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FLUSHING AND STEAM BLOWS

PREOPERATIONAL TEST

PROCEDURE 980

REVISION: 0

UNITED STATES DEPARTMENT OF ENERGY/
SOUTHERN CALIFORNIA EDISON COMPANY

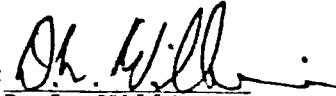
10 MWe SOLAR PILOT PLANT

DAGGETT, CALIFORNIA

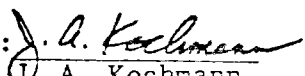
PROJECT: C-21700

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FLUSHING AND STEAM BLOWS

SYSTEM (980)

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1.0 OBJECTIVES

- 1.1 Velocity flush the lines at maximum allowable velocities to remove loose material.
- 1.2 Manually clean condenser hotwell, deaerator, inline demineralizers, TSS Flash Tank, where debris may be trapped.
- 1.3 Alkaline flush the system with a solution of 10% Vertan 643 and 1% trisodium phosphate at 160° to 180°F to remove grease, paint, and loose corrosion products. Follow with demineralized water flush.
- 1.4 Rust removal flush the system with the above solution with a pH of 5.0 adjusted with formic acid and inhibited with A-196 inhibitor at a temperature of 140° to 160°F to remove mill scale and iron oxide. Follow with a citric acid rinse and a neutralization and passivation solution of pH 9.5 to 10 and 200 ppm hydrazine and circulated at a temperature of 180° to 200°F.
- 1.5 Steam blow the steam lines with saturated steam from the rental boiler at a sufficient velocity to produce a cleaning ratio greater than one.
- 1.6 Lay up system with inhibited water or GN₂ as appropriate.

2.0 ACCEPTANCE CRITERIA

		<u>VERIFICATION PARAGRAPH</u>	<u>OBJECTIVE</u>
2.1	Loose debris has been removed from the piping systems and visually verified to have been deposited in equipment and on temporary strainers and permanent filters. P&ID 40P7005133151.	8.1 8.2	1.1
2.2	The Deaerator Storage Tank, condenser Hot Well, both in-line Demineralizers, the TSS Flash Tank, Temporary Strainers TS-SP-1-1, TS-SP-9-3, TF-SP-12-4, and the eighteen receiver system boiler module feedwater inlet filters have all been manually cleaned and visually inspected. P&ID 40P7005133151.	8.2	1.2
2.3	The piping systems have been cleaned with a solution of 10% Vertan 643, 1% Trisodium Phosphate while maintaining a temperature of 160° to 180°F by circulating the solution the specified time. P&ID 40P7005133151.	8.3	1.3
2.4	The piping systems have been cleaned with the above solution with a pH of 5.0 adjusted with Formic Acid and inhibitor A-196 while maintained in a temperature range of 140 to 160°F, by circulating the solution 1 1/2 to 2 hours after the iron in solution and chelant strength have stabilized. Displacement with 0.10 to 0.15% citric acid at a pH of 3.5 to 4, and circulate each system for 1 hour. Displacement of citric acid solution with ammoniated demineralized water at a pH of 9.5 to 10 to a conductivity of 50 mmhos. Add 200 ppm hydrazine, heat up to 180° to 200°F and circulate each system until clean. P&ID 40P7005133151.	8.4	1.4

2.0 Acceptance Criteria (Contd)

	<u>Verification Paragraph</u>	<u>Objective</u>
2.5 Steam lines have been cleaned with high velocity steam until mild steel target bars* indicate sufficiently low quantities of debris. P&ID 40P7005133151	8.5	1.5
2.6 The system has been drained hot under a nitrogen blanket and laid-up dry in a nitrogen atmosphere of 2 to 5 psig from the plant nitrogen system. P&ID 40P7005133151.	8.6	1.6

*Alloy Steel Bars (AISI 410) may be used alternately to discriminate between water erosion and particle impingement.

3.0 REFERENCES

3.1 Pilot Plant System Description, December, 1980

3.2 Logic Diagrams

N/A

3.3 Line Schedules

40P7002133104

a) Special (SP), Pg. 1 & 2 of 2, Rev. 4

3.4 Single Line Diagrams

N/A

3.5 Piping and Instrumentation Diagrams

- a) 40P7005133151, Rev. 2, Plant Support Subsystem (PSS), Cycle Flush and Steam Blow, Sheet 1, 2 and 3 of 3.
- b) 40P7005133140, Rev. 4, Electrical Power Generation Subsystem (EPGS), Steam, Sheet 1 of 1.
- c) 40P7005133141, Rev. 4, Electrical Power Generation Subsystem (EPGS), Condensate and Feedwater, Sheet 1 of 1.
- d) 40P2005131763, Rev. 3, Receiver Subsystem (RS), Receiver Preheat Panel Feedwater, Sheet 1 of 1.
- e) 40P2005131764, Rev. 2, Receiver Subsystem (RS), Receiver Boiler - Panels RB-204 thru RB-206, Sheet 1 of 2.
- f) 40P2005131764, Rev. 2, Receiver Subsystem (RS), Receiver Boiler Panels RB-207 thru RB-209, Sheet 2 of 2.
- g) 40P2005131765, Rev. 2, Receiver Subsystem (RS), Receiver Boiler Panels RB-210 thru RB-212, Sheet 1 of 2.
- h) 40P2005131765, Rev. 2, Receiver Subsystem (RS), Receiver Boiler Panels RB-213 thru RB-215, Sheet 2 of 2.
- i) 40P2005131766, Rev. 2, Receiver Subsystem (RS), Receiver Boiler Panels RB-216 thru RB-218 Sheet 1 of 2.
- j) 40P2005131766, Rev. 2, Receiver Subsystem (RS), Receiver Boiler Panels RB-219 thru RB-221, Sheet 2 of 2.
- k) 40P2005131767, Rev. 3, Receiver Subsystem (RS), Main Steam Manifold GN₂ Drain System Sheet 1 of 1.

3.0 REFERENCES (Contd)

- l) 40P3005132193, Rev. 3, Thermal Storage Subsystem (TSS), Charging Steam and Condensate, Sheet 1 of 2.
- m) 40P3005132193, Rev. 3, Thermal Storage Subsystem (TSS), Charging Steam and Condensate, Sheet 2 of 2.
- n) 40P3005132195, Rev. 3, Thermal Storage Subsystem (TSS), Extraction Steam and Condensate, Sheet 1 of 1.
- o) 40P9005133301-3, Feedwater & Condensate System.
- p) 40P9005133304-3, Miscellaneous Systems
- q) 40P9005133306-3, Steam
- r) 40P9005133309-3, Turbine

3.6 Electrical Elementary Diagrams

N/A

3.7 Instrument Index

N/A

3.8 Material Requisition and/or Specification

- a) Technical Specification, No. 40M700-6S, Piping and Mechanical Equipment, Rev. 5.

3.9 Vendor Data

- a) Deaerator, DA-901.
- b) Condenser, E-901.
- c) Condensate Hotwell Pump, P907.
- d) Desuperheater, DS-901.
- e) Desuperheater, DS-902.
- f) Rental Boiler.
- g) Chemical Flushing Unit.
- h) Thermal Storage Condenser, E-301.
- i) Thermal Storage Condenser, E-302.
- j) Preheater, E-303.
- k) Preheater, E-304.
- l) Boiler, E-305.
- m) Boiler, E-306.
- n) Superheater, E-307.
- o) Superheater, E-308.
- p) Thermal Storage Surge Tank, E-309.
- q) Thermal Storage Surge Tank, E-310.

3.0 REFERENCES (Contd)

- r) Thermal Storage Subcooler, E-311.
- s) Thermal Storage Subcooler, E-312.
- t) Receiver Flash Tank, V-201.
- u) Thermal Storage Steam Trap, V-304.
- v) Thermal Storage Steam Trap, V-305.
- w) Thermal Storage Steam Trap, V-306.
- x) Inline Demineralizers, V-901, V-902.

3.10 Standards

N/A

3.11 Startup Schedules

- a) Procedure Development and Test Schedule, Rev. 2.
- b) Solar One Summary Start-up Schedule, Rev. 1.

3.12 Piping Physical Drawings

- a) 40P7005133197, Rev. 0, Plant Support Subsystem Area (PSS), Temporary Steam Blow, Velocity Flush and Chemical Cleaning Piping, Sheet 1 of 1.
- b) 40P7004I, Rev. 4, Pipe Supports 2 1/2 inch and larger, Hot Lines, Sheet P14-2.

4.0 PREREQUISITES

4.1 Turnover of the system to SCE is complete and in accordance with Section 5.4 of the SCE Startup Manual.

_____/_____
INITIAL DATE

4.2 Reference Material has been reviewed and later revisions (if any) will not affect this test.

_____/_____
INITIAL DATE

4.3 The Master Tracking System has been reviewed and outstanding items (if any) will not affect this test. A summary list of outstanding items is attached on Appendix 10A.

_____/_____
INITIAL DATE

4.4 The Abnormal Equipment and Circuitry Log has been reviewed, is current, and is satisfactory for this test. A summary list is attached on Appendix 10B.

_____/_____
INITIAL DATE

4.5 The system has been walked through and verified complete to the extent required to conduct this test.

_____/_____
INITIAL DATE

4.6 Prerequisite component tests and calibration have been completed for components listed on Appendix 10C, 10D and 10E.

_____/_____
INITIAL DATE

4.7 All test equipment as per section 6.0, is available, calibrated and in working order.

_____/_____
INITIAL DATE

4.8 A pretest coordination meeting has been held to familiarize test and operations personnel with the requirements of this test.

_____/_____
INITIAL DATE

5.0 LIMITS AND PRECAUTIONS

- 5.1 Access to the Chemical Cleaning equipment Area should be limited.
- 5.2 Area containing automatically starting pumps posted with "Caution" signs or identified in a conspicuous manner.
- 5.3 Observe vendor operating and maintenance instructions.
- 5.4 Access to the areas being steam blown should be limited.
- 5.5 No access should be allowed to areas in the path of steam blow exhaust.
- 5.6 Hearing protection must be worn by persons in the areas being steam blown.
- 5.7 Heat tracing should be in service prior to performing tests if ambient temperature requires it.
- 5.8 Protective clothing and equipment must be worn when working with the caustic and acid cleaning solutions and the neutralization and passivation chemicals.
- 5.9 Life Support Systems are required upon entering any portion of the plant in which a nitrogen atmosphere has been established.

6.0 TEST EQUIPMENT

NOTE: Test Equipment equivalent to that specified may be used. Equipment serial number will be recorded prior to start of test and calibration will be verified for expected test time period.

6.1 Indicating Instruments

6.1.1 Pressure Indicator

6.1.1.1 PI-BOA, PI-BOB, PI-BOC, PI-BOD, PI-BOE.

6.1.2 Level Indicators

6.1.2.1 Temporary Tygon Tubing level indicator for Condenser, E-901, 20 feet long.

6.1.3 Conductivity Indicators

6.1.3.1 Type: Portable
Make: Hach
Model: 2501-01
Ranges: 0-2, 0-20, 0-200, 0-2000, 0-20000 mmhos/cm.

6.2 Sonic Cleaner

(As per Rocketdyne Requirements)
Number Required: One

6.3 Sample Bottles

Size: 500 ml
Type: Glass w/screw top
Number Required: Twelve

6.4 Walkie-Talkies

Type: Per SCE Requirements
Number Required: Three

6.5 Analytical Equipment

Type: Any apparatus to quantitatively determine iron in solution.
Number Required: One.

6.6 Spare Parts

Gaskets for Equipment Manways and Inspection ports.

6.7 Steam Blowing Targets

Size: 1 1/2" Square by 8 5/8" Long
Type: A36 Polished Steel Bar
Quantity: Eight

7.0 INITIAL CONDITIONS

7.1 Environmental Conditions

7.1.1 Buildings should be heated if ambient temperatures require it.

7.2 Temporary Installations

7.2.1 Preparation for Section 8.1

7.2.1.1 Insure internals have been removed from Deaerator, DA-901, including spray valves.

_____/_____
INITIAL DATE

7.2.1.2 Insure internals are not installed in Inline Demineralizers V-901 and V-902.

_____/_____
INITIAL DATE

7.2.1.3 Condensate Hotwell Pump P-907 Temporary Suction Strainer TS-CO-(SCE)-1 is installed, with Differential Pressure Gauge.

_____/_____
INITIAL DATE

7.2.1.4 The Temporary Chemical Flush Unit is prepared for velocity flushing operations.

_____/_____
INITIAL DATE

7.2.1.5 Raw Water is available and provision has been made to fill the condenser, E-901.

_____/_____
INITIAL DATE

7.2.1.6 Temporary Tygon Tubing Level indicator has been installed on the Condenser, E-901, to a point above the top row of tubes.

_____/_____
INITIAL DATE

7.2.1.7 A vapor barrier has been installed in the Condenser, E-901, above the top row of tubes to protect the turbine internals from the chemical cleaning solution vapors, if required by turbine erector.

_____/_____
INITIAL DATE

7.0 INITIAL CONDITIONS (Continued)

7.2.1.8 Temporary piping has been installed as shown on Drawing 40P7005133151.

_____/_____
INITIAL DATE

7.2.1.9 Valves have been dismantled and prepared to the extent required by the notes on Drawing 40P7005133151.

_____/_____
INITIAL DATE

7.2.1.10 Temporary Lighting is provided where necessary to allow for 24 hour per day operation.

_____/_____
INITIAL DATE

7.2.1.11 Strainer Elements have been removed from PF-MS-4-301 and PF-MS-4-302 and covers replaced.

_____/_____
INITIAL DATE

7.2.1.12 Permanent Pipe Supports are set up as below:

7.2.1.12.1 All condensate and feedwater lines have the travel stops removed from all variable spring and constant support hangers and they are set on their cold settings.

_____/_____
INITIAL DATE

7.2.1.12.2 All steam, main steam, auxiliary steam and vent lines have travel stops installed on all variable spring and constant support hangers except as noted below. These hangers must have travel stops removed and set at their cold settings:

<u>Mark No.</u>	<u>Mark No.</u>
H-MS-2-5	H-VT-1-1
H-MS-2-11	H-VT-1-7
H-MS-2-16	H-VT-1-12
H-MS-4-1	H-VT-1-17

7.0 INITIAL CONDITIONS (Continued)

H-MS-4-6 H-VT-1-20
H-MS-4-7 H-VT-11-2
H-MS-6-1 H-VT-12-8

Hanger settings for Rocketdyne and SCE
Hangers must be verified prior to
filling lines.

_____/_____
INITIAL DATE

7.2.1.13 Insure Condenser Upper Manway is open to protect
against an overflow.

_____/_____
INITIAL DATE

7.2.2 Preparation for Section 8.3

7.2.2.1 The temporary Chemical Flush Unit is prepared for
alkaline flushing, rinsing and draining operations.

_____/_____
INITIAL DATE

7.2.2.2 Temporary piping has been installed as shown on
Drawing 40P7005133151.

_____/_____
INITIAL DATE

7.2.2.3 Valves have been dismantled and prepared to the
extent required by the notes on Drawing
40P7005133151.

_____/_____
INITIAL DATE

7.2.2.4 Pipe supports are set as per section 7.2.1.12 of
this procedure.

_____/_____
INITIAL DATE

7.2.2.5 The Condensate Hot Well Pump P-907 casing vent to
the condenser should be blocked to stop any chemical
solution from entering the pump.

_____/_____
INITIAL DATE

7.0 INITIAL CONDITIONS (Continued)

7.2.3 Preparations for Section 8.4

7.2.3.1 The temporary Chemical Flush Unit is prepared for Acid Flushing, Rinsing and Neutralization/Passivation Rinsing, and draining Operations.

_____/_____
INITIAL DATE

7.2.3.2 Temporary Piping has been installed as shown on Drawing 40P7005133151.

_____/_____
INITIAL DATE

7.2.3.3 Valves have been dismantled and prepared to the extent required by the notes on Drawing 40P7005133151.

_____/_____
INITIAL DATE

7.2.3.4 Pipe Supports are set as per Section 7.2.1.12 of this procedure.

_____/_____
INITIAL DATE

7.2.4 Preparations for Section 8.5

7.2.4.1 The Rental Boiler is prepared for Steam Blowing Operations.

_____/_____
INITIAL DATE

7.2.4.2 Temporary Piping has been installed as shown on Drawing 40P7005133151.

_____/_____
INITIAL DATE

7.2.4.3 Valves have been dismantled and prepared to the extent required by the notes on Drawing 40P7005133151.

_____/_____
INITIAL DATE

7.0 INITIAL CONDITIONS (Continued)

7.2.4.4 Target bars are prepared as per Drawing
40P7005133197 and available for use.

_____/_____
INITIAL DATE

7.2.4.5 All permanent hangers on the lines to be steam blown
have the travel stops removed from all constant
support and variable spring hangers and they are set
at the cold position.

_____/_____
INITIAL DATE

7.2.4.6 All temporary pipe supports are installed as shown
on the detail sheets, Section 3.12.

_____/_____
INITIAL DATE

7.2.4.7 The Plant Hydrostatic Tests have been performed and
are complete.

_____/_____
INITIAL DATE

7.2.5 Preparations for Section 8.6

7.2.5.1 The temporary Chemical Flush Unit is disconnected
from the system.

_____/_____
INITIAL DATE

7.2.5.2 All temporary piping and pipe fittings and strainers
have been removed.

_____/_____
INITIAL DATE

7.2.5.3 Permanent instruments have all been installed.

_____/_____
INITIAL DATE

7.2.5.4 All Valves have been reassembled.

_____/_____
INITIAL DATE

7.0 INITIAL CONDITIONS (Continued)

7.2.5.5 Deaerator, DA-901, has had its internals cleaned and re-installed.

_____/_____
INITIAL DATE

7.2.5.6 Inline Demineralizers V-901 and V-902 have had their internals re-installed.

_____/_____
INITIAL DATE

7.2.5.7 Temporary Tygon Tubing Level indicator has been removed from the Condenser, E-901.

_____/_____
INITIAL DATE

7.2.5.8 The vapor barrier has been removed from inside the Condenser, E-901.

_____/_____
INITIAL DATE

7.2.5.9 Pipe supports are set as per Section 7.2.1.12 of this Procedure, for Wet Lay-up or as per Section 7.2.4.5 of this Procedure, for Dry Lay-up.

_____/_____
INITIAL DATE

7.3 Support Systems/Plant Operating Status

7.3.1 Coolwater Evaporation Pond is prepared to receive spent chemical solutions and rinses.

_____/_____
INITIAL DATE

7.3.2 SDPC System is capable of controlling valve positions.

_____/_____
INITIAL DATE

7.3.3 The Make-up Package Demineralizer, D-701, and the Polishing Demineralizers are available for operation.

_____/_____
INITIAL DATE

7.0 INITIAL CONDITIONS (Continued)

7.3.4 Permanent Plant Lighting should be completed in all working areas.

_____/_____
INITIAL DATE

7.3.5 Plant Drains and Sumps are available for operation.

_____/_____
INITIAL DATE

7.3.6 Raw/Service Water System is available for operation.

_____/_____
INITIAL DATE

7.4 Component Lineup

7.4.1 Initial circuit breaker positioning for step 8.1.1.1 as noted in Appendix 10F completed.

_____/_____
INITIAL DATE

7.4.2 Initial control switch positioning for step 8.1.1.1 as noted in Appendix 10G completed.

_____/_____
INITIAL DATE

7.4.3 Initial valve lineup for step 8.1.2.1 as noted in Appendix 10H completed.

_____/_____
INITIAL DATE

7.5 Other Initial Conditions

7.5.1 Establish communications between rental boiler, temporary chemical flush unit and control room.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION

8.1 Velocity Flushes

8.1.1 Condensate System Velocity Flushes

8.1.1.1 Verify that initial conditions have been established as required in Section 7.2.1.

_____/_____
INITIAL DATE

8.1.1.2 Set Valve for Flush.
(See Valve Lineup List for this Section).

_____/_____
INITIAL DATE

8.1.1.3 Open V-SP-61-19 and fill the Condenser to a level above the tubes with service water. Monitor the level with the temporary Tygon tubing level indicator.

_____/_____
INITIAL DATE

8.1.1.4 Set FV-112 for recirculation to condenser.

_____/_____
INITIAL DATE

8.1.1.5 Verify PV-405 is open and HV-400, HV-408, HV-404 and HV-412 are closed.

_____/_____
INITIAL DATE

8.1.1.6 Start Condenser Hot Well Pump P-907 and circulate for 1 hour. Do not allow the level in the condenser to go below the bottom of the temporary indicator. Control Pump Discharge valve to insure motor amps do not exceed nameplate rating. Stop flush and clean TF-CO-(SCE)-1 as often as necessary to prevent pump cavitation. Do not allow suction screen differential pressure indicator PDI-125 to read more than 2.5" H₂O above the clean screen reading. Discharge gauge and motor ammeter should be monitored for signs of cavitation.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.1.1.7 Open L.P. Heater E-904 by-pass and close L.P. Heater E-904 inlet and outlet.

_____/_____
INITIAL DATE

8.1.1.8 Set FV-112 for Flow thru Deaerator, throttle flow with LV-83B in manual and V-SP-11-21, and attempt to maintain deaerator pressure at 40 psig. Circulate for 1 hour.

_____/_____
INITIAL DATE

8.1.1.9 Open L.P. Heater E-904 inlet and outlet. Close L.P. Heater E-904 by-pass. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.1.10 Open LV-83A Downstream Block and circulate for 15 minutes.

_____/_____
INITIAL DATE

8.1.1.11 Stop condensate Hotwell Pump P-907 and open motor breaker and rack out.

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW DEAERATOR PRESSURE TO EXCEED 40 PSIG.

8.1.2 Feedwater Systems and Receiver Velocity Flushes

8.1.2.1 Set Valves for Flush. (See Valve List for this Section)

_____/_____
INITIAL DATE

8.1.2.2 Open V-SP-10-6 and H.P. Feedwater Heaters by-pass. Close H.P. Heater E-903 inlet and H.P. Heater E-902 Outlet.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

- 8.1.2.3 Close V-SP-1-2, V-SP-2-4, V-SP-9-20, V-SP-10-5, LV-24B Downstream Block, FV-1007 upstream block and by-pass. Open Line CCS-303 inlet Block, LV-74C and FV-647B downstream blocks. Start flushing unit and circulate for 30 minutes. Use V-SP-61-19 to make up service water level in condenser as necessary. Stop flush and clean TF-SP-12-4, TF-SP-1-1 and TF-SP-9-3 as often as necessary.

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW FLUSHING UNIT DISCHARGE PRESSURE TO EXCEED 250 PSIG. DO NOT ALLOW DEAERATOR DA-901 PRESSURE TO EXCEED 40 PSIG.

- 8.1.2.4 Open H.P. Heater E-903 inlet, H.P. Heater E-902 outlet. Close H.P. Heaters by-pass. Circulate for 30 minutes.

_____/_____
INITIAL DATE

- 8.1.2.5 Open LV-74A and LV-24A downstream blocks. Close LV-74C downstream block. Circulate 15 minutes.

_____/_____
INITIAL DATE

- 8.1.2.6 Open V-SP-1-2, Preheat Panels Backflush outlet block, SP-3 Block, SP-4 Block and SP-5 Block. Close V-SP-2-3. Close SP-19 Block, SP-20 block, SP-21 Block, V-FW-228-203, AOV-2203, AOV-2202, AOV-2201. Open AOV-2007 last, long enough to vent preheat panels. Circulate 30 minutes.

_____/_____
INITIAL DATE

- 8.1.2.7 Close Preheat Panels Backflush outlet block, open V-SP-9-20 and circulate for 15 minutes.

_____/_____
INITIAL DATE

- 8.1.2.8 Open SP-19 Block, SP-20 Block and SP-21 Block. Close SP-3 Block, SP-4 Block, SP-5 Block. Open AOV-2007 long enough to vent preheat panels. Circulate for 30 minutes.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.1.2.9 Open V-FW-228-203, TV-2301, TV-2302, TV-2303. Close V-SP-9-20. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.10 Open TV-2401, TV-2402, TV-2403. Close TV-2301, TV-2302, TV-2303. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.11 Open TV-2501, TV-2502, TV-2503. Close TV-2401, TV-2402, TV-2403. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.12 Open TV-2601, TV-2602, TV-2603. Close TV-2501, TV-2502, TV-2503. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.13 Open TV-2701, TV-2702, TV-2703. Close TV-2601, TV-2602, TV-2603. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.14 Open TV-2801, TV-2802, TV-2803. Close TV-2701, TV-2702, TV-2703. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.15 Close TV-2801, TV-2802, TV-2803. Remove Temporary Lines SP-31 thru SP-48 and install weld caps.

_____/_____
INITIAL DATE

8.1.2.16 Close FV-1006 upstream Block and by-pass, MOV-1030 and by-pass, PV-1001 upstream Block, MOV-1031 and by-pass, AOV-2911, AOV-2915. Open V-CO-201-201, TV-2301, TV-2302, TV-2303, RBWISK-04, RBWISK-05, RBWISK-06. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.1.2.17 Open TV-2401, TV-2402, TV-2403, RBWISK-07,
RBWISK-08, RBWISK-09. Close TV-2301, TV-2302,
TV-2303. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.18 Open TV-2501, TV-2502, TV-2503, RBWISK-10,
RBWISK-11, RBWISK-12. Close TV-2401, TV-2402,
TV-2403. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.19 Open TV-2601, TV-2602, TV-2603, RBWISK-13,
RBWISK-14, RBWISK-15. Close TV-2501, TV-2502,
TV-2503. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.20 Open TV-2701, TV-2702, TV-2703, RBWISK-16,
RBWISK-17, RBWISK-18. Close TV-2601, TV-2602,
TV-2603. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.21 Open TV-2801, TV-2802, TV-2803, RBWISK-19,
RBWISK-20, RBWISK-21. Close TV-2701, TV-2702,
TV-2703. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.22 Open TV-2301, TV-2302, TV-2303, TV-2401, TV-2402,
TV-2403, TV-2501, TV-2502, TV-2503, TV-2601,
TV-2602, TV-2603, TV-2701, TV-2702, TV-2703.
Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.23 Open AOV-2911 and AOV-2915. Close V-CO-201-201.
Circulate 15 minutes.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.1.2.24 Close PV-640 Downstream Block. Open FV-1006, its upstream block, its downstream block and its by-pass. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.25 Open DR-34 Block and DR-11 block. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.26 Open MOV-1031 and its by-pass, and V-SP-25-11. Close V-SP-25-12, FV-1006 upstream block and by-pass. Circulate 30 minutes.

_____/_____
INITIAL DATE

8.1.2.27 Open DR-12 Block and circulate for 5 minutes.

_____/_____
INITIAL DATE

8.1.2.28 Open PV-1001 upstream block. Close MOV-1031 and its by-pass. Circulate for 30 minutes.

_____/_____
INITIAL DATE

8.1.2.29 Open DR-8 Block. Circulate 5 minutes.

_____/_____
INITIAL DATE

8.1.2.30 Close DR-21 Block, DR-20 Block, DR-27 Block, PV-647C upstream block, PV-640 upstream block, AOV-3118, AOV-3117, DR-18 Block, DR-26 Block, DR-25 Block. Open MOV-1030 and its by-pass, V-CO-15-307, LV-74D-1 and its upstream and downstream block. Close LV-74B upstream block. Close PV-1001 upstream block. Circulate 30 minutes.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.1.2.31 Open DR-13 Block, DR-19 Block, DR-18 Block, DR-21 Block, DR-20 Block. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.32 Open LV-74B and its upstream and downstream blocks. Close LV-74D-1 and LV-74D-2 downstream blocks. Circulate 30 minutes.

_____/_____
INITIAL DATE

8.1.2.33 Open LV-24B Downstream Block. Close LV-24A Downstream Block. Circulate 30 minutes.

_____/_____
INITIAL DATE

8.1.2.34 Open PV-640 and its upstream and downstream blocks. Close V-CO-15-307. Circulate 30 minutes.

_____/_____
INITIAL DATE

8.1.2.35 Open PV-647C and its upstream and downstream blocks. Close PV-640 upstream Block. Circulate 15 minutes.

_____/_____
INITIAL DATE

8.1.2.36 Open DR-27 Block. Circulate 5 minutes.

_____/_____
INITIAL DATE

8.1.2.37 Open V-SP-25-12, AOV-3117, AOV-3118, V-SP-10-5. Close V-SP-25-11, V-SP-10-6. Circulate 60 minutes.

_____/_____
INITIAL DATE

8.1.2.38 Open DR-25 and DR-26 Block. Circulate 5 minutes.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

CAