<u>Robert D. MOSEK</u>	<u>2-17-88</u>

Test Complete: Date: 2-17-88 Time: 0500

Test Satisfactory: Yes No (Circle one)

Reviewed By: [Signature] Date: 2-17-88
Shift Foreman

Reviewed By: [Signature] Date: 3/3/88
ISI Coordinator

Comments: (Required if results were unsatisfactory) * UNIT IN GEN S/D

STM DRIVEN PUMP CANNOT BE TESTED
** MDAFW PUMPS BEARING TEMPERATURES DID
NOT STABILIZE DURING THE 30
MINUTES RUN ON REPAIR.

Approved By: _____ Date: _____
Engineering Supervisor - Performance

STEAM DRIVEN AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: 1701	TEMPERATURE
INTERVAL TIME	OIL COOLER INLET
Initial Time - Zero	126
2	128.5
4	128.7
6	129
8	129
10	130
12	129.8
14	132
16	132.1
18	133.6
20	N/A
22	
24	
26	
28	
30	
32	
34	
36	
38	

CERTIFICATION AND REVIEW FORM

Scheduled / ~~Unscheduled~~ (Circle one) ⁴⁻¹⁹⁻⁸⁸

(If unscheduled, state reason for test and the page numbers included in partial test)

Test Performed By:	Initials	Name (Print)	Date
	<u>PM</u>	<u>Paul M. Durbach</u>	<u>4-19-88</u>
	<u>LEW</u>	<u>TK White</u>	<u>4/19/88</u>

Test Complete: Date: 4/19/88 Time: 1745

Test Satisfactory: Yes / No (Circle one)

Reviewed By: [Signature] Date: 4-19-88
Shift Foreman

Reviewed By: W. M. Clutcheon Date: 4/20/88
ISI Coordinator

Comments: (Required if results were unsatisfactory) did not pass since temps were never stable enough to be accepted. also ovt-204 was run concurrently, so this may have some effect on the EST. WR 88-AESH1 was generated to clean in Oil Cooler

Approved By: _____ Date: _____
Engineering Supervisor - Performance

STEAM DRIVEN AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: 2120	TEMPERATURE
INTERVAL TIME	OIL COOLER INLET
Initial Time - Zero	119
2	125
4	122
6	123
8	122
10	121
12	121
14	122
16	125
18	123
20	123
22	125
24	120
26	123
28	122
30	122
32	N/A
34	
36	
38	

CERTIFICATION AND REVIEW FORM

Scheduled/Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed By:	<u>JWR</u>	<u>M. Rokandt</u>	<u>5-17-88</u>
	<u>(A)</u>	<u>PM Duchock</u>	<u>5-12-88</u>

Test Complete: Date: 5-17-88 Time: 22'21

Test Satisfactory: Yes / No (Circle one)

Reviewed By: C. Winter ^{6/3/88} Date: 5/17/88
Shift Foreman

Reviewed By: W. McCutchen Date: 6/3/88
ISI Coordinator

Comments: (Required if results were unsatisfactory) DIG NOT MET ACCORDANCE
SAFETY PER 6.5. 6/3/88

Approved By: _____ Date: _____
Engineering Supervisor - Performance

"A" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	109	100
2	111.7	100.9
4	110.4	103.1
6	107.7	99.2
8	108.7 ^{9.54} 105.5	103.1
10	107.2	104.6
12	111.6	102.4
14	107.4	104.8
16	108.8	105.4
18	107.2	101.7
20	110.8	103.5
22	106.5	97.1
24	108.2	100.4
26	106.6	1176.3
28	106.6	105.2
30	109.7	107.2
32		
34		
36		
38		

"B" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	93.9 ^{100.7-11} 93.9	88.1
2	11.8	91.2
4	96.0	91.7
6	95.3	91.7
8	95.2	94.8
10	100	92.2
12	94.8	92.3
14	102.4	94.5
16	96.1	95.6
18	98.5	94.6
20	102.7	98.6
22	99.5	98.7
24	105.4	95.2
26	106.8	100.1
28	102.2 89.3 ^{92.0} 89.3 9.1	95.5
30	100.9	98.9
32		
34		
36		
38		

CERTIFICATION AND REVIEW FORM

Scheduled Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) ALL PAGES USED IN CONJUNCTION WITH OST-207

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed By:	<u>RM</u>	<u>R. D. MOSE</u>	<u>9-3-88</u>
	<u>WED</u>	<u>W. F. STOVER</u>	<u>9-3-88</u>

Test Complete: Date: 9-3-88 Time: 0447

Test Satisfactory: Yes / No (Circle one)

Reviewed By: [Signature] Date: 9-3-88
Shift Foreman

Reviewed By: W. W. McCutcheon Date: 9/20/88
ISI Coordinator

Comments: (Required if results were unsatisfactory)
BEARING No. 2 OF "A" PUMP DID NOT STABILIZE AS REQUIRED.
THIS TEST WAS RE-RUN ON 9/19/88 WITH SATISFACTORY RESULTS.

Approved By: _____ Date: _____
Engineering Supervisor - Performance

"A" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: 0907	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	105.2	95.6
2	107.5	96.5
4	107.6	97.5
6	107.9	98.0
8	107.5	98.0
10	107.7	98.0
12	108.7	98.3
14	109.1	98.9
16	109.4	100.5
18	110.1	100.0
20	109.9	100.3
22	110.7	100.5
24	110.2	100.0
26	110.9	100.7
28	111.4	100.5
30	111.1	100.8
32	112.1	100.7
34	112.0	100.7
36		
38		

"B" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: 0445	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	96.1	93.1
2	96.5	93.5
4	97.4	94.1
6	96.5	94.2
8	99.6	94.4
10	100.3	94.5
12	100.5	94.4
14	100.6	94.5
16	100.3	94.2
18	100.5	94.4
20	100.2	94.1
22	100.1	93.8
24	100.3	94.1
26	100.2	94.5
28	100.3	94.4
30	100.9	93.8
32	100.7	94.1
34		
36		
38		

STEAM DRIVEN AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE
INTERVAL TIME	OIL COOLER INLET
Initial Time - Zero	114 ^{7m 5-15-88}
2	107
4	98
6	103
8	95
10	99
12	104
14	106
16	93
18	102
20	99
22	104
24	109
26	100
28	106
30	104
32	110
34	100
36	107
38	103

105

CERTIFICATION AND REVIEW FORM

Scheduled/Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed By:	<u>AAH</u>	<u>R L Haley</u>	<u>9/10/88</u>
	_____	_____	_____
	_____	_____	_____
	_____	_____	_____

Test Complete: Date: 9/10/88 Time: 0820

Test Satisfactory: Yes / No (Circle one)

Reviewed By: D. McCall Date: 9/19/88
Shift Foreman

Reviewed By: _____ Date: _____
ISI Coordinator

Comments: (Required if results were unsatisfactory) _____

Approved By: _____ Date: _____
Engineering Supervisor - Performance

"A" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: 1734	TEMPERATURE	
	BEARING NUMBER 1	BEARING NUMBER 2
Interval Time		
Initial Time - Zero	82.0	75
2	82.5	76.5
4	83.0	78.0
6	84.5	78.0
8	85.0	80.5
10	85.5	80.7
12	85.5	81.2
14	85.5	82.0
16	85.7	82.7
18	85.7	82.7
20	85.7	81.0
22	86.0	81.5
24	87.5	81.5
26	88.0	81.5
28	88.0	81.4
30	88.0	81.3
32		
34		
36		
38		

"B" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE	
	20 20	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	79.8	73
2	79.0	74.2
4	79.4	73.1
6	79.6	74.1
8	78.9	73.1
10	79.5	73.5
12	80.1	73.3
14	79.8	73.5
16	80.0	73.7
18	80.2	74.0
20	80.2	73.7
22	78.4	72.9
24	81.0	73.9
26	81.6	73.7
28	81.5	73.6
30	80.7	73.1
32		
34		
36		
38		

CERTIFICATION AND REVIEW FORM

Scheduled/Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed By:	<u>LD</u>	<u>K DARWIN</u>	<u>1/25/89</u>
	<u>SA</u>	<u>Steve Acker</u>	<u>1-25-89</u>
	<u>CM</u>	<u>CM WINTER</u>	<u>1/25/89</u>
	<u>BMM</u>	<u>Brendon Mulligan</u>	<u>1/25/89</u>

Test Complete: Date: 1/26/89 Time: 1420

Test Satisfactory: Yes / No (Circle one)

Reviewed By: CM WINTER Date: 1/26/89
Shift Foreman

Reviewed By: _____ Date: _____
ISI Coordinator

Comments: (Required if results were unsatisfactory) _____

* SDAFW PUMP WILL BE PERFORMED IN CONJUNCTION WITH DST 202 WHEN PLANT CONDITIONS PERMIT. PLANT IS PRESENTLY A COLD STD. ALL DATA ON MOAFW PUMPS WAS SATISFACTORY

Approved By: _____ Date: _____
Engineering Supervisor - Performance

AUXILIARY FEEDWATER PUMP

BEARING TEMPERATURE

TEST DATA SHEET

Temperature Measuring Device:

<u>Pyrometer</u>	<u>CCHSR04314</u>	<u>1/17/89</u>
Type	Serial Number	Calibration Date

	<u>"A" Pump</u>	<u>"B" Pump</u>	<u>Steam Driven "C" Pump</u>
Stabilized Temperatures: Bearing Number 1	<u>76</u>	<u>71</u>	<u>NA</u>
Bearing Number 2	<u>85</u>	<u>76</u>	

Test Comments (as applicable): _____

"A" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: 2230	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	74	80
2	75	82
4	75	82
6	75	83
8	76	84
10	76	85
12	76	83
14	76	85
16	76	82
18	75	85
20	77	85
22	77	83
24	78	84
26	78	84
28	78	85
30	78	85
32		
34		
36		
38		

"B" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: 2313	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	71	72
2	71	73
4	70	72
6	70	73
8	70	74
10	71 ⁷⁵ 71	76
12	71	74
14	71	75
16	72	75
18	73	78
20	74	78
22	73	78
24	74	80
26	73	81
28	74	79
30	73	78
32		
34		
36		
38		

STEAM DRIVEN AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME: <i>NA</i>	TEMPERATURE
INTERVAL TIME	OIL COOLER INLET
Initial Time - Zero	
2	
4	
6	
8	
10	
12	
14	
16	
18	
20	
22	
24	
26	
28	
30	
32	
34	
36	
38	

CERTIFICATION AND REVIEW FORM

Scheduled/Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) SDAFW Pump NOT DONE, PLANT IN COLD STD.

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed By:	<u>FBA</u>	<u>F. B. SCHWIER</u>	<u>2-21-89</u>
	<u>SMO</u>	<u>Steve Atlee</u>	<u>2-22-89</u>

Test Complete: Date: 2/22/89 Time: 0610

Test Satisfactory: Yes / No (Circle one)

Reviewed By: CMW Date: 2/22/89
Shift Foreman

Reviewed By: W McCutcheon Date: 2/23/89
ISI Coordinator

Comments: (Required if results were unsatisfactory)

Approved By: _____ Date: _____
Engineering Supervisor - Performance

CONFIDENTIAL INFORMATION ONLY

"A" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	77.4	76.5
2	86.8	80.8
4	90.0	82.0
6	95.0	83.0
8	95.3	86.2
10	95.8	85.5
12	96.8	88.7
14	98.3	88.0
16	99.2	89.7
18	99.3	90.7
20	99.4	91.2
22	99.5	91.4
24	99.4	91.5
26	99.5	91.9
28	99.7	91.9
30	99.9	91.8
32		
34		
36		
38		

"B" AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE	
INTERVAL TIME	BEARING NUMBER 1	BEARING NUMBER 2
Initial Time - Zero	78.9	77.8
2	84.5	78.7
4	82.7	79.1
6	83.8	80.3
8	83.8	80.2
10	84.0	80.3
12	84.8	80.5
14	85.7	80.7
16	86.1	81.1
18	88.3	82.8
20	88.1	83.5
22	88.5	83.8
24	88.8	84.0
26	89.2	84.2
28	90.0	84.3
30	90.2	84.5
32		
34		
36		
38		

STEAM DRIVEN AUXILIARY FEEDWATER PUMP
BEARING TEMPERATURE
DATA SHEET

START TIME:	TEMPERATURE
INTERVAL TIME	OIL COOLER INLET
Initial Time - Zero	117.8
2	108.9
4	110.4
6	111.3
8	109.6
10	112.9
12	111.2
14	110.4
16	114.0
18	109.4
20	112.1
22	109.5
24	109.5
26	110.2
28	109.8
30	111.2
32	
34	
36	
38	

CERTIFICATION AND REVIEW FORM

Scheduled/Unscheduled (Circle one)

(If unscheduled, state reason for test and the page numbers included in partial test) _____

	<u>Initials</u>	<u>Name (Print)</u>	<u>Date</u>
Test Performed By:	<u>ML</u>	<u>MAN KIKK</u>	<u>22 MAR 89</u>

Test Complete: Date: 22 MAR 89 Time: 0335

Test Satisfactory: Yes / (No) (Circle one)

Reviewed By: D. McCall Date: 3/22/89
Shift Foreman

Reviewed By: W. McCutcheon Date: 3/23/89
ISI Coordinator

Comments: (Required if results were unsatisfactory) Temperatures
did not stabilize due to 30 minute runtime
limitation. However, a stabilizing trend was exhibited. The pumps
are considered acceptable for continued operation.

Approved By: _____ Date: _____
Engineering Supervisor - Performance

Attachment 19

11. // // 88
 12. // //
 13. // //
 14. // //
 15. // //
 16. // //
 17. // //
 18. // //

SYSTEM MSS VALVE NUMBER 0008A
 TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/16/89	8.5	7.	03/22/89	8.7	13.	10/04/88	8.2
2.	07/18/89	8.5	8.	02/24/89	8.3	14.	09/07/88	8.2
3.	06/20/89	8.2	9.	02/10/89	8.1	15.	09/19/88	8.4
4.	05/17/89	8.4	10.	01/22/89	8.2	16.	08/29/88	7.0
5.	04/19/89	8.1	11.	10/19/88	8.5	17.	08/17/88	8.3
6.	04/08/89	8.4	12.	10/06/88	4.0	18.	07/20/88	8.2

NUM	DATE	NOTES
1.	08/16/89	
2.	07/18/89	N/A
3.	06/20/89	NO ENTRY
4.	05/17/89	NO ENTRY
5.	04/19/89	NO ENTRY
6.	04/08/89	NO ENTRY
7.	03/22/89	NO ENTRY
8.	02/24/89	NO ENTRY
9.	02/10/89	NO ENTRY
10.	01/22/89	NO ENTRY
11.	10/19/88	NO ENTRY
12.	10/06/88	LCTR NO. 88-1074
13.	10/04/88	NO ENTRY
14.	09/07/88	NO ENTRY
15.	09/19/88	NO ENTRY
16.	08/29/88	NO ENTRY
17.	08/17/88	NO ENTRY
18.	07/20/88	NO ENTRY

NO ENTRY

- 4. 03/15/86
- 5. 03/07/86
- 6. / /
- 7. / /
- 8. / /
- 9. / /
- 10. / /
- 11. / /
- 12. / /
- 13. / /
- 14. / /
- 15. / /
- 16. / /
- 17. / /
- 18. / /

SYSTEM MSS VALVE NUMBER 0008A
TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	10/19/88	8.5	7.	08/17/88	8.3	13.	04/07/88	8.2
2.	10/06/88	4.0	8.	07/20/88	8.2	14.	03/10/88	8.0
3.	10/04/88	8.2	9.	07/20/88	8.0	15.	01/20/88	8.2
4.	09/07/88	8.2	10.	06/17/88	8.4	16.	03/15/88	8.5
5.	09/19/88	8.4	11.	05/17/88	8.4	17.	02/01/88	8.5
6.	08/29/88	7.0	12.	04/18/88	8.2	18.	01/20/88	8.6

NUM	DATE	NOTES
1.	10/19/88	NO ENTRY
2.	10/06/88	LCTR NO. 88-1074
3.	10/04/88	NO ENTRY
4.	09/07/88	NO ENTRY
5.	09/19/88	NO ENTRY
6.	08/29/88	NO ENTRY
7.	08/17/88	NO ENTRY
8.	07/20/88	NO ENTRY
9.	07/20/88	NO ENTRY
10.	06/17/88	NO ENTRY
11.	05/17/88	NO ENTRY
12.	04/18/88	LCTR NO. 88-513
13.	04/07/88	LCTR NO. 88-488
14.	03/10/88	NO ENTRY
15.	01/20/88	NO ENTRY
16.	03/15/88	NO ENTRY
17.	02/01/88	NO ENTRY
18.	01/20/88	NO ENTRY

18. / /

SYSTEM MSS VALVE NUMBER 0008A
TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/10/88	8.0	7.	11/11/87	7.0	13.	07/22/87	8.2
2.	01/20/88	8.2	8.	12/15/87	8.1	14.	06/17/87	8.0
3.	03/15/88	8.5	9.	11/18/87	8.8	15.	06/14/87	8.4
4.	02/01/88	8.5	10.	10/21/87	8.4	16.	06/07/87	8.1
5.	01/20/88	8.6	11.	09/15/87	8.2	17.	05/10/87	8.2
6.	01/05/88	8.9	12.	08/19/87	8.6	18.	05/10/87	8.2

NUM	DATE	NOTES
1.	03/10/88	NO ENTRY
2.	01/20/88	NO ENTRY
3.	03/15/88	NO ENTRY
4.	02/01/88	NO ENTRY
5.	01/20/88	NO ENTRY
6.	01/05/88	LCTR NO. 88-11
7.	11/11/87	LCTR NO. 87-1370
8.	12/15/87	NO ENTRY
9.	11/18/87	NO ENTRY
10.	10/21/87	NO ENTRY
11.	09/15/87	NO ENTRY
12.	08/19/87	NO ENTRY
13.	07/22/87	NO ENTRY
14.	06/17/87	NO ENTRY
15.	06/14/87	NO ENTRY
16.	06/07/87	NO ENTRY
17.	05/10/87	NO ENTRY
18.	05/10/87	NO ENTRY

12/88

VALVE PERFORMANCE SYSTEM

14:34:06

SYSTEM MSS VALVE NUMBER 0008B
TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/10/88	7.5	7.	11/11/87	7.6	13.	08/19/87	7.7
2.	01/20/88	7.3	8.	12/15/87	7.4	14.	05/29/87	7.3
3.	03/15/88	7.9	9.	11/18/87	7.7	15.	07/22/87	7.3
4.	02/01/88	7.9	10.	10/21/87	8.2	16.	06/17/87	7.6
5.	01/20/88	7.8	11.	09/18/87	7.5	17.	06/14/87	7.5
6.	01/05/88	8.2	12.	09/15/87	7.6	18.	06/07/87	7.0

NUM DATE NOTES

1.	03/10/88	NO ENTRY
2.	01/20/88	NO ENTRY
3.	03/15/88	NO ENTRY
4.	02/01/88	NO ENTRY
5.	01/20/88	NO ENTRY
6.	01/05/88	LCTR NO. 88-11
7.	11/11/87	LCTR NO. 87-1370
8.	12/15/87	NO ENTRY
9.	11/18/87	NO ENTRY
10.	10/21/87	NO ENTRY
11.	09/18/87	LCTR NO. 87-1228
12.	09/15/87	NO ENTRY
13.	08/19/87	NO ENTRY
14.	05/29/87	LCTR NO. 87-797
15.	07/22/87	NO ENTRY
16.	06/17/87	NO ENTRY
17.	06/14/87	NO ENTRY
18.	06/07/87	NO ENTRY

SYSTEM MSS VALVE NUMBER 0008C
TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/10/88	8.5	7.	11/11/87	8.2	13.	07/22/87	8.1
2.	01/20/88	8.1	8.	12/15/87	8.1	14.	06/17/87	8.0
3.	03/15/88	8.5	9.	11/18/87	8.6	15.	06/14/87	8.3
4.	02/01/88	8.3	10.	10/21/87	8.1	16.	06/07/87	8.0
5.	01/20/88	8.7	11.	09/15/87	8.1	17.	05/10/87	8.5
6.	01/05/88	8.5	12.	08/19/87	8.8	18.	05/10/87	8.5

NUM DATE NOTES

1.	03/10/88	NO ENTRY
2.	01/20/88	NO ENTRY
3.	03/15/88	NO ENTRY
4.	02/01/88	NO ENTRY
5.	01/20/88	NO ENTRY
6.	01/05/88	LCTR NO. 88-11
7.	11/11/87	LCTR NO. 87-1370
8.	12/15/87	NO ENTRY
9.	11/18/87	NO ENTRY
10.	10/21/87	NO ENTRY
11.	09/15/87	NO ENTRY
12.	08/19/87	NO ENTRY
13.	07/22/87	NO ENTRY
14.	06/17/87	NO ENTRY
15.	06/14/87	NO ENTRY
16.	06/07/87	NO ENTRY
17.	05/10/87	LCTR NO. 87-499, 87-651
18.	05/10/87	NO ENTRY

10/13/89

VALVE PERFORMANCE SYSTEM

13:25:08

SYSTEM MSS VALVE NUMBER 0008B

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	10/19/88	7.6	7.	08/17/88	7.5	13.	04/07/88	7.6
2.	10/06/88	4.1	8.	07/20/88	7.2	14.	03/10/88	7.5
3.	10/04/88	7.7	9.	07/20/88	7.3	15.	01/20/88	7.3
4.	09/07/88	7.7	10.	06/17/88	8.0	16.	03/15/88	7.9
5.	09/19/88	7.5	11.	05/17/88	7.5	17.	02/01/88	7.9
6.	08/29/88	7.4	12.	04/18/88	6.8	18.	01/20/88	7.8

NUM	DATE	NOTES
1.	10/19/88	NO ENTRY
2.	10/06/88	LCTR NO. 88-1074
3.	10/04/88	NO ENTRY
4.	09/07/88	NO ENTRY
5.	09/19/88	NO ENTRY
6.	08/29/88	NO ENTRY
7.	08/17/88	NO ENTRY
8.	07/20/88	NO ENTRY
9.	07/20/88	NO ENTRY
10.	06/17/88	NO ENTRY
11.	05/17/88	NO ENTRY
12.	04/18/88	LCTR NO. 88-513
13.	04/07/88	LCTR NO. 88-488
14.	03/10/88	NO ENTRY
15.	01/20/88	NO ENTRY
16.	03/15/88	NO ENTRY
17.	02/01/88	NO ENTRY
18.	01/20/88	NO ENTRY

SYSTEM MSS VALVE NUMBER 0008C

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	10/19/88	8.3	7.	08/17/88	8.4	13.	04/07/88	8.4
2.	10/06/88	4.0	8.	07/20/88	6.1	14.	03/10/88	8.5
3.	10/04/88	8.1	9.	07/20/88	8.0	15.	01/20/88	8.1
4.	09/07/88	8.4	10.	06/17/88	8.2	16.	03/15/88	8.5
5.	09/19/88	8.1	11.	05/17/88	8.9	17.	02/01/88	8.3
6.	08/29/88	7.6	12.	04/18/88	8.1	18.	01/20/88	8.7

NUM	DATE	NOTES
1.	10/19/88	NO ENTRY
2.	10/06/88	LCTR NO. 88-1074
3.	10/04/88	NO ENTRY
4.	09/07/88	NO ENTRY
5.	09/19/88	NO ENTRY
6.	08/29/88	NO ENTRY
7.	08/17/88	NO ENTRY
8.	07/20/88	NO ENTRY
9.	07/20/88	NO ENTRY
10.	06/17/88	NO ENTRY
11.	05/17/88	NO ENTRY
12.	04/18/88	LCTR NO. 88-513
13.	04/07/88	LCTR NO. 88-488
14.	03/10/88	NO ENTRY
15.	01/20/88	NO ENTRY
16.	03/15/88	NO ENTRY
17.	02/01/88	NO ENTRY
18.	01/20/88	NO ENTRY

08/23/89

VALVE PERFORMANCE SYSTEM

11:19:43

SYSTEM MSS VALVE NUMBER 0008B

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/16/89	7.3	7.	03/22/89	7.7	13.	10/04/88	7.7
2.	07/18/89	7.6	8.	02/24/89	7.7	14.	09/07/88	7.7
3.	06/20/89	7.5	9.	02/10/89	7.4	15.	09/19/88	7.5
4.	05/17/89	8.2	10.	01/22/89	7.6	16.	08/29/88	7.4
5.	04/19/89	7.4	11.	10/19/88	7.6	17.	08/17/88	7.5
6.	04/08/89	7.6	12.	10/06/88	4.1	18.	07/20/88	7.2

NUM DATE NOTES

- 1. 08/16/89
- 2. 07/18/89 N/A
- 3. 06/20/89 NO ENTRY
- 4. 05/17/89 NO ENTRY
- 5. 04/19/89 NO ENTRY
- 6. 04/08/89 NO ENTRY
- 7. 03/22/89 NO ENTRY
- 8. 02/24/89 NO ENTRY
- 9. 02/10/89 NO ENTRY
- 10. 01/22/89 NO ENTRY
- 11. 10/19/88 NO ENTRY
- 12. 10/06/88 LCTR NO. 88-1074
- 13. 10/04/88 NO ENTRY
- 14. 09/07/88 NO ENTRY
- 15. 09/19/88 NO ENTRY
- 16. 08/29/88 NO ENTRY
- 17. 08/17/88 NO ENTRY
- 18. 07/20/88 NO ENTRY

SYSTEM MSS VALVE NUMBER 0008C

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/16/89	8.3	7.	03/22/89	8.3	13.	10/04/88	8.1
2.	07/18/89	8.3	8.	02/24/89	8.3	14.	09/07/88	8.4
3.	06/20/89	8.1	9.	02/10/89	8.2	15.	09/19/88	8.1
4.	05/17/89	8.3	10.	01/22/89	8.5	16.	08/29/88	7.6
5.	04/19/89	8.3	11.	10/19/88	8.3	17.	08/17/88	8.4
6.	04/08/89	8.3	12.	10/06/88	4.0	18.	07/20/88	6.1

NUM DATE NOTES

- 1. 08/16/89
- 2. 07/18/89 N/A
- 3. 06/20/89 NO ENTRY
- 4. 05/17/89 NO ENTRY
- 5. 04/19/89 NO ENTRY
- 6. 04/08/89 NO ENTRY
- 7. 03/22/89 NO ENTRY
- 8. 02/24/89 NO ENTRY
- 9. 02/10/89 NO ENTRY
- 10. 01/22/89 NO ENTRY
- 11. 10/19/88 NO ENTRY
- 12. 10/06/88 LCTR NO. 88-1074
- 13. 10/04/88 NO ENTRY
- 14. 09/07/88 NO ENTRY
- 15. 09/19/88 NO ENTRY
- 16. 08/29/88 NO ENTRY
- 17. 08/17/88 NO ENTRY
- 18. 07/20/88 NO ENTRY

17. // // 0.0
 18. // // 0.0

NOTES

- 1. 01/21/88 NO ENTRY
- 2. 05/17/87 NO ENTRY
- 3. 05/27/87 LCTR NO. 87-700
- 4. 03/11/86
- 5. 01/09/85
- 6. / /
- 7. / /
- 8. / /
- 9. / /
- 10. / /
- 11. / /
- 12. / /
- 13. / /
- 14. / /
- 15. / /
- 16. / /
- 17. / /
- 18. / /

SYSTEM FWS VALVE NUMBER 0014A
 TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/10/88	19.5	7.	12/10/87	19.0	13.	09/15/87	19.2
2.	01/20/88	19.3	8.	12/15/87	19.2	14.	08/19/87	19.7
3.	03/16/88	19.0	9.	11/10/87	19.7	15.	07/07/87	18.8
4.	03/08/88	20.0	10.	11/18/87	19.9	16.	07/22/87	19.1
5.	02/01/88	20.8	11.	10/08/87	19.8	17.	06/17/87	19.3
6.	01/20/88	18.2	12.	10/21/87	19.3	18.	06/14/87	19.7

NOTES

- 1. 03/10/88 NO ENTRY
- 2. 01/20/88 NO ENTRY
- 3. 03/16/88 NO ENTRY
- 4. 03/08/88 LCTR NO. 88-375
- 5. 02/01/88 NO ENTRY
- 6. 01/20/88 NO ENTRY
- 7. 12/10/87 LCTR NO. 87-1467
- 8. 12/15/87 NO ENTRY
- 9. 11/10/87 LCTR NO. 87-1360
- 10. 11/18/87 NO ENTRY
- 11. 10/08/87 LCTR NO. 87-1265
- 12. 10/21/87 NO ENTRY
- 13. 09/15/87 NO ENTRY
- 14. 08/19/87 NO ENTRY
- 15. 07/07/87 LCTR NO. 87-959
- 16. 07/22/87 NO ENTRY
- 17. 06/17/87 NO ENTRY
- 18. 06/14/87 NO ENTRY

60.8	10.	0.0	17.	0.0
63.0	11.	0.0	17.	0.0
62.1	12.	0.0	18.	0.0

UM	DATE	NOTES
1.	09/02/88	NO ENTRY
2.	01/31/88	NO ENTRY
3.	05/17/87	NO ENTRY
4.	05/27/87	LCTR NO. 87-700
5.	03/11/86	
6.	01/09/85	
7.	/ /	
8.	/ /	
9.	/ /	
0.	/ /	
1.	/ /	
2.	/ /	
3.	/ /	
4.	/ /	
5.	/ /	
6.	/ /	
7.	/ /	
8.	/ /	

SYSTEM FWS VALVE NUMBER 0014A
 TEST MODE: OPEN

UM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	10/19/88	20.0	7.	06/17/88	19.6	13.	03/16/88	19.0
2.	09/07/88	19.4	8.	05/17/88	19.2	14.	03/08/88	20.0
3.	09/19/88	19.5	9.	04/18/88	19.1	15.	02/01/88	20.8
4.	08/17/88	19.4	10.	04/08/88	19.5	16.	01/20/88	18.2
5.	07/20/88	19.6	11.	03/10/88	19.5	17.	12/10/87	19.0
6.	07/20/88	19.4	12.	01/20/88	19.3	18.	12/15/87	19.2

UM	DATE	NOTES
1.	10/19/88	NO ENTRY
2.	09/07/88	NO ENTRY
3.	09/19/88	NO ENTRY
4.	08/17/88	NO ENTRY
5.	07/20/88	NO ENTRY
6.	07/20/88	NO ENTRY
7.	06/17/88	NO ENTRY
8.	05/17/88	NO ENTRY
9.	04/18/88	LCTR NO. 88-513
0.	04/08/88	LCTR NO. 88-495
1.	03/10/88	NO ENTRY
2.	01/20/88	NO ENTRY
3.	03/16/88	NO ENTRY
4.	03/08/88	LCTR NO. 88-375
5.	01/01/88	NO ENTRY
6.	01/20/88	NO ENTRY
7.	12/10/87	LCTR NO. 87-1467
8.	12/15/87	NO ENTRY

3. 01/31/88 NO ENTRY
 4. 05/17/87 NO ENTRY
 5. 05/27/87 LCTR NO. 87-700
 6. 03/11/86
 7. 01/09/85
 8. / /
 9. / /
 10. / /
 11. / /
 12. / /
 13. / /
 14. / /
 15. / /
 16. / /
 17. / /
 18. / /

S M FWS VALVE NUMBER 0014A
 TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/16/89	20.6	7.	04/19/89	20.7	13.	01/22/89	19.6
2.	07/18/89	20.8	8.	04/08/89	20.8	14.	10/19/88	20.0
3.	07/07/89	20.5	9.	03/22/89	20.9	15.	09/07/88	19.4
4.	06/20/89	20.7	10.	02/10/89	19.8	16.	09/19/88	19.5
5.	05/19/89	20.8	11.	02/15/89	20.6	17.	08/17/88	19.4
6.	05/17/89	21.3	12.	02/06/89	19.4	18.	07/20/88	19.6

NUM	DATE	NOTES
1.	08/16/89	
2.	07/18/89	N/A
3.	07/07/89	LCTR NO.89-0394
4.	06/20/89	NO ENTRY
5.	05/19/89	LCTR NO.89-0269
6.	05/17/89	NO ENTRY
7.	04/19/89	NO ENTRY
8.	04/08/89	NO ENTRY
9.	03/22/89	NO ENTRY
10.	02/10/89	NO ENTRY
11.	02/15/89	LCTR NO. 88F-773
12.	02/06/89	NO ENTRY
13.	01/22/89	NO ENTRY
14.	10/19/88	NO ENTRY
15.	09/07/88	NO ENTRY
16.	09/19/88	NO ENTRY
17.	08/17/88	NO ENTRY
18.	07/20/88	NO ENTRY

7/12/88
SYSTEM FWS VALVE NUMBER 0014B
TEST MODE: OPEN

VALVE PERFORMANCE SYSTEM

13:57:43

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/10/88	20.5	7.	11/10/87	20.5	13.	06/17/87	20.2
2.	01/20/88	19.6	8.	11/18/87	19.9	14.	06/14/87	20.9
3.	03/16/88	20.6	9.	10/21/87	20.3	15.	06/07/87	20.2
4.	02/01/88	20.6	10.	09/15/87	20.3	16.	05/10/87	20.5
5.	01/20/88	20.5	11.	08/19/87	20.6	17.	05/10/87	20.5
6.	12/15/87	19.8	12.	07/22/87	20.2	18.	03/27/87	20.7

NUM	DATE	NOTES
1.	03/10/88	NO ENTRY
2.	01/20/88	NO ENTRY
3.	03/16/88	NO ENTRY
4.	02/01/88	NO ENTRY
5.	01/20/88	NO ENTRY
6.	12/15/87	NO ENTRY
7.	11/10/87	LCTR NO. 87-1360
8.	11/18/87	NO ENTRY
9.	10/21/87	NO ENTRY
10.	09/15/87	NO ENTRY
11.	08/19/87	NO ENTRY
12.	07/22/87	NO ENTRY
13.	06/17/87	NO ENTRY
14.	06/14/87	NO ENTRY
15.	06/07/87	NO ENTRY
16.	05/10/87	LCTR NO. 87-536
17.	05/10/87	NO ENTRY
18.	03/27/87	NO ENTRY

SYSTEM FWS VALVE NUMBER 0014C
TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/10/88	19.0	7.	11/10/87	20.8	13.	06/17/87	20.1
2.	01/20/88	20.5	8.	11/18/87	20.0	14.	06/14/87	20.5
3.	03/16/88	20.6	9.	10/21/87	21.3	15.	06/07/87	20.0
4.	02/01/88	19.8	10.	09/15/87	20.4	16.	05/10/87	20.5
5.	01/20/88	21.0	11.	08/19/87	20.8	17.	05/10/87	20.5
6.	12/15/87	20.5	12.	07/22/87	20.3	18.	03/27/87	21.1

NUM	DATE	NOTES
1.	03/10/88	NO ENTRY
2.	01/20/88	NO ENTRY
3.	03/16/88	NO ENTRY
4.	02/01/88	NO ENTRY
5.	01/20/88	NO ENTRY
6.	12/15/87	NO ENTRY
7.	11/10/87	LCTR NO. 87-1360
8.	11/18/87	NO ENTRY
9.	10/21/87	NO ENTRY
10.	09/15/87	NO ENTRY
11.	08/19/87	NO ENTRY
12.	07/22/87	NO ENTRY
13.	06/17/87	NO ENTRY
14.	06/14/87	NO ENTRY
15.	06/07/87	NO ENTRY
16.	05/10/87	NO ENTRY
17.	05/10/87	NO ENTRY
18.	03/27/87	NO ENTRY

10/89 VALVE PERFORMANCE SYSTEM
SEM FWS VALVE NUMBER 0014B
TEST MODE: OPEN

12:57:38

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	10/19/88	20.0	7.	06/17/88	20.4	13.	03/16/88	20.6
2.	09/07/88	19.9	8.	05/17/88	20.1	14.	02/01/88	20.6
3.	09/19/88	20.6	9.	04/18/88	19.4	15.	01/20/88	20.5
4.	08/17/88	20.3	10.	04/08/88	20.4	16.	12/15/87	19.8
5.	07/20/88	20.4	11.	03/10/88	20.5	17.	11/10/87	20.5
6.	07/20/88	20.3	12.	01/20/88	19.6	18.	11/18/87	19.9

NUM	DATE	NOTES
1.	10/19/88	NO ENTRY
2.	09/07/88	NO ENTRY
3.	09/19/88	NO ENTRY
4.	08/17/88	NO ENTRY
5.	07/20/88	NO ENTRY
6.	07/20/88	NO ENTRY
7.	06/17/88	NO ENTRY
8.	05/17/88	NO ENTRY
9.	04/18/88	LCTR NO. 88-513
10.	04/08/88	LCTR NO. 88-495
11.	03/10/88	NO ENTRY
12.	01/20/88	NO ENTRY
13.	03/16/88	NO ENTRY
14.	02/01/88	NO ENTRY
15.	01/20/88	NO ENTRY
16.	12/15/87	NO ENTRY
17.	11/10/87	LCTR NO. 87-1360
18.	11/18/87	NO ENTRY

SYSTEM FWS VALVE NUMBER 0014C
TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	10/19/88	20.3	7.	07/20/88	19.4	13.	01/20/88	20.5
2.	10/04/88	20.4	8.	06/17/88	20.4	14.	03/16/88	20.6
3.	09/07/88	20.0	9.	05/17/88	19.9	15.	02/01/88	19.8
4.	09/19/88	20.7	10.	04/18/88	19.9	16.	01/20/88	21.0
5.	08/17/88	20.5	11.	04/08/88	20.5	17.	12/15/87	20.5
6.	07/20/88	20.6	12.	03/10/88	19.0	18.	11/10/87	20.8

NUM	DATE	NOTES
1.	10/19/88	NO ENTRY
2.	10/04/88	NO ENTRY
3.	09/07/88	NO ENTRY
4.	09/19/88	NO ENTRY
5.	08/17/88	NO ENTRY
6.	07/20/88	NO ENTRY
7.	07/20/88	NO ENTRY
8.	06/17/88	NO ENTRY
9.	05/17/88	NO ENTRY
10.	04/18/88	LCTR NO. 88-513
11.	04/08/88	LCTR NO. 88-495
12.	03/10/88	NO ENTRY
13.	01/20/88	NO ENTRY
14.	03/16/88	NO ENTRY
15.	02/01/88	NO ENTRY
16.	01/20/88	NO ENTRY
17.	12/15/87	NO ENTRY
18.	11/10/87	LCTR NO. 87-1360

8/89

VALVE PERFORMANCE SYSTEM

10:50:13

STEM FWS VALVE NUMBER 0014B

TEST MODE: OPEN

DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
08/16/89	20.5	7.	03/22/89	20.9	13.	01/22/89	21.3
2. 07/18/89	20.8	8.	02/13/89	20.9	14.	10/19/88	20.0
3. 06/20/89	20.7	9.	02/12/89	20.9	15.	09/07/88	19.9
4. 05/17/89	20.7	10.	02/10/89	20.6	16.	09/19/88	20.6
5. 04/19/89	20.5	11.	02/07/89	20.7	17.	08/17/88	20.3
6. 04/08/89	20.9	12.	02/06/89	20.5	18.	07/20/88	20.4

NUM	DATE	NOTES
1.	08/16/89	
2.	07/18/89	N/A
3.	06/20/89	NO ENTRY
4.	05/17/89	NO ENTRY
5.	04/19/89	NO ENTRY
6.	04/08/89	NO ENTRY
7.	03/22/89	NO ENTRY
8.	02/13/89	LCTR NO. 88F-758
9.	02/12/89	LCTR NO. 88F-739
10.	02/10/89	NO ENTRY
11.	02/07/89	LCTR NO. 88F-719
12.	02/06/89	LCTR NO.88F-709
13.	01/22/89	NO ENTRY
14.	10/19/88	NO ENTRY
15.	09/07/88	NO ENTRY
16.	09/19/88	NO ENTRY
17.	08/17/88	NO ENTRY
18.	07/20/88	NO ENTRY

STEM FWS VALVE NUMBER 0014C

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/16/89	20.6	7.	03/22/89	20.8	13.	10/04/88	20.4
2.	07/18/89	20.7	8.	02/10/89	20.8	14.	09/07/88	20.0
3.	06/20/89	20.2	9.	02/15/89	20.6	15.	09/19/88	20.7
4.	05/17/89	20.9	10.	02/06/89	20.2	16.	08/17/88	20.5
5.	04/19/89	20.4	11.	01/22/89	20.7	17.	07/20/88	20.6
6.	04/08/89	20.8	12.	10/19/88	20.3	18.	07/20/88	19.4

NUM	DATE	NOTES
1.	08/16/89	
2.	07/18/89	N/A
3.	06/20/89	NO ENTRY
4.	05/17/89	NO ENTRY
5.	04/19/89	NO ENTRY
6.	04/08/89	NO ENTRY
7.	03/22/89	NO ENTRY
8.	02/10/89	NO ENTRY
9.	02/15/89	LCTR NO. 88F-773
10.	02/06/89	NO ENTRY
11.	01/22/89	NO ENTRY
12.	10/19/88	NO ENTRY
13.	10/04/88	NO ENTRY
14.	09/07/88	NO ENTRY
15.	09/19/88	NO ENTRY
16.	08/17/88	NO ENTRY
17.	07/20/88	NO ENTRY
18.	07/20/88	NO ENTRY

12/88

VALVE PERFORMANCE SYSTEM

13:58:14

SYSTEM FWS VALVE NUMBER 0016A

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/16/88	19.4	7.	10/27/87	19.2	13.	05/20/87	18.6
2.	02/17/88	19.4	8.	10/20/87	19.2	14.	03/18/87	19.4
3.	01/20/88	19.5	9.	09/16/87	19.2	15.	02/17/87	19.5
4.	12/16/87	19.2	10.	08/18/87	19.6	16.	01/26/87	19.2
5.	11/12/87	19.4	11.	07/22/87	18.9	17.	01/21/87	19.0
6.	11/17/87	20.0	12.	06/17/87	19.0	18.	12/17/86	18.0

NUM DATE NOTES

1.	03/16/88	NO ENTRY
2.	02/17/88	NO ENTRY
3.	01/20/88	NO ENTRY
4.	12/16/87	NO ENTRY
5.	11/12/87	LCTR NO. 87-1383
6.	11/17/87	NO ENTRY
7.	10/27/87	LCTR NO. 87-1308
8.	10/20/87	NO ENTRY
9.	09/16/87	NO ENTRY
10.	08/18/87	NO ENTRY
11.	07/22/87	NO ENTRY
12.	06/17/87	NO ENTRY
13.	05/20/87	NO ENTRY
14.	03/18/87	NO ENTRY
15.	02/17/87	NO ENTRY
16.	01/26/87	LCTR NO. 87-74, FILE NO. 3065.CMH
17.	01/21/87	NO ENTRY
18.	12/17/86	NO ENTRY

SYSTEM FWS VALVE NUMBER 0016B
TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/16/88	21.7	7.	11/17/87	21.8	13.	06/17/87	21.3
2.	02/17/88	21.5	8.	10/20/87	21.5	14.	05/20/87	21.1
3.	01/20/88	22.0	9.	09/16/87	21.4	15.	03/18/87	21.8
4.	12/16/87	21.4	10.	08/18/87	21.7	16.	02/17/87	22.7
5.	11/10/87	21.5	11.	07/22/87	21.2	17.	01/21/87	21.2
6.	11/10/87	22.0	12.	06/26/87	22.0	18.	12/17/86	20.0

NUM DATE NOTES

1.	03/16/88	NO ENTRY
2.	02/17/88	NO ENTRY
3.	01/20/88	NO ENTRY
4.	12/16/87	NO ENTRY
5.	11/10/87	LCTR NO. 87-1384
6.	11/10/87	LCTR NO. 87-1372
7.	11/17/87	NO ENTRY
8.	10/20/87	NO ENTRY
9.	09/16/87	NO ENTRY
10.	08/18/87	NO ENTRY
11.	07/22/87	NO ENTRY
12.	06/26/87	LCTR NO. 87-938
13.	06/17/87	NO ENTRY
14.	05/20/87	NO ENTRY
15.	03/18/87	NO ENTRY
16.	02/17/87	NO ENTRY
17.	01/21/87	NO ENTRY
18.	12/17/86	NO ENTRY

11/89

VALVE PERFORMANCE SYSTEM

12:58:08

SYSTEM FWS VALVE NUMBER 0016A

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	11/15/88	20.2	7.	08/30/88	19.8	13.	05/14/88	20.0
2.	10/17/88	19.9	8.	08/16/88	20.0	14.	04/19/88	20.0
3.	09/21/88	20.2	9.	07/21/88	19.7	15.	04/15/88	19.5
4.	09/16/88	20.3	10.	06/17/88	20.0	16.	04/11/88	18.0
5.	09/15/88	20.0	11.	05/24/88	19.9	17.	03/16/88	19.4
6.	09/02/88	20.3	12.	05/18/88	20.0	18.	02/17/88	19.4

NUM	DATE	NOTES
1.	11/15/88	NO ENTRY
2.	10/17/88	NO ENTRY
3.	09/21/88	NO ENTRY
4.	09/16/88	NO ENTRY
5.	09/15/88	LCTR NO. 88-996
6.	09/02/88	LCTR NO. 88-888
7.	08/30/88	LCTR NO. 88-856
8.	08/16/88	NO ENTRY
9.	07/21/88	NO ENTRY
10.	06/17/88	NO ENTRY
11.	05/24/88	LCTR NO. 88-634
12.	05/18/88	NO ENTRY
13.	05/14/88	LCTR NO. 88-612
14.	04/19/88	NO ENTRY
15.	04/15/88	LCTR NO. 88-509
16.	04/11/88	LCTR NO. 88-496
17.	03/16/88	NO ENTRY
18.	02/17/88	NO ENTRY

SYSTEM FWS VALVE NUMBER 0016B

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	11/15/88	21.2	7.	06/17/88	21.0	13.	02/17/88	21.5
2.	10/17/88	20.7	8.	05/24/88	21.0	14.	01/20/88	22.0
3.	09/21/88	20.9	9.	05/18/88	21.0	15.	12/16/87	21.4
4.	09/16/88	21.0	10.	04/19/88	20.5	16.	11/10/87	21.5
5.	08/16/88	21.2	11.	04/12/88	21.0	17.	11/10/87	22.0
6.	07/21/88	21.0	12.	03/16/88	21.7	18.	11/17/87	21.8

NUM	DATE	NOTES
1.	11/15/88	NO ENTRY
2.	10/17/88	NO ENTRY
3.	09/21/88	NO ENTRY
4.	09/16/88	NO ENTRY
5.	08/16/88	NO ENTRY
6.	07/21/88	NO ENTRY
7.	06/17/88	NO ENTRY
8.	05/24/88	LCTR NO. 88-635
9.	05/18/88	NO ENTRY
10.	04/19/88	NO ENTRY
11.	04/12/88	LCTR NO. 88-497
12.	03/16/88	NO ENTRY
13.	02/17/88	NO ENTRY
14.	01/20/88	NO ENTRY
15.	12/16/87	NO ENTRY
16.	11/10/87	LCTR NO. 87-1384
17.	11/10/87	LCTR NO. 87-1372
18.	11/17/87	NO ENTRY

3/89

VALVE PERFORMANCE SYSTEM

STEM FWS VALVE NUMBER 0016A

10:50:43

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/15/89	20.8	7.	03/21/89	20.8	13.	09/21/88	20.2
2.	07/18/89	21.2	8.	02/21/89	20.9	14.	09/16/88	20.3
3.	06/20/89	20.6	9.	01/27/89	21.9	15.	09/15/88	20.0
4.	05/17/89	20.8	10.	01/25/89	20.7	16.	09/02/88	20.3
5.	04/19/89	20.8	11.	11/15/88	20.2	17.	08/30/88	19.8
6.	03/22/89	20.3	12.	10/17/88	19.9	18.	08/16/88	20.0

NUM	DATE	NOTES
1.	08/15/89	
2.	07/18/89	N/A
3.	06/20/89	NO ENTRY
4.	05/17/89	NO ENTRY
5.	04/19/89	NO ENTRY
6.	03/22/89	LCTR NO. 89-90
7.	03/21/89	NO ENTRY
8.	02/21/89	NO ENTRY
9.	01/27/89	LCTR NO. 88F-608
10.	01/25/89	NO ENTRY
11.	11/15/88	NO ENTRY
12.	10/17/88	NO ENTRY
13.	09/21/88	NO ENTRY
14.	09/16/88	NO ENTRY
15.	09/15/88	LCTR NO. 88-996
16.	09/02/88	LCTR NO. 88-888
17.	08/30/88	LCTR NO. 88-856
18.	08/16/88	NO ENTRY

STEM FWS VALVE NUMBER 0016B
TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/15/89	21.2	7.	02/21/89	21.5	13.	09/16/88	21.0
2.	07/18/89	21.2	8.	01/27/89	21.2	14.	08/16/88	21.2
3.	06/20/89	21.0	9.	01/25/89	20.7	15.	07/21/88	21.0
4.	05/17/89	21.2	10.	11/15/88	21.2	16.	06/17/88	21.0
5.	04/19/89	21.3	11.	10/17/88	20.7	17.	05/24/88	21.0
6.	03/21/89	21.3	12.	09/21/88	20.9	18.	05/18/88	21.0

NUM	DATE	NOTES
1.	08/15/89	
2.	07/18/89	N/A
3.	06/20/89	NO ENTRY
4.	05/17/89	NO ENTRY
5.	04/19/89	NO ENTRY
6.	03/21/89	NO ENTRY
7.	02/21/89	NO ENTRY
8.	01/27/89	LCTR NO. 88F-620
9.	01/25/89	NO ENTRY
10.	11/15/88	NO ENTRY
11.	10/17/88	NO ENTRY
12.	09/21/88	NO ENTRY
13.	09/16/88	NO ENTRY
14.	08/16/88	NO ENTRY
15.	08/16/88	NO ENTRY
16.	08/16/88	NO ENTRY
17.	08/17/88	NO ENTRY
18.	05/24/88	LCTR NO. 88-635
19.	05/18/88	NO ENTRY

/12/88

VALVE PERFORMANCE SYSTEM

13:58:45

SYSTEM FWS VALVE NUMBER 0016C

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/16/88	20.3	7.	10/20/87	20.1	13.	03/18/87	20.1
2.	02/17/88	19.5	8.	09/16/87	19.8	14.	02/17/87	20.2
3.	01/20/88	20.1	9.	08/18/87	20.2	15.	01/21/87	19.5
4.	11/13/87	18.5	10.	07/22/87	19.7	16.	12/17/86	20.0
5.	12/16/87	19.9	11.	06/17/87	19.8	17.	11/18/86	20.1
6.	11/17/87	20.3	12.	05/20/87	19.4	18.	10/21/86	20.1

NUM	DATE	NOTES
1.	03/16/88	NO ENTRY
2.	02/17/88	NO ENTRY
3.	01/20/88	NO ENTRY
4.	11/13/87	LCTR NO, 87-1358
5.	12/16/87	NO ENTRY
6.	11/17/87	NO ENTRY
7.	10/20/87	NO ENTRY
8.	09/16/87	NO ENTRY
9.	08/18/87	NO ENTRY
10.	07/22/87	NO ENTRY
11.	06/17/87	NO ENTRY
12.	05/20/87	NO ENTRY
13.	03/18/87	NO ENTRY
14.	02/17/87	NO ENTRY
15.	01/21/87	NO ENTRY
16.	12/17/86	NO ENTRY
17.	11/18/86	NO ENTRY
18.	10/21/86	NO ENTRY

SYSTEM FWS VALVE NUMBER 0020A

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	03/16/88	21.9	7.	09/16/87	21.8	13.	02/17/87	21.9
2.	02/17/88	22.0	8.	08/18/87	22.0	14.	01/21/87	21.0
3.	01/22/88	22.0	9.	07/22/87	22.0	15.	12/17/86	21.0
4.	12/16/87	22.5	10.	06/17/87	19.8	16.	11/18/86	21.8
5.	11/17/87	21.8	11.	05/20/87	22.8	17.	10/21/86	21.8

3/89

VALVE PERFORMANCE SYSTEM

12:58:38

SYSTEM FWS VALVE NUMBER 0016C

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	11/15/88	21.4	7.	07/21/88	21.0	13.	02/17/88	19.5
2.	10/17/88	21.1	8.	06/17/88	21.3	14.	01/20/88	20.1
3.	09/21/88	21.1	9.	05/18/88	21.4	15.	11/13/87	18.5
4.	09/16/88	21.3	10.	04/19/88	21.5	16.	12/16/87	19.9
5.	09/15/88	20.8	11.	04/13/88	21.4	17.	11/17/87	20.3
6.	08/16/88	21.6	12.	03/16/88	20.3	18.	10/20/87	20.1

NUM	DATE	NOTES
1.	11/15/88	NO ENTRY
2.	10/17/88	NO ENTRY
3.	09/21/88	NO ENTRY
4.	09/16/88	NO ENTRY
5.	09/15/88	LCTR NO. 88-999
6.	08/16/88	NO ENTRY
7.	07/21/88	NO ENTRY
8.	06/17/88	NO ENTRY
9.	05/18/88	NO ENTRY
10.	04/19/88	NO ENTRY
11.	04/13/88	LCTR NO. 88-498
12.	03/16/88	NO ENTRY
13.	02/17/88	NO ENTRY
14.	01/20/88	NO ENTRY
15.	11/13/87	LCTR NO, 87-1358
16.	12/16/87	NO ENTRY
17.	11/17/87	NO ENTRY
18.	10/20/87	NO ENTRY

SYSTEM FWS VALVE NUMBER 0020A

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	11/15/88	22.0	7.	07/21/88	22.0	13.	01/22/88	22.0
2.	10/17/88	21.8	8.	06/17/88	21.9	14.	12/16/87	22.5
3.	09/21/88	21.9	9.	05/18/88	22.0	15.	11/17/87	21.9
4.	09/16/88	21.9	10.	04/19/88	21.0	16.	10/20/87	22.0
5.	08/30/88	21.9	11.	03/16/88	21.9	17.	09/16/87	21.8
6.	08/16/88	20.2	12.	02/17/88	22.0	18.	08/18/87	22.0

NUM	DATE	NOTES
1.	11/15/88	NO ENTRY
2.	10/17/88	NO ENTRY
3.	09/21/88	NO ENTRY
4.	09/16/88	NO ENTRY
5.	08/30/88	NO ENTRY
6.	08/16/88	NO ENTRY
7.	07/21/88	NO ENTRY
8.	06/17/88	NO ENTRY
9.	05/18/88	NO ENTRY
10.	04/19/88	NO ENTRY
11.	03/16/88	NO ENTRY
12.	02/17/88	NO ENTRY
13.	01/22/88	NO ENTRY
14.	12/16/87	NO ENTRY
15.	11/17/87	NO ENTRY
16.	10/20/87	NO ENTRY
17.	09/16/87	NO ENTRY
18.	08/18/87	NO ENTRY

3/89

VALVE PERFORMANCE SYSTEM

10:51:13

SYSTEM FWS VALVE NUMBER 0016C

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/15/89	21.3	7.	02/21/89	21.4	13.	09/21/88	21.1
2.	07/18/89	21.4	8.	01/27/89	21.2	14.	09/16/88	21.3
3.	06/20/89	21.2	9.	01/28/89	21.1	15.	09/15/88	20.8
4.	05/17/89	21.2	10.	01/25/89	20.9	16.	08/16/88	21.6
5.	04/19/89	21.1	11.	11/15/88	21.4	17.	07/21/88	21.0
6.	03/21/89	21.0	12.	10/17/88	21.1	18.	06/17/88	21.3

NOTES

- 1. 08/15/89
- 2. 07/18/89 N/A
- 3. 06/20/89 NO ENTRY
- 4. 05/17/89 NO ENTRY
- 5. 04/19/89 NO ENTRY
- 6. 03/21/89 NO ENTRY
- 7. 02/21/89 NO ENTRY
- 8. 01/27/89 LCTR NO. 88F-619
- 9. 01/28/89 LCTR NO. 88F-623
- 10. 01/25/89 NO ENTRY
- 11. 11/15/88 NO ENTRY
- 12. 10/17/88 NO ENTRY
- 13. 09/21/88 NO ENTRY
- 14. 09/16/88 NO ENTRY
- 15. 09/15/88 LCTR NO. 88-999
- 16. 08/16/88 NO ENTRY
- 17. 07/21/88 NO ENTRY
- 18. 06/17/88 NO ENTRY

SYSTEM FWS VALVE NUMBER 0020A

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/15/89	21.4	7.	02/21/89	22.1	13.	08/20/88	21.1
2.	07/18/89	22.1	8.	01/25/89	22.1	14.	08/16/88	21.3
3.	06/20/89	21.9	9.	11/15/88	21.4	15.	09/15/88	20.8
4.	05/17/89	21.9	10.	01/25/89	20.9	16.	08/16/88	21.6
5.	04/19/89	21.1	11.	11/15/88	21.4	17.	07/21/88	21.0
6.	03/21/89	21.0	12.	10/17/88	21.1	18.	06/17/88	21.3

10/05/89

VALVE PERFORMANCE SYSTEM

09:28:47

SYSTEM FWS VALVE NUMBER 01424

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/16/89	8.7	7.	03/21/89	9.2	13.	/ /	0.0
2.	07/18/89	8.9	8.	02/22/89	9.5	14.	/ /	0.0
3.	06/20/89	8.4	9.	/ /	0.0	15.	/ /	0.0
4.	05/17/89	9.0	10.	/ /	0.0	16.	/ /	0.0
5.	04/19/89	9.3	11.	/ /	0.0	17.	/ /	0.0
6.	04/19/89	10.0	12.	/ /	0.0	18.	/ /	0.0

NUM	DATE	NOTES
1.	08/16/89	
2.	07/18/89	N/A
3.	06/20/89	NO ENTRY
4.	05/17/89	NO ENTRY
5.	04/19/89	LCTR NO. 89-189
6.	04/19/89	NO ENTRY
7.	03/21/89	NO ENTRY
8.	02/22/89	NO ENTRY
9.	/ /	
10.	/ /	
11.	/ /	
12.	/ /	
13.	/ /	
14.	/ /	
15.	/ /	
16.	/ /	
17.	/ /	
18.	/ /	

10/05/89

VALVE PERFORMANCE SYSTEM

09:30:02

SYSTEM FWS VALVE NUMBER 01425

TEST MODE: OPEN

NUM	DATE	TIME	NUM	DATE	TIME	NUM	DATE	TIME
1.	08/16/89	8.5	7.	04/19/89	9.4	13.	/ /	0.0
2.	08/16/89	10.3	8.	03/21/89	9.4	14.	/ /	0.0
3.	07/18/89	8.9	9.	02/22/89	9.3	15.	/ /	0.0
4.	06/20/89	9.1	10.	02/13/89	9.2	16.	/ /	0.0
5.	05/17/89	9.3	11.	/ /	0.0	17.	/ /	0.0
6.	04/19/89	9.5	12.	/ /	0.0	18.	/ /	0.0

NUM	DATE	NOTES
1.	08/16/89	LCTR NO.89-0474 WR 89-AHJQ1
2.	08/16/89	WR 89-AHSQ1 REPLACED ACTUATOR
3.	07/18/89	N/A
4.	06/20/89	NO ENTRY
5.	05/17/89	NO ENTRY
6.	04/19/89	LCTR NO. 89-189
7.	04/19/89	NO ENTRY
8.	03/21/89	NO ENTRY
9.	02/22/89	NO ENTRY
10.	02/13/89	NO ENTRY
11.	/ /	
12.	/ /	
13.	/ /	
14.	/ /	
15.	/ /	
16.	/ /	
17.	/ /	
18.	/ /	

Attachment 20

10-25-89

File: 3065

AUXILIARY FEEDWATER PUMP
MOTORS A AND B

ROTOR BAR FAILURE ISSUE

BACKGROUND:

The A and B Auxiliary Feedwater Pump Motors have been in commercial service since March 1971 to August of this year. The motors are 350 HP, 460 VAC, Model ABDP, Frame 509 US, Style No. 68F93823 and were manufactured by Westinghouse Electric Company.

FAILURE HISTORY: A MOTOR

- 9-8-71 Motor failure was experienced due to broken rotor bars. Motor was repaired by Westinghouse in warranty, and no motor repair report is available.
- 3-15-77 Motor was removed from service due to sparks being observed coming out of motor air vents while being started. Motor was inspected by General Electric Motor Shop and 5 broken rotor bars were found. The 5 broken rotor bars were replaced and silver soldered to the end ring. The motor report does not specify what method was used to install and fasten the rotor bars in the rotor. The motor was assembled, tested, and returned.
- 6-4-79 Motor failure was experienced due to broken rotor bars. The motor was inspected by General Electric Motor Shop, and the motor report states that a number of rotor bars were cracked and broken loose from the end rings. The motor report states that all rotor bars were cleaned and rewelded to the end rings. The motor was assembled, tested, and returned.
- 4-17-80 Motor was removed from service due to sparks being observed coming out of the motor air vents when the motor was started and while it was running. The motor was inspected by General Electric Motor Shop, and the motor report states that a number of rotor bars were cracked and broken loose from the end rings. The motor report states that all rotor bars were cleaned and rewelded to the end rings. The motor was assembled, tested and returned.
- 7-24-81 Motor was removed from service due to sparks being observed coming out of the motor air vents when the motor was started and while it was running. The motor was inspected by Westinghouse Electric Motor Shop, and the motor report states that the rotor shows open rotor bars. The motor report stated that the motor was rebarred as per Westinghouse Drawing 644C707, but does not specify what method was used to fasten the new rotor bars in the rotor. The motor was assembled, tested, and returned.

8-25-81 Motor was removed from service due to Plant Maintenance concerns that the motor was not functioning properly. The motor was inspected by Westinghouse Electric Motor Shop, and the motor report states that the inspection showed no defects of any motor components. The rotor was rebalanced and the motor was assembled, tested, and returned.

3-16-88 Plant Operations reported that they had observed sparks coming out of the motor air vents during a start. Plant I&C observed the motor during 5 starts and no sparks were seen. The motor was left in service.

8-24-89 Plant I&C reported that they had observed sparks coming out of the motor air vents during a start. The motor was inspected by Westinghouse Electric Motor Shop, and the motor report states that the growler test and visual test indicated three open rotor bars. The motor report states that the motor was rebarred using an approved process which included swaging. The motor was assembled, tested, and returned.

Failure History: B Motor

4-18-80 Motor was removed from service for inspection due to the rotor bar problems with "A" motor. The motor was inspected by General Electric Motor Shop, and the motor report does not indicate any rotor bar problems or repairs to rotor bars. The motor was assembled, tested, and returned.

8-12-81 Motor was removed from service for inspection due to rotor bar problems with "A" motor. The motor was inspected by Westinghouse Electric Motor Shop, and the motor report states that the rotor laminations were found to be loose. The motor report states that the laminations were tightened, but no method of tightening was specified. The motor was assembled, tested, and returned.

8-24-89 Motor was removed from service for inspection due to rotor bar problems with "A" motor. The motor was inspected by Westinghouse Motor Shop, and the motor report states that the growler test and visual test indicated no open rotor bars. The motor report states that the rotor surface was rough and the rotor was egg shaped. The rotor surface was machined, and the rotor to stator air gap is addressed in EE-89-090. The motor was assembled, tested, and returned.

Discussion: A Motor

The plant first experienced rotor bar failure in the motor in 1971. The motor was repaired in warranty by Westinghouse. No further rotor bar problems were experienced until 1977. The motor was repaired in 1977, 1979, and 1980 by General Electric after rotor bar problems were experienced.

Again in 1981, the motor experienced rotor bar problems and was repaired by Westinghouse. No further rotor bar problems were experienced with this motor until 1989 until it again was found to have cracked rotor bars.

From a review of the General Electric and Westinghouse motor reports, it can not be determined what method was used to attach the rotor bars into the rotor until 1989 when they were swaged.

Discussion: B Motor

This motor was first inspected in 1980 by General Electric and no rotor bar problems were found. The motor was inspected again in 1981 by Westinghouse and the rotor bars were tightened. The rotor bars in this motor appear to have been staked in the rotor in 1981. This statement is based on information provided by Westinghouse during the 1989 motor inspection.

Unique Application:

- A. The Auxiliary Feedwater System is a standby safety system that is designed to be used in the event that normal feedwater is not available; however, the system is used in addition as follows:
 - 1. To fill steam generators for wet layup while plant is in cold shutdown.
 - 2. To maintain steam generator proper levels while plant is in hot shutdown and main feedwater is not available due to improper water chemistry.
- B. Pump motors are started under full load conditions.
- C. Motors are started more frequently than normal industry practices for other applications.
 - 1. A motor gets more starts than B motor due to RTGB design.

Conclusion:

Based on the history of usage of the Auxiliary Feedwater System and the Westinghouse response to the rotor bar cracking issue, the most probable root cause for the rotor bar cracking is motor starting in excess of the frequency anticipated in the plant fluid system design.

It is anticipated that this conclusion will be substantiated and finalized by future motor inspections.

In addition, the A motor bars have been swaged and the B motor rotor bars have been staked, which Westinghouse states in their response, should eliminate the mechanism which may potentially result in rotor bar cracking.

STEM
ENGINEERING
CRITICAL
TION

DATE 11/07/89

TIME 13:00

INITIATED

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP PMP-PUMP

ROUTINE WR/JO LIST
ROBINSON NUCLEAR
COMPLETED

THRU

PAGE 1
REPORT PMMRI
UNIT 2

ID

WR/JO 89-AIJC1 PRI/TYPE/WCC 2 /20/D UNIT 2 SKILL TS SYSTEM 3065
WORK IN PROGRESS REQ'R DAYTON, RICK A INITIATED 09/09/89 06:49
EQUIP PMP-PUMP

LOCATION- GROUND FLOOR, TURBINE BUILDING

COMPONENT- PROVIDE ENGINEERING COVERAGE FROM 9/15/89 THROUGH END OF JOB FOR AFW
REPAIR AND REINSTALLATION OF "A" AND "B" MDAFW PUMPS AND MOTORS AND
THE SDAFW PUMP. CONTACT CHIP MOON PRIOR TO 9/15/89 TO GET A TURNOVER
ON THE NECESSARY WORK. WORK SHIFT SHOULD CORRESPOND TO MAINTENANCE'S
(POSSIBLY 10 HR. D/S). PROVIDE WRITTEN TURNOVER BACK TO CHIP MOON
ON TUESDAY 9/19/89.

WR/JO 89-AJGS1 PRI/TYPE/WCC 3 /20/D UNIT 2 SKILL EL SYSTEM 3065
WORK IN PROGRESS REQ'R JERNIGAN JR, C INITIATED 10/11/89 07:56
EQUIP PMP-PUMP

LOCATION-1ST FLOOR TURB. BLD.

COMPONENT-STEAM DRIVEN AUX.FEED WATER PUMP .ELECT.DISCONNECT THE
STAND-BY OIL PUMP FOR MECH.REPAIRS.

WR/JO 89-AFGM2 PRI/TYPE/WCC 3 /21/D UNIT 2 SKILL EL SYSTEM 3065
WORK IN PROGRESS REQ'R WALKUP, WILLIA INITIATED 09/06/89 07:29
EQUIP PMP-PUMP

LOCATION- 1ST LEVEL OF TURBINE BLDG-BY AUX. BOILERS

COMPONENT- STEAM DRIVEN AUX. FEEDWATER PUMP---PER TECH SUPPORT'S RECOMMENDATION
AS A PREVENTIVE MAINTENANCE MEASURE, AND TO ENSURE CONTINUED RELIABILITY, THE
PUMP NEEDS A COMPLETE OVERHAUL DURING THE 1990 REFUELING.

**NEED PLANNER TO CONTACT VENDOR FOR A WRITTEN RECOMMENDATION AS TO THE
RECOMMENDED PUMP INTERNAL INSPECTION INTERVAL, INITATE THIS LETTER THRU OUR
PLANT PLP-038 VENDOR RECOMMENDATION PROGRAM AND ENSURE A PM IS SETUP FOR FUTURE
INSPECTIONS.-EVERETT

WR/JO 89-AFGM1 PRI/TYPE/WCC 3 /50/D UNIT 2 SKILL ME SYSTEM 3065
WORK IN PROGRESS REQ'R LEAR, LEWIS E INITIATED 05/22/89 10:58
EQUIP PMP-PUMP

LOCATION- 1ST LEVEL OF TURBINE BLDG-BY AUX. BOILERS

COMPONENT- STEAM DRIVEN AUX. FEEDWATER PUMP---PER TECH SUPPORT'S RECOMMENDATION
AS A PREVENTIVE MAINTENANCE MEASURE, AND TO ENSURE CONTINUED RELIABILITY, THE
PUMP NEEDS A COMPLETE OVERHAUL DURING THE 1990 REFUELING.

**NEED PLANNER TO CONTACT VENDOR FOR A WRITTEN RECOMMENDATION AS TO THE
RECOMMENDED PUMP INTERNAL INSPECTION INTERVAL, INITATE THIS LETTER THRU OUR
PLANT PLP-038 VENDOR RECOMMENDATION PROGRAM AND ENSURE A PM IS SETUP FOR FUTURE
INSPECTIONS.-EVERETT

WR/JO 89-AJCM1 PRI/TYPE/WCC 4 /31/A UNIT 2 SKILL TS SYSTEM 3065
WORK IN PROGRESS REQ'R DAYTON, RICK A INITIATED 10/05/89 08:53
EQUIP PMP-PUMP

LOCATION- FIRST FLOOR OF TURBINE BLDG.

COMPONENT- MDAFW AND SDAFW PUMP AND VALVE OST DATA.

NEED TREND GRAPHS DEVELOPED FOR THE PAST TWO YEARS OF OST-201, 202,
206, AND 207 DATA. DATA TO BE TRENDED ARE PUMP DELTA-P, VIBRATION,
AND VALVE STROKE TIMES.

DATE 11/07/89

ROUTINE WR/JO LIST

PAGE 2

TIME 11:28

ROBINSON NUCLEAR

REPORT PMMRI

INITIATED

THRU

COMPLETED

THRU

UNIT 2

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP PMP-PUMP

ID

89-AIMK1

LOCATION-- TURBINE BLDG AROUND MOTOR AND STEAM DRIVEN AFW PUMPS
COMPONENT-- SUPPORT CALIBRATION AND INSTALLATION OF TEST GAUGES FOR PERFORMANCE OF AFW SUCTION PIPING REPLACEMENT MOD (M-1018) ACCEPTANCE TEST. THE ACCEPTANCE TEST PROCEDURE DETAILS THE NUMBER AND RANGE OF THE TEST GAUGES AND WHERE THEY ARE TO BE INSTALLED. CONTACT DARRYL GARDNER OR CHIP MOON FOR DETAILS.

89-AJCM1

4 /31/A

2

TS

3065

WORK IN PROGRESS

REQ'R DAYTON, RICK A

INITIATED 10/05/89 08:53

EQUIP PMP-PUMP

LOCATION-- FIRST FLOOR OF TURBINE BLDG.

COMPONENT-- MDAFW AND SDAFW PUMP AND VALVE OST DATA.

NEED TREND GRAPHS DEVELOPED FOR THE PAST TWO YEARS OF OST-201, 202, 206, AND 207 DATA. DATA TO BE TRENDED ARE PUMP DELTA-F, VIBRATION, AND VALVE STROKE TIMES.

89-AHQA1

3 /20/A

2

ME

3065

PLANNED, NOT SCHEDULED

REQ'R WALDSMITH, BRY

INITIATED 08/11/89 20:36

EQUIP PMP-AUX FEEDWATER PUMP A

LOCATION-- TURB. BLDG. 1ST LEVEL; AFW PUMP ROOM

COMPONENT--THE SHAFT SEAL ON THE MOTOR END OF "A" M.D. AFW PUMP HAS A SMALL CONTINUOUS LEAK ABOUT THE SIZE OF A PENCIL LEAD. PLEASE INVESTIGATE AND CORRECT AS SOON AS POSSIBLE. FOUND WHILE DOING NORMAL SHIFT ROUNDS.

89-AJIL1

3 /22/A

2

EL

3065

PLANNED, NOT REVIEWED

REQ'R MCINNIS, JAMES

INITIATED 10/13/89 09:37

EQUIP PMP-STEAM DRIVEN AUXILIARY FEEDWATER PUMP

LOCATION--TURB BLDG LEVEL-1 --AT SDAFW PMP

COMPONENT--THERMOCOUPLE WIRING FOR THE RADIAL AND THRUST BEARINGS--NEEDS TO BE LABELED-TYPE WIRE; BEARING ID

89-AJIK1

3 /21/A

2

ME

3065

PLANNED, NOT REVIEWED

REQ'R MCINNIS, JAMES

INITIATED 10/13/89 09:30

EQUIP PMP-STEAM DRIVEN AUXILIARY FEEDWATER PUMP

LOCATION--TURB BLDG LEVEL -1--AT SDAFW PMP

COMPONENT--SDAFW PMP SUCTION STRAINER -- INSTALL AND REMOVE AS PER SCHEDULING

82-ACPG1

4 /21/F

2

LU

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 01/18/82 12:00

EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 1FP/02/82

RQSTR - PATE

COMPONENT - STEAM DRVN PUMP

*SYSTEM - AFW

LOW OIL IN CRANKCASE

CHG - H12Z33 53060

SHOP - Z33

82-ACZZ1

5 /50/F

2

ME

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 03/08/82 12:00

EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 2HO/01/82

RQSTR - SMITH

COMPONENT - A PUMP

*SYSTEM - AFW

AGGRESSIVE SEAL LEAKAGE

CHG - H12Z33 53060

SHOP - Z33

82-AECP1

3 /20/F

2

ME

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 06/16/82 12:00

EQUIP PMP-PUMP

DATE 11/07/89
TIME 11:28

ROUTINE WR/JO LIST
ROBINSON NUCLEAR
COMPLETED THRU

PAGE 3
REPORT PMMRI
UNIT 2

INITIATED THRU
SYSTEM 3065-AUXILIARY FEEDWATER
EQUIP PMP-PUMP

ID

~~82-AEGR1~~

LOCATION - **WOTR CONVERSION** WOTR - 4UJ/01/82 RQSTR - ALLEN
COMPONENT - A PUMP *SYSTEM - AFW
INBOARD PACKING LEAKS CHG - H12Z33 53060 SHOP - Z33

~~82-AEJEM~~

3 / 20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 07/17/82 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 5NG/01/82 RQSTR - THIBODEA
COMPONENT - A PUMP *SYSTEM - AFW
EXCESSIVE SEAL LEAKAGE AT INBD SEAL CHG - H12Z33 53060 SHOP - Z33

~~82-AERW1~~

3 / 21/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 08/02/82 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 6DN/01/82 RQSTR - KYSER
COMPONENT - STM DRVN PMP *SYSTEM - AFW
LOW ON OIL CHG - H12Z33 53060 SHOP - Z33

~~82-AESE1~~

4 / 20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 08/16/82 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 6IT/02/82 RQSTR - SMITH
COMPONENT - STM DRVN PMP *SYSTEM - AFW
LOW ON OIL CHG - H12Z33 53060 SHOP - Z33

~~82-AEYW1~~

4 / 20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 08/31/82 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 6TJ/01/82 RQSTR - SMITH
COMPONENT - STM DRVN PMP *SYSTEM - AFW
LOW ON OIL CHG - H12Z33 53060 SHOP - Z33

~~82-AEZY1~~

3 / 20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 09/06/82 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 6WQ/01/82 RQSTR - PRITCHAR
COMPONENT - A PUMP *SYSTEM - AFW
EXCESSIVE SEAL LEAKAGE OUTBD CHG - H12Z33 53060 SHOP - Z33

~~82-AFBR1~~

3 / 21/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 09/16/82 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 7BY/01/82 RQSTR - THIBODEA
COMPONENT - STM DRVN PMP *SYSTEM - AFW
LOW ON OIL CHG - H12Z33 53060 SHOP - Z33

~~82-AFEG1~~

3 / 20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 09/30/82 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 7IZ/01/82 RQSTR - HALEY
COMPONENT - STM DRVN PMP *SYSTEM - AFW
LOW ON OIL CHG - H12Z33 53060 SHOP - Z33

~~82-AFIX1~~

3 / 20/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 10/20/82 12:00
EQUIP PMP-PUMP

DATE 11/07/89

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INITIATED THRU

COMPLETED

THRU

UNIT 2

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP PMP-PUMP

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~~82-AFIX1~~

LOCATION - **WOTR CONVERSION** WOTR - 7WJ/01/82 RQSTR - JOHNSON
COMPONENT - STM DRVN PMP *SYSTEM - AFW
LOW ON OIL CHG - H12Z33 53060 SHOP - Z33

~~82-AFNE1~~

COMPLETED AND APPROVED 1A/21/F 2 ME 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 11/16/82 12:00

LOCATION - **WOTR CONVERSION** WOTR - 8LM/01/82 RQSTR - JOHNSON
COMPONENT - STM DRVN PMP *SYSTEM - AFW
LOW ON OIL CHG - H12Z33 53060 SHOP - Z33

~~82-AFNQ1~~

COMPLETED AND APPROVED 3 /21/F 2 LU 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 11/19/82 12:00

LOCATION - **WOTR CONVERSION** WOTR - 8MS/01/82 RQSTR - JOHNSON
COMPONENT - STM DRVN PUMP *SYSTEM - AFW
LOW ON OIL CHG - H12Z33 53060 SHOP - Z33

~~82-AFER1~~

COMPLETED AND APPROVED 5 /20/F 2 ME 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 12/06/82 12:00

LOCATION - **WOTR CONVERSION** WOTR - 8WK/01/82 RQSTR - GRIGGS
COMPONENT - VALVE AFW 20 *SYSTEM - FW
HAS LEK AROUND PLUG IN SIDE OF STUFF CHG - H12Z33 53060 SHOP - Z33

~~82-AETR1~~

COMPLETED AND APPROVED 1 /20/F 2 ME 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 12/23/82 12:00

LOCATION - **WOTR CONVERSION** WOTR - 9DA/01/82 RQSTR - JOHNSON
COMPONENT - STM DRVN PUMP *SYSTEM - AFW
LOW ON OIL CHG - H12Z33 53060 SHOP - Z33

~~83-AAER1~~

COMPLETED AND APPROVED 4 /10/F 2 EL 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 06/05/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - BF4/01/83 RQSTR - BURRISS
COMPONENT - SDAFW PUMP *SYSTEM - AFW
AUX OIL PUMP TRIPS BKR ON THERMAL OVERLO CHG - H12Z32 53060 SHOP - Z32

~~83-ADQJ1~~

COMPLETED AND APPROVED 3 /21/F 2 LU 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 01/04/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - 1AZ/01/83 RQSTR - MCINNIS
COMPONENT - STM DRVN PMP *SYSTEM - AFW
ADD OIL AS NEEDED FOR MONTH OF JAN 83 CHG - H12Z33 53060 SHOP - Z33

~~83-ADTS1~~

COMPLETED AND APPROVED 3 /20/F 2 ME 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 01/19/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - 1KS/01/83 RQSTR - WALKUP
COMPONENT - STM DRVN PMP *SYSTEM - AFW
INSTALL TARP AROUND PUMP CHG - H12Z33 53060 SHOP - Z33

~~83-ADTX1~~

COMPLETED AND APPROVED 2 /10/F 2 ME 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 01/19/83 12:00

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INITIATED THRU
SYSTEM 3065-AUXILIARY FEEDWATER
EQUIP PMP-PUMP

COMPLETED THRU

ID

~~83-ADTX1~~

LOCATION - **WOTR CONVERSION** WOTR - 1LG/01/83 RQSTR - OATES
COMPONENT - STM DRVN PMP *SYSTEM - AFW
OVERSPEED TRIP TRIPS TO EARLY CHG - H12Z33 53060 SHOP - Z33

~~83-ADTY1~~

COMPLETED AND APPROVED 2 /20/F 2 ME 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 01/20/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - 1LH/01/83 RQSTR - JERNIGAN
COMPONENT - STM DRVN PMP *SYSTEM - AFW
MECHANICAL TRIP WORKING INCORRECTLY CHG - H12Z33 53060 SHOP - Z33

~~83-ADYY1~~

COMPLETED AND APPROVED 3 /21/F 2 LU 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 02/09/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - 1VP/01/83 RQSTR - WALKUP
COMPONENT - STM DRVN PMP *SYSTEM - AFW
ADD OIL AS NEEDED FOR MONTH OF FEB 83 CHG - H12Z33 53060 SHOP - Z33

~~83-AECC1~~

COMPLETED AND APPROVED 3 /21/F 2 LU 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 01/04/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - 2DA/01/83 RQSTR - MCINNIS
COMPONENT - STEAM DRIVEN PUMP *SYSTEM - AFW
ADD OIL AS NEEDED CHG - H12Z33 53060 SHOP - Z33

~~83-AELG1~~

COMPLETED AND APPROVED 3 /21/F 2 LU 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 03/30/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - 2WT/01/83 RQSTR - MCINNIS
COMPONENT - SDAFW PUMP *SYSTEM - AFW
LOW OIL LEVEL CHG - H12Z33 53060 SHOP - Z33

~~83-AEUR1~~

COMPLETED AND APPROVED 3 /20/F 2 ME 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 04/22/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - 3KW/01/83 RQSTR - JERNIGAN
COMPONENT - A AUX FW PUMP *SYSTEM - AUX FW
OIL NEEDS TO BE CHANGED CHG - H12Z33 53060 SHOP - Z33

~~83-AEYH1~~

COMPLETED AND APPROVED 4 /20/F 2 IN 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 04/30/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - 3RH/01/83 RQSTR - OATES
COMPONENT - PUMP *SYSTEM - AFW
REINSULATE FLANGE ON AFW PUMP CHG - H12Z33 53060 SHOP - Z33

~~83-AFFT1~~

COMPLETED AND APPROVED 3 /20/F 2 ME 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 05/20/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - 4EP/01/83 RQSTR - CUTRIGHT
COMPONENT - A AUX FW PUMP *SYSTEM - AFW
HAS EXCESSIVE PACKING LEAK CHG - H12Z33 53060 SHOP - Z33

~~83-AFHM1~~

COMPLETED AND APPROVED 3 /21/F 2 LU 3065
EQUIP PMP-PUMP REQ'R CRAWFORD INITIATED 01/04/83 12:00

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COMPLETED

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UNIT 2

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP PMP-PUMP

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~~83-AFHMI~~

LOCATION - **WOTR CONVERSION** WOTR - 4HQ/01/83 RQSTR - NA
COMPONENT - SDAW PUMP *SYSTEM - AFW
ADD OIL FOR ONE MONTH CHG - H12Z33 53060 SHOP - Z33

~~83-AFJH1~~

3 /21/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 05/30/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 4KO/01/83 RQSTR - PRICE
COMPONENT - SDAFW PUMP *SYSTEM - AFW
OIL LOW IN SDAFW PUMP CHG - H12Z33 53060 SHOP - Z33

~~83-AFTZ1~~

3 /21/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/04/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 5BB/01/83 RQSTR - WALKUP
COMPONENT - SDAFW PUMP *SYSTEM - AFW
ADD OIL AS NEEDED TO SDAFW PUMP CHG - H12Z33 53060 SHOP - Z33

~~83-AGCD1~~

3 /21/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/04/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 5OU/01/83 RQSTR - JOHNSON
COMPONENT - SDAFW PUMP *SYSTEM - AFW
ADD OIL TO SDAFW FOR 1 MONTH CHG - H12Z33 53060 SHOP - Z33

~~83-AGDC1~~

3 /20/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 08/01/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 5QJ/01/83 RQSTR - CUTRIGHT
COMPONENT - STEAM DRIVEN FEED WATER PUMP *SYSTEM - AFW
SDFW PUMP NEEDS OIL ADDED CHG - H12Z33 53060 SHOP - Z33

~~83-AGKB1~~

3 /21/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/04/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 6FQ/01/83 RQSTR - WALKUP
COMPONENT - SDAFW PUMP *SYSTEM - AF
ADD OIL AS NEEDED TO THE SDAFW PMP FOR 1 CHG - H12Z33 53060 SHOP - Z33

~~83-AGUG1~~

3 /21/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/04/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 6UI/01/83 RQSTR - JOHNSON
COMPONENT - SDAFW PUMP *SYSTEM - AFW
ADD OIL AS NEEDED TO SDAFW PMP FOR 1 MON CHG - H12Z33 53060 SHOP - Z33

~~83-AGZN1~~

3 /21/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 10/18/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 7DP/01/83 RQSTR - LEAR
COMPONENT - B AUX FW PUMP *SYSTEM - AX FW
PUMP BRG OIL IS OUT OF SPECS AND NEEDS T CHG - H12Z33 53060 SHOP - Z33

~~83-AHAN1~~

3 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 10/24/83 12:00
EQUIP PMP-PUMP

DATE 11/07/89

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SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP PMP-PUMP

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~~83-AHAN1~~

LOCATION - **WOTR CONVERSION** WOTR - 7GF/01/83 RQSTR - DARWIN
COMPONENT - A AFW PUMP *SYSTEM - AFW
EXCESSIVE PACKING LEAK CHG - H12Z33 53060 SHOP - Z33

~~83-AHEB1~~

3 /21/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/04/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 7MT/01/83 RQSTR - NA
COMPONENT - SDAFW PUMP *SYSTEM - AF
ADD OIL AS NEEDED TO SDAFW CHG - H12Z33 53060 SHOP - Z33

~~83-AHIK1~~

3 /20/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 11/15/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 7UV/01/83 RQSTR - NORRIS
COMPONENT - STEAM DRIVEN AFW PUMP *SYSTEM - AUX FW
PUMP OIL LEVEL IS LOW CHG - H12Z33 53060 SHOP - Z33

~~83-AHNA1~~

3 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 11/30/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 8CW/01/83 RQSTR - TALBERT
COMPONENT - A&B MOTOR DRIVEN PUMP *SYSTEM - AF
LOW IN PUMPS CHG - H12Z33 53060 SHOP - Z33

~~83-AHPT1~~

3 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 12/05/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 8FB/01/83 RQSTR - HALEY
COMPONENT - B AFW PUMP *SYSTEM - AX FW
PUMP IS LOW IN OIL DUE TO TUBING LEAK CHG - H12Z33 53060 SHOP - Z33

~~83-AHMA1~~

3 /21/F 2 LU 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/04/83 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 8NF/01/83 RQSTR - JERNIGAN
COMPONENT - STEAM DRIVEN AX FW PUMP *SYSTEM - AX FW
OIL NEEDS TO BE ADDED TO PUMP CHG - H12Z33 53060 SHOP - Z33

~~84-ACHE1~~

1A/23/F 2 EL 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/13/84 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - NM1/01/84 RQSTR - BOWEN
COMPONENT - E R 26 *SYSTEM - AFW
MM PERFORM REFUELING RTE E R 26 MDAFW TE CHG - H12Z32 53060 SHOP - Z32

~~84-ADAU1~~

4 /20/F 2 EL 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 10/24/84 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - SQ7/01/84 RQSTR - RATTERER
COMPONENT - AUX FW PUMP B *SYSTEM - AFW
RELAY AFW ON AUX PANEL CC DID NOT PICKUP CHG - H12Z32 53060 SHOP - Z32

~~84-ADAZ1~~

4 /20/F 2 EL 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 10/24/84 12:00
EQUIP PMP-PUMP

DATE 11/07/89

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SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP PMP-PUMP

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~~84-ADAZ1~~

LOCATION - **WOTR CONVERSION** WOTR - SR7/01/84 RQSTR - RITTER
COMPONENT - AUX FW PUMP B *SYSTEM - AFW
TIME DELAY RELAY 2 IS SET WRONG FOUND DU CHG - H12Z32 53060 SHOP - Z32

~~84-AEET1~~

3 /21/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/03/84 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 1AY/01/84 RQSTR - HORTON
COMPONENT - AFW SD PMP *SYSTEM - AFW
ADD OIL AS NEEDED CHG - H12Z33 53060 SHOP - Z33

~~84-AEET2~~

3 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/07/84 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 1DH/01/84 RQSTR - HALEY
COMPONENT - AFW DRAIN TRAP *SYSTEM - AFW
STEAM LEAKAGE CHG - H12Z33 53060 SHOP - Z33

~~84-AEGE1~~

3 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/10/84 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 1DS/01/84 RQSTR - TERFETIL
COMPONENT - SD AFW WARMUP LINE Y STRAINER *SYSTEM - AFW
STRAINER LEAKAGE CHG - H12Z33 53060 SHOP - Z33

~~84-AEHD1~~

3 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/11/84 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 1FT/01/84 RQSTR - JOHNSON
COMPONENT - A AFW *SYSTEM - AF
PACKING LEAK CHG - H12Z33 53060 SHOP - Z33

~~84-AELH1~~

5 /50/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/17/84 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 10J/01/84 RQSTR - BACOTE
COMPONENT - STM DRV FD WTR PMP STM NOZZLE *SYSTEM - AUX F
STM NOZZLE LEAKING CHG - H12Z33 53060 SHOP - Z33

~~84-AEXX1~~

4 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 02/14/84 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 2II/01/84 RQSTR - MELTON
COMPONENT - B AFW PUMP *SYSTEM - CVCS
OIL LEAK FROM O B OIL SEAL CHG - H12Z33 53060 SHOP - Z33

~~84-AFKU1~~

3 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 04/02/84 12:00
EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 3HV/01/84 RQSTR - CUTRIGHT
COMPONENT - AFW PUMP STEAM DRIVEN *SYSTEM - FW
STEAM TRAP DOES NOT WORK CHG - H12Z33 53060 SHOP - Z33

~~84-AFRD1~~

4 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 04/19/84 12:00
EQUIP PMP-PUMP

DATE 11/07/89

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INITIATED

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP PMP-PUMP

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84-AFRD1

LOCATION - **WOTR CONVERSION** WOTR - 3SL/01/84 RQSTR - DAMPIER

COMPONENT - SDAFW PUMP INLET STEAMTRAP *SYSTEM - AX FW

IDENTIFY STEAM TRAP CHG - H12Z33 53060

SHOP - Z33

84-AGMF1

4 /20/F

2

ME

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 07/07/84 12:00

EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 5MC/01/84 RQSTR - GRUDGE

COMPONENT - "A" AFW PUMP *SYSTEM - AFW

PUMP NEEDS OIL IN MTR END OF PMP INSPECT CHG - H12Z33 53060

SHOP - Z33

84-AGST1

4 /20/F

2

ME

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 08/14/84 12:00

EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 5ZO/01/84 RQSTR - MCINNIS

COMPONENT - A AUX FW PUMP *SYSTEM - AFW

OIL SYSTEM NEEDS FLUSHING CHG - H12Z33 53060

SHOP - Z33

84-AIAD1

3 /20/F

2

ME

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 11/23/84 12:00

EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - 8FN/01/84 RQSTR - WALDSMIT

COMPONENT - A AFW PUMP INBOARD PKG LEAKS *SYSTEM - AFW

PACKING LEAK CHG - H12Z33 53060

SHOP - Z33

85-ACLH1

4 /20/F

2

ME

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 10/18/85 12:00

EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - HHJ/01/85 RQSTR - CARR

COMPONENT - "A" AFW PUMP OIL SIGHTGLASS *SYSTEM - AUX FW

SIGHTGLASS BROKEN CHG - H12Z33 53060

SHOP - Z33

CO 041486

85-AEBT1

1A/20/F

2

ET

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 06/18/85 12:00

EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - MUE/01/85 RQSTR - KNIGHT

COMPONENT - SDAFW PUMP *SYSTEM - AUX FW

PUMP DISH PRESS WILL NOT PASS OST 201 CHG - H12Z32 53060

SHOP - Z32

85-AGJY1

4 /20/F

2

MW

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 06/20/85 12:00

EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - UMD/01/85 RQSTR - LEAR

COMPONENT - SDAFW PUMP STEAM TRAP *SYSTEM - AUX FW

DRN FOR STM TRAP WILL NOT CONTAIN DISCHA CHG - H12Z33 53060

SHOP - Z33

CO 041886

85-AHNC1

5 /23/F

2

EL

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 06/25/85 12:00

EQUIP PMP-PUMP

LOCATION - **WOTR CONVERSION** WOTR - YQD/01/85 RQSTR - WATTS

COMPONENT - E-R-26 *SYSTEM - AUX FW

DATE 11/07/89
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INITIATED
SYSTEM 3065-AUXILIARY FEEDWATER
EQUIP PMP-PUMP

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~~85-AHNC1~~

MM PERFORM MST 202 MOTOR DRIVEN AUX FEED CHG - H12Z32 520 SHOP - Z32
RW 031386

85-AIEW1 4 /20/F 2 IN 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/16/85 12:00
EQUIP PMP-PUMP
LOCATION - **WOTR CONVERSION** WOTR - 1LR/01/85 RQSTR - JOHNSON
COMPONENT - PUMPS *SYSTEM - AFW
BOTH SKIDS ON MTR DRVN AFW PUMPS NEED PA CHG - H12K09 53060 SHOP - Z33

85-AIZQ1 4 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 02/25/85 12:00
EQUIP PMP-PUMP
LOCATION - **WOTR CONVERSION** WOTR - 2WN/01/85 RQSTR - JOHNSON
COMPONENT - A AFW PUMP *SYSTEM - AFW
OUTBOARD BEARING DRAIN BASIN IS CLOGGED CHG - H12Z33 53060 SHOP - Z33

85-AJAU1 3 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 03/11/85 12:00
EQUIP PMP-PUMP
LOCATION - **WOTR CONVERSION** WOTR - 2ZJ/01/85 RQSTR - TAYLOR
COMPONENT - STRAINER *SYSTEM - MS
SMALL LEAK CHG - H12Z33 53060 SHOP - Z33

86-ABJ51 3 /20/F 2 ET 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 07/18/86 12:00
EQUIP PMP-PUMP
LOCATION - **WOTR CONVERSION** WOTR - HCJ/01/86 RQSTR - HELD
COMPONENT - STEAM DRIVEN AUX FEED PUMP *SYSTEM - AUX FW
NEED TO INVESTIGATE INTERACTION SDAFF WI CHG - H12Z32 53060 SHOP - Z32
MG 071886

86-ACGW1 3 /20/F 2 ME 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 04/16/86 12:00
EQUIP PMP-PUMP
LOCATION - **WOTR CONVERSION** WOTR - MBF/01/86 RQSTR - SMITH
COMPONENT - STARAINER *SYSTEM - AUX FW
LEAKS AT CAP CHG - H12Z33 53056 SHOP - Z33
CD 041886

86-ACMW1 4 /20/F 2 IN 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 04/17/86 12:00
EQUIP PMP-PUMP
LOCATION - **WOTR CONVERSION** WOTR - NKF/01/86 RQSTR - GRANT
COMPONENT - STEAM TRAP *SYSTEM - AUX FW
INSULATION NEEDS TO BE REMOVED CHG - H12Z33 K09 53060 SHOP - Z33
DN 041786

86-AEXU1 3 /20/F 2 ET 3065
COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 05/20/86 12:00
EQUIP PMP-PUMP
LOCATION - **WOTR CONVERSION** WOTR - YLG/01/86 RQSTR - UNK
COMPONENT - SDAFW *SYSTEM - AUX FW

DATE 11/07/89

ROUTINE WR/JO LIST

PAGE 11

TIME 11:28

ROBINSON NUCLEAR

REPORT PMMRI

INITIATED

THRU

COMPLETED

THRU

UNIT 2

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP PMP-PUMP

ID

~~86-AEXU1~~

PUMP TRIPPED ON OVERSPEED WHILE PERFORMI CHG - H12Z32 53060
MG 052186

SHOP - Z32

~~86-ANMS1~~

COMPLETED AND APPROVED 5 /50/N 2 EL 3065
EQUIP PMP-PUMP REQ'R WATTS, WILLIAM INITIATED 12/02/86 09:46

LOCATION-

COMPONENT- PERFORM REFUELING MOTOR DRIVEN AUX. FEEDWATER SYSTEMS TEST MST-202

~~86-ANXI1~~

COMPLETED AND APPROVED 3 /20/A 2 ME 3065
EQUIP PMP-PUMP REQ'R CLOUSE, MARK K INITIATED 12/05/86 23:44

LOCATION- AUX. FEED PUMP ROOM

COMPONENT- 'B' MOTOR DRIVEN AUXILIARY FEED PUMP
THE PROTECTIVE COVER FOR 'B' AUX. FEED PUMP SHAFT COUPLING IS LOOSE, DUE
TO MISSING MOUNTING BOLTS.

~~87-AAGW1~~

COMPLETED AND APPROVED 3 /20/A 2 ME 3065
EQUIP PMP-PUMP REQ'R GRANT, CLARENC INITIATED 01/07/87 10:43

LOCATION- SDAFWP

COMPONENT- STEAM TRAP ON WARM UP LINE LEAKS BY

~~87-AFND1~~

COMPLETED AND APPROVED 5 /50/N 2 ME 3065
EQUIP PMP-PUMP REQ'R PRICE, DAVID E INITIATED 04/30/87 06:24

LOCATION-AUX. FEED PUMP ROOM

COMPONENT- A AUX. FEED WATER PUMP.
PUMP AND MOTOR NEED TO BE ALIGNED. IT WAS FOUND TO BE OUT OF ALIGNMENT
WHILE PERFORMING PM M-3R-9.

~~87-ATCA1~~

COMPLETED AND APPROVED 3 /20/A 2 ME 3065
EQUIP PMP-PUMP REQ'R WALKUP, WILLIA INITIATED 06/14/87 13:50

LOCATION- TUR1-H13-0

COMPONENT- STEAM DRIVEN AUX. FEEDWATER PUMP GOVERNOR, DOES NOT
OPERATE PROPERLY.

~~88-AADN1~~

COMPLETED AND APPROVED 1 /20/D 2 ME 3065
EQUIP PMP-PUMP REQ'R ROBANDT, MARK INITIATED 01/05/88 08:56

LOCATION- 1ST LEVEL, TURBINE BLDG.

COMPONENT- THE WOODWARD GOVENER IS LEAKING OIL OUT OF THE BASE. THERE IS NOT
ANY OIL LEVEL VISABLE IN THE SIGHT GLASS. REPAIR AS NECESSARY.

~~88-ADNZ1~~

COMPLETED AND APPROVED 3 /20/A 2 EL 3065
EQUIP PMP-PUMP REQ'R JONES, MICHAEL INITIATED 03/16/88 06:01

LOCATION- MOTOR DRIVEN AFW PUMP ROOM

COMPONENT- "A" MDAFW PUMP. A FEW SMALL BURNING SPARKS WERE OBSERVED TO
BE FLYING FROM THE MOTOR VENT, EAST SIDE AND REAR OF MOTOR,
WHEN THE PUMP WAS STARTED FOR OST-201 ON 3-16-88. A SLIGHT
BURNT SMELL WAS NOTICED BUT WENT AWAY WITHIN 10-15 SECONDS.

DATE 11/07/89

ROUTINE WR/JO LIST
ROBINSON NUCLEAR
COMPLETED

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TIME 11:28

INITIATED THRU
SYSTEM 3065-AUXILIARY FEEDWATER
EQUIP PMP-PUMP

THRU

ID

88-ADNZ1

SUSPECT DUST MIGHT HAVE BEEN CAUSE OF PROBLEM. PLEASE CHECK
OUT CONDITION OF MOTOR

88-AEFM1

3 /20/A

2

ME

3065

COMPLETED AND APPROVED REQ'R JOHNSON, CORBE INITIATED 04/04/88 14:10
EQUIP PMP-PUMP

LOCATION- AUX. FEED WATER PUMP ROOM
COMPONENT- "A" AUX. FEED PUMP AND MOTOR
NEED TO CHANGE ALL BOLTS IN PUMP AND MOTOR BASE THAT IS NOT GRADE 5
OR BETTER. GRADE 5 WILL HAVE THREE MARKS ON HEAD.

88-AEFN1

3 /20/A

2

ME

3065

COMPLETED AND APPROVED REQ'R JOHNSON, CORBE INITIATED 04/04/88 14:15
EQUIP PMP-PUMP

LOCATION- AUX. FEED WATER PUMP ROOM
COMPONENT- "B" AUX. FEED WATER PUMP
NEED TO REPLACE ALL BOLTS IN PUMP AND MOTOR BASE THAT IS NOT GRADE
5 OR BETTER. GRADE 5 WILL HAVE THREE MARKS ON HEAD.

88-AFBP1

3 /20/A

2

ME

3065

COMPLETED AND APPROVED REQ'R DOUGLAS, JAMES INITIATED 04/30/88 11:02
EQUIP PMP-PUMP

LOCATION- GROUND LEVEL TURBINE BUILDING.
COMPONENT- STEAM DRIVEN AUXILIARY FEEDWATER PUMP IS LOW IN OIL.

88-AKEW1

3 /20/D

2

ME

3065

COMPLETED AND APPROVED REQ'R SMITH, LARRY D INITIATED 09/30/88 05:11
EQUIP PMP-PUMP

LOCATION-WEST OF STM DRIVEN AFW PUMP
COMPONENT-STM DRIVEN AFW PUMP WARMUP LINE STM TRAP HAS A STM LEAK FROM
IT'S FLANGE

89-AEKJ1

3 /20/A

2

EL

3065

COMPLETED AND APPROVED REQ'R FARVIN, BENJAM INITIATED 04/16/89 14:06
EQUIP PMP-PUMP

LOCATION- NEAR "A" MAIN FEED PUMP
COMPONENT- PUMP DELTA-P WAS IN THE ALERT RANGE ON OST-206.

89-AHXL1

3 /50/D

2

ME

3065

COMPLETED AND APPROVED REQ'R LEAR, LEWIS E INITIATED 08/23/89 09:22
EQUIP PMP-AUX FEEDWATER PUMP A

LOCATION- 1ST LEVEL TURB BLDG--AFW PMP ROOM
COMPONENT- "A" AFWP--NEED TO DISASSEMBLE/INSPECT INTERNALS/RENEW PARTS AS
NEEDED/REASSEMBLE. ALSO, NEED TO OBTAIN A WRITTEN VENDOR RECOMMENDATION AS
TO THEIR RECOMMENDED PUMP INTERNAL INSPECTION INTERVAL FOR OUR PUMPS AND
ENTER THIS RECOMMENDATION INTO THE PLANT PLP-038 VENDOR RECOMMENDATION PROGRAM
SO A PM CAN BE SETUP.

89-AJII1

3 /21/D

2

ME

3065

COMPLETED AND APPROVED REQ'R MCINNIS, JAMES INITIATED 10/13/89 09:14
EQUIP PMP-AUX FEEDWATER PUMP A

LOCATION- AFW PMP ROOM
COMPONENT-A-AFW PMP SUCTION STRAINER- INSTALL AND REMOVE SUCTION STRAINER AS

DATE 11/07/89

TIME 11:28

INITIATED

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP PMP-PUMP

ROUTINE WR/JO LIST

ROBINSON NUCLEAR

COMPLETED

THRU

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REPORT PMMRI

UNIT 2

ID

89-AJII1

PER SCHEDULING.

88-AEUI1

3 /20/A

2

ME

3065

COMPLETED AND APPROVED REQ'R SMITH, VIRGINI

INITIATED 04/22/88 12:34

EQUIP PMP-AUX FEEDWATER PUMP B

EDB-LOC: AUX FW PUMP ROOM

COMPONENT- SIGHT GLASS FOR "B" AFW PUMP BEARING RESERVOIR NEEDS TO HAVE GLASS REPLACED. TOP OF SIGHT GLASS IS BROKEN AND JAGGED. THIS NEEDS TO BE CORRECTED.

89-ABEQ1

3 /50/D

2

ME

3065

COMPLETED AND APPROVED REQ'R WALKUP, WILLIA

INITIATED 01/24/89 15:27

EQUIP PMP-AUX FEEDWATER PUMP B

LOCATION- AUX. FEEDWATER ROOM

COMPONENT-"B" MOTOR DRIVEN AUX. FEEDWATER PUMP, ADJUST THE PACKING GLANDS TO ELIMINATE LEAKAGE.

89-AHXL2

3 /50/A

2

ME

3065

COMPLETED AND APPROVED REQ'R LEAR, LEWIS E

INITIATED 08/23/89 09:29

EQUIP PMP-AUX FEEDWATER PUMP B

LOCATION- 1ST LEVEL TURB BLDG--AFW PMP ROOM

COMPONENT- "B" AFWP--NEED TO DISASSEMBLE/INSPECT INTERNALS/RENEW PARTS AS NEEDED/REASSEMBLE. ALSO, NEED TO OBTAIN A WRITTEN VENDOR RECOMMENDATION AS THEIR RECOMMENDED PUMP INTERNAL INSPECTION INTERVAL FOR OUR PUMPS AND ENTER THIS RECOMMENDATION INTO THE PLANT PMP-038 VENDOR RECOMMENDATION PROGRAM SO A PM CAN BE SETUP.

89-AJIJ1

3 /21/D

2

ME

3065

COMPLETED AND APPROVED REQ'R MCINNIS, JAMES

INITIATED 10/13/89 09:23

EQUIP PMP-AUX FEEDWATER PUMP B

LOCATION-AFW PMP ROOM

COMPONENT- MDAFW PMP SUCTION STRAINER --INSTALL AND REMOVE SUCTION STRAINER AS PER SCHEDULING.

87-AGZS1

3 /20/N

2

ME

3065

COMPLETED AND APPROVED REQ'R BIEDENBACH, ST

INITIATED 05/25/87 20:29

EQUIP PMP-

EDB-LOC: AUX FW PUMP ROOM

COMPONENT-B-AFW PUMP HAS LOW OIL LEVEL IN SIGHTGLASS ON THE THRUST BEARING.

88-ACUE1

3 /20/A

2

ME

3065

COMPLETED AND APPROVED REQ'R HOCUTT, TILMON

INITIATED 03/01/88 13:34

EQUIP PMP-

EDB-LOC: AUX FW PUMP ROOM , NORTH END OF PUMP NEAR OIL SIGHT GLASS.

COMPONENT- SMALL OIL LEAK , PLEASE INVESTIGATE AND REPAIR.

DATE 11/07/89

TIME 11:47

INITIATED

THRU

ROUTINE WR/JO LIST

ROBINSON NUCLEAR

COMPLETED

THRU

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REPORT PMMRI

UNIT 2

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP MTR-MOTORS

ID

WR/JO 89-AIGR1 PRI/TYPE/WCC 3 /30/A UNIT 2 SKILL EL SYSTEM 3065
 WORK IN PROGRESS REQ'R WILLIAMSON, RO INITIATED 09/06/89 07:29
 EQUIP MTR-MOTORS
 LOCATION- MEZZANINE LEVEL
 COMPONENT- AFW VALVES V2-14A,B,C, V2-16A,B,C, AND V1-8A,B,C.
 ASSIST NED DESIGNERS IN AS-BUILDING OF THESE VALVES.

WR/JO 89-AHZF1 PRI/TYPE/WCC 3 /20/D UNIT 2 SKILL EL SYSTEM 3065
 WORK IN PROGRESS REQ'R HUNTLEY, JOHN INITIATED 08/24/89 08:18
 EQUIP MTR-A AUX FEEDWATER PUMP MOTOR
 EDB-LOC: TUR1-I25-1
 COMPONENT- SPARKS WERE NOTICED COMING FROM A AFW PUMP MOTOR.
 MECH. WR # 89-AHZF2

WR/JO 82-AACT1 PRI/TYPE/WCC 3 /20/F UNIT 2 SKILL EL SYSTEM 3065
 COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 03/02/82 12:00
 EQUIP MTR-MOTORS
 LOCATION - **WOTR CONVERSION** WOTR - AY2/01/82 RQSTR - SCARBORO
 COMPONENT - B PUMP MOTOR *SYSTEM - AFW
 DID NOT START ON PT 2.1 CHG - H12Z32 53060 SHOP - Z32

WR/JO 82-ABAN1 PRI/TYPE/WCC 3 /10/F UNIT 2 SKILL ET SYSTEM 3065
 COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 09/20/82 12:00
 EQUIP MTR-MOTORS
 LOCATION - **WOTR CONVERSION** WOTR - KH6/01/82 RQSTR - STEELE
 COMPONENT - STM DRVN PMP *SYSTEM - AFW
 STARTS WITH NO VALID SIGNAL, GET DC GROU CHG - H12Z32 53060 SHOP - Z32

WR/JO 82-ABFY1 PRI/TYPE/WCC 5 /20/F UNIT 2 SKILL EL SYSTEM 3065
 COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 08/10/82 12:00
 EQUIP MTR-MOTORS
 LOCATION - **WOTR CONVERSION** WOTR - RC5/01/82 RQSTR - GRAHAM
 COMPONENT - A&B PUMP BREAKERS *SYSTEM - AFW
 CALIBRATE AS PER MI-3, PM 6, PAGES 10&21 CHG - H12Z32 53060 SHOP - Z32

WR/JO 82-AGAL1 PRI/TYPE/WCC 4 /10/F UNIT 2 SKILL EL SYSTEM 3065
 COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 05/18/82 12:00
 EQUIP MTR-MOTORS
 LOCATION - **WOTR CONVERSION** WOTR - VP3/01/82 RQSTR - WINDHAM
 COMPONENT - A PUMP MOTOR *SYSTEM - AFW
 GROUNDED CHG - H12Z32 53060 SHOP - Z32

WR/JO 82-ACJJ1 PRI/TYPE/WCC 5 /23/F UNIT 2 SKILL EL SYSTEM 3065
 COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 07/09/82 12:00
 EQUIP MTR-MOTORS
 LOCATION - **WOTR CONVERSION** WOTR - YW4/01/82 RQSTR - NA
 COMPONENT - STM DRVN PUMP *SYSTEM - AFW
 MM PERFORM PT 6.3 4KV UV TEST CHG - H12Z32 53060 SHOP - Z32

WR/JO 82-ACHX1 PRI/TYPE/WCC 4 /20/F UNIT 2 SKILL ME SYSTEM 3065
 COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/04/82 12:00
 EQUIP MTR-MOTORS
 LOCATION - **WOTR CONVERSION** WOTR - 1BA/01/82 RQSTR - PATE
 COMPONENT - B PUMP MOTOR *SYSTEM - AFW

DATE 11/07/89

ROUTINE WR/JO LIST

PAGE 2

TIME 11:47

ROBINSON NUCLEAR

REPORT PMMRI

INITIATED

THRU

COMPLETED

THRU

UNIT 2

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP MTR-MOTORS

ID

82-ACMX1

INBOARD BRG LOW ON OIL

CHG - H12Z33 53060

SHOP - Z33

~~82-ACNM1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

4 /20/F

2

ME

3065

EQUIP MTR-MOTORS

INITIATED 01/11/82 12:00

LOCATION - **WOTR CONVERSION** WOTR - 1CX/01/82

RQSTR - PATE

COMPONENT - STEAM DRVN FWP GOVERNOR

*SYSTEM - AFW

LOW ON OIL

CHG - H12Z33 53060

SHOP - Z33

~~82-ACUM1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

4 /21/F

2

LU

3065

EQUIP MTR-MOTORS

INITIATED 02/18/82 12:00

LOCATION - **WOTR CONVERSION** WOTR - 1WI/01/82

RQSTR - PATE

COMPONENT - B PUMP MOTOR

*SYSTEM - AFW

INBOARD BEARING OIL LOW

CHG - H12Z33 53060

SHOP - Z33

~~83-AAER1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /20/F

2

ET

3065

EQUIP MTR-MOTORS

INITIATED 12/25/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - BH8/01/83

RQSTR - SNAVELY

COMPONENT - S/D AUX FWP

*SYSTEM - AFW

STEAM DRIVEN AFW PUMP TRIPS WHEN ATTEMPT

CHG - H12Z32 53060

SHOP - Z32

~~83-AAK01~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /10/F

2

EL

3065

EQUIP MTR-MOTORS

INITIATED 05/26/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - CX4/01/83

RQSTR - JONES

COMPONENT - S/D AFW PUMP AUX OIL PUMP

*SYSTEM - RTGB

S/D AFW PUMP AUX OIL PUMP TRIPPING OFF

CHG - H12Z32 53060

SHOP - Z32

~~83-AANF1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /10/F

2

EL

3065

EQUIP MTR-MOTORS

INITIATED 07/28/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - DK6/01/83

RQSTR - WINDHAM

COMPONENT - VALVE V2-14B

*SYSTEM - AFW

DISCONNECT & RECONNECT VALVE WIRING FOR

CHG - H12Z32 53060

SHOP - Z32

~~83-AATD1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /20/F

2

EL

3065

EQUIP MTR-MOTORS

INITIATED 06/01/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - EY4/01/83

RQSTR - PARVIN

COMPONENT - SDAFWP AUX OIL PUMP

*SYSTEM - FW

AUX OIL PUMP TRIPPED ON THERMAL OVERLOAD

CHG - H12Z32 53060

SHOP - Z32

~~83-AAYG1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

2 /20/F

2

EL

3065

EQUIP MTR-MOTORS

INITIATED 04/20/83 12:00

LOCATION - **WOTR CONVERSION** WOTR - GF3/01/83

RQSTR - JONES

COMPONENT - B AFW PUMP

*SYSTEM - AFW

TEST & INSPECT BKR FOR B AFW PMP

CHG - H12Z32 53060

SHOP - Z32

~~83-ABHJ1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

4 /10/F

2

PA

3065

EQUIP MTR-MOTORS

INITIATED 01/18/83 12:00

DATE 11/07/89

ROUTINE WR/JO LIST

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ROBINSON NUCLEAR

REPORT - FMMRI

INITIATED THRU

COMPLETED

THRU

UNIT 2

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP MTR-MOTORS

ID

~~83-AHHS1~~

LOCATION - **WOTR CONVERSION** WOTR - JA1/01/83 RQSTR - WIGGINS

COMPONENT - SDAFP SPEED CONTROL *SYSTEM - AFW

SPEED OF SDAFP COULD NOT BE ADJUSTED TO CHG - H12Z32 53060

SHOP - Z32

~~83-AE1D1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /21/F

2

LU

3065

INITIATED 03/14/83 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - 2PA/01/83 RQSTR - JOHNSON

COMPONENT - A MOTOR *SYSTEM - AFW

LOW ON OIL AT INBD BEARING CHG - H12Z33 53060

SHOP - Z33

~~83-AE1U1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /20/F

2

ME

3065

INITIATED 04/25/83 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - 3KP/01/83 RQSTR - JERNIGAN

COMPONENT - B AUX FW PUMP MOTOR *SYSTEM - AUX FW

OIL NEEDS CHANGING CHG - H12Z33 53060

SHOP - Z33

~~83-AE1E1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /20/F

2

ME

3065

INITIATED 04/22/83 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - 3KZ/01/83 RQSTR - JERNIGAN

COMPONENT - A AUX FW PUMP MOTOR *SYSTEM - AUX FW

OIL NEEDS TO BE CHANGED CHG - H12Z33 53060

SHOP - Z33

83-AHHS1

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /20/F

2

ME

3065

INITIATED 11/07/83 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - 7TW/01/83 RQSTR - SHANE

COMPONENT - A AFW PUMP TEMPERATURE GAUGE *SYSTEM - AFW

LEAKING OIL CHG - H12Z33 53060

SHOP - Z33

~~84-AAGS1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /20/F

2

I

3065

INITIATED 02/03/84 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - AR2/01/84 RQSTR - WINGERT

COMPONENT - PSL 1993 PSH 1993 *SYSTEM - AFW

SENSING LINE IS CRIMPED AND LEAKING CHG - H12Z32 53060

SHOP - Z32

~~84-AAJS1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

4 /20/F

2

EL

3065

INITIATED 12/07/84 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - CD9/01/84 RQSTR - BYRON

COMPONENT - SDAFW OIL PUMP *SYSTEM - AFW

MOTOR CONTROLLER STARTED CYCLING RAPIDLY CHG - H12Z32 53060

SHOP - Z32

~~84-AAZR1~~

COMPLETED AND APPROVED

REQ'R CRAWFORD

3 /20/F

2

EL

3065

INITIATED 11/10/84 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - FN8/01/84 RQSTR - BURRISS

COMPONENT - A&B AFW PUMPS *SYSTEM - AUX FW

TRIPPED ON LOW PRESSURE WILL NOT RESTART CHG - H12Z32 53060

SHOP - Z32

84-ACGU1

COMPLETED AND APPROVED

REQ'R CRAWFORD

2 /40/F

2

EL

3065

INITIATED 05/14/84 12:00

EQUIP MTR-MOTORS

DATE 11/07/89
TIME 11:47

ROUTINE WR/JO LIST
ROBINSON NUCLEAR
COMPLETED

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UNIT 2

INITIATED THRU
SYSTEM 3065-AUXILIARY FEEDWATER
EQUIP MTR-MOTORS

THRU

ID

~~84-ACGU1~~

LOCATION - **WOTR CONVERSION** WOTR - NI4/01/84 RQSTR - COPLEY
COMPONENT - RDX ON AUX PANEL CC *SYSTEM - RELAY
SPRING HOLDING CONTACT ON TOP ROW OF REL CHG - H12Z32 53060 SHOP - Z32

84-ADFR1

4 /20/F

2

ET

3065

COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 09/12/84 12:00
EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - TZ6/01/84 RQSTR - NORRIS
COMPONENT - B TRAIN DEFEAT LIGHT *SYSTEM - AFW
DEFEAT LIGHT DOES NOT WORK CHG - H12Z32 53060 SHOP - Z32

~~84-ADKLE1~~

4 /20/F

2

EL

3065

COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 11/14/84 12:00
EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - VQ8/01/84 RQSTR - WINDHAM
COMPONENT - A MTR DRVN FW PMP BKR CUBICLE *SYSTEM - AUX FW
HAS A BENT CELL INTERLOCK CHG - H12Z32 53060 SHOP - Z32

~~84-ADPS1~~

1A/23/F

2

EL

3065

COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 01/29/84 12:00
EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - WT1/01/84 RQSTR - BOWEN
COMPONENT - MST 201 *SYSTEM - AFW
PERFORM REFUELING MST 201 4KV U/V TES CHG - H12Z32 53060 SHOP - Z32

~~84-ADQN1~~

2 /20/F

2

EL

3065

COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 05/31/84 12:00
EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - WZ4/01/84 RQSTR - JOHNSON
COMPONENT - AFW MOTORS *SYSTEM - AFW
NEED TO CHECK MOTORS AFTER CONSTRUCTION CHG - H12Z32 53060 SHOP - Z32

~~85-ABQT1~~

3 /20/F

2

EL

3065

COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 03/26/85 12:00
EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - FAA/01/85 RQSTR - COPLEY
COMPONENT - AFW PUMP MOTORS *SYSTEM - AFW
NEED TO OBTAIN STRIP CHART CURRENT DATA CHG - H12Z32 53060 SHOP - Z32

~~85-ACBR1~~

3 /20/F

2

ET

3065

COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 03/21/85 12:00
EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - GF3/01/85 RQSTR - TAYLOR
COMPONENT - STM DRVN AFW PUMP *SYSTEM - AUX FW
DID NOT PASS OST 201 CHG - H12Z32 53060 SHOP - Z32

~~85-AHPK1~~

5 /23/F

2

EL

3065

COMPLETED AND APPROVED REQ'R CRAWFORD INITIATED 06/25/85 12:00
EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - YUD/01/85 RQSTR - WATTS
COMPONENT - E-R-30 *SYSTEM - AUX FW
MM PERFORM MST 201 4KV UNDERVOLTAGE TEST CHG - H12Z32 520 SHOP - Z32
MG 031386

DATE 11/07/89

ROUTINE WR/JO-LIST

PAGE 5

TIME 11:47

ROBINSON NUCLEAR

REPORT PPMRI

INITIATED

THRU

COMPLETED

THRU

UNIT 2

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP MTR-MOTORS

ID

86-ABIT1

4 /20/F

2

ME

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 05/28/86 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - GYH/01/86 RQSTR - WEAVER

COMPONENT - SD AUX PUMP CONTROL CABINET *SYSTEM - AUX FW

LATCH BROKEN AND HINGE PULLED LOOSE CHG - H12Z33 53060

SHOP - Z33

MB 061186

86-ABZU1

3 /10/F

2

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3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 04/16/86 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - KQF/01/86 RQSTR - BYRON

COMPONENT - SDAFW PUMP *SYSTEM - AUX FW

TRIPPED 3 TIMES WHILE OPENING V1-8A CHG - H12Z32 53060

SHOP - Z32

NL 041686

86-ACUM1

4 /20/F

2

ME

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 05/13/86 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - OUG/01/86 RQSTR - MORRIS

COMPONENT - OIL LEVEL GAUGES *SYSTEM - AUX FW

GAUGES LEAK CHG - H12Z33 53060

SHOP - Z33

CO 052286

86-ADTZ1

2 /20/F

2

ME

3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 07/06/86 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - TII/01/86 RQSTR - JONES

COMPONENT - STEAM DRIVEN AFW PUMP *SYSTEM - AFW

DIFFICULT TO RESET THE OVERSPEED TRIP CHG - H12Z33 53060

SHOP - Z33

RC 071786

86-ALEY1

3 /20/F

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3065

COMPLETED AND APPROVED

REQ'R CRAWFORD

INITIATED 07/16/86 12:00

EQUIP MTR-MOTORS

LOCATION - **WOTR CONVERSION** WOTR - YMI/01/86 RQSTR - METTS

COMPONENT - STEAM DRIVEN AUX FW PUMP *SYSTEM - AUX FW

TRIPPING ON OVERSPEED CHG - H12Z32 53060

SHOP - Z32

NL 071686

86-AJCC1

5 /50/A

2

ME

3065

COMPLETED AND APPROVED

REQ'R JERNIGAN JR, C

INITIATED 10/28/86 15:56

EQUIP MTR-MOTORS

LOCATION-1 ST LEVEL TURB. BUILDING

COMPONENT-STEAM DRIVEN AUX. FW PUMP ---REMOVE GOV. FOR INSP.

86-ANMT1

5 /50/N

2

EL

3065

COMPLETED AND APPROVED

REQ'R WATTS, WILLIAM

INITIATED 12/02/86 09:48

EQUIP MTR-MOTORS

LOCATION-

COMPONENT- PERFORM REFUELING 4KV UNDERVOLTAGE TEST OF AUTO START SDAFW MST-201

87-AGSH1

4 /20/N

2

ME

3065

COMPLETED AND APPROVED

REQ'R FALES, MICHAEL

INITIATED 05/20/87 14:13

EQUIP MTR-MOTORS

DATE 11/07/89

TIME 11:47

INITIATED

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP MTR-MOTORS

ROUTINE WR/JO LIST

ROBINSON NUCLEAR

COMPLETED

THRU

PAGE 6

REPORT PMMRI

UNIT 2

ID

87-AGSH1

LOCATION- AUXILIARY FEED WATER PUMP ROOM

COMPONENT- "A" AFW PUMP MOTOR SUPPORT BASE.

NUTS WERE WELDED ON BASE TO ALLOW JACKING OF MOTOR FOR ALIGNMENT TO PUMP. THESE NUTS ARE TO BE REMOVED.

87-AGSI1

4 /20/A

2

ME

3065

COMPLETED AND APPROVED REQ'R FALES, MICHAEL

INITIATED 05/20/87 14:16

EQUIP MTR-MOTORS

LOCATION- AUXILIARY FEEDWATER PUMP ROOM.

COMPONENT-MOTOR DRIVEN AFW PUMP MOTOR BASE.

NUTS USED TO MAKE CORRECTION ON ALIGNMENT, HAD TO BE REMOVED BY GRINDING. NEED TO RE-PAINT BASE PER PAINT CODE.

87-AHTB1

3 /20/A

2

ME

3065

COMPLETED AND APPROVED REQ'R GANN, MICHAEL

INITIATED 06/07/87 03:52

EQUIP MTR-MOTORS

LOCATION-BY FLASH TANK

COMPONENT-THE GOVERNOR ON THE STEAM DRIVEN AFW PUMP HAS A LEAK AT THE FLANGE WHERE IT BOLTS TO THE PUMP.

87-ANBB1

3 /20/A

2

EL

3065

COMPLETED AND APPROVED REQ'R WATTS, WILLIAM

INITIATED 09/15/87 09:34

EQUIP MTR-MOTORS

LOCATION- AUX. FW PUMP ROOM

COMPONENT- PECKERHEAD FOR "B" AUX. FW PUMP HAS WRUNG OFF SCREWS IN COVER

87-ANBC1

3 /20/A

2

EL

3065

COMPLETED AND APPROVED REQ'R WATTS, WILLIAM

INITIATED 09/15/87 09:37

EQUIP MTR-MOTORS

LOCATION- AUX. FW PUMP ROOM

COMPONENT- LEADS FOR "A" AUX. FW PUMP NEED TO BE RE-TAPPED

88-AAST1

4 /20/A

2

ME

3065

COMPLETED AND APPROVED REQ'R TALBERT, DAVID

INITIATED 01/19/88 13:22

EQUIP MTR-MOTORS

LOCATION- STEAM DRIVEN AUX FEEDWATER PUMP, NORTH SIDE

COMPONENT-SDAFW PUMP DRAIN BASIN IS STOPED UP AND NEEDS UNCLOGGING

88-AHLZ1

3 /20/A

2

EL

3065

COMPLETED AND APPROVED REQ'R BILLINGS, DANN

INITIATED 07/20/88 03:59

EQUIP MTR-MOTORS

LOCATION- SDAFP

COMPONENT- DURING PERFORMANCE OF OST-202 PUMP DISCHARGE AND STEAM PRESSURE D/P INDICATED LOW. UPON RECHECK OF ORIGINAL OST, D/P WAS STILL INDICATING LOW. APPROX VALUES WERE 30% FOR 1ST RUN AND 20% FOR 2ND RUN BOTH WERE BELOW REQUIRED 31% OR GREATER. REQUEST TROUBLESHOOT AND REPAIR AS NECESSARY.

89-ACWE1

3 /21/A

2

EL

3065

COMPLETED AND APPROVED REQ'R PRITCHARD, JOS

INITIATED 02/24/89 16:29

EQUIP MTR-MOTORS

LOCATION-GRD FLOOR TURBINE BLDG

COMPONENT-CONTROLLER WILL NOT LET PUMP PUMP 600 GPM. INVESTIGATE AND REPAIR.

89-AHZF2

3 /50/D

2

ME

3065

COMPLETED AND APPROVED REQ'R MEREDITH, DONA

INITIATED 08/24/89 15:02

EQUIP MTR-AUX FEEDWATER PUMP MOTOR

DATE 11/07/89

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TIME 11:47

ROBINSON NUCLEAR

REPORT PMMRI

INITIATED THRU

COMPLETED

THRU

UNIT 2

SYSTEM 3065-AUXILIARY FEEDWATER

EQUIP MTR-MOTORS

ID

89-AHZF2

EDB-LOC: TUR1-I25-1

COMPONENT- SPARKS WERE NOTICED COMING FROM A AFW PUMP MOTOR.

MOTOR WILL REQUIRE REMOVAL AFTER ELECTRICAL DISCONNECT AND INSTALLATION AFTER INSPECTION/REFURBISHMENT.

I&C WR #89-AHZF1.

89-AIPZ1

3 /20/A

2

EL

3065

COMPLETED AND APPROVED REQ'R MEREDITH, DONA

INITIATED 09/19/89 06:56

EQUIP MTR-A AUX FEEDWATER PUMP MOTOR

EDB-LOC: AUX1-I25-1

COMPONENT- "A" AUXILIARY FEEDWATER PUMP MOTOR. BRIDGE AND MEGGER "A" AUX. FW PUMP MOTOR FOR RECIEPT INSPECTION AND BASE LINE DATA AT RETURN OF MOTOR FROM WESTINGHOUSE (SPARTANBURG).

89-AHZQ1

3 /20/D

2

EL

3065

COMPLETED AND APPROVED REQ'R MEREDITH, DONA

INITIATED 08/24/89 15:39

EQUIP MTR-B AUX FEEDWATER PUMP MOTOR

EDB-LOC: TURB 1 I24 1'

COMPONENT- B AUX FEEDWATER PUMP MOTOR. DISCONNECT AND RECONNECT PUMP MOTOR TO FACILITATE MOTOR INSPECTION/REFUBISHMENT.

89-AHZQ2

3 /50/D

2

ME

3065

COMPLETED AND APPROVED REQ'R MEREDITH, DONA

INITIATED 08/24/89 15:56

EQUIP MTR-B AUX FEEDWATER PUMP MOTOR

EDB-LOC: TURB 1 I24 1'

COMPONENT- B AUX FEEDWATER PUMP MOTOR. DISCONNECT AND RECONNECT PUMP MOTOR TO FACILITATE MOTOR INSPECTION/REFUBISHMENT.

MOTOR REQUIRES REMOVAL FOR INSPECTION/REFUBISHMENT AND INSTALLATION AFTER COMPLETION OF INSPECTION.

I&C WR # 89-AHZQ1.

89-AINL1

3 /20/A

2

EL

3065

COMPLETED AND APPROVED REQ'R MEREDITH, DONA

INITIATED 09/18/89 09:11

EQUIP MTR-B AUX FEEDWATER PUMP MOTOR

EDB-LOC: TURB 1 I24 1'

COMPONENT- "B" AUXILIARY FEEDWATER PUMP MOTOR. BRIDGE AND MEGGER "B" AUX.FW MOTOR PRIOR INSTALLATION.

89-AJER1

3 /20/A

2

EL

3065

COMPLETED AND APPROVED REQ'R BARRY, JAMES H

INITIATED 10/06/89 15:04

EQUIP MTR-B AUX FEEDWATER PUMP MOTOR

EDB-LOC: TURB 1 I24 1'

COMPONENT- "B" AFW PUMP MOTOR WAS SPRAYED WITH WATER, REQUEST I&C INSPECT FOR DAMAGE.

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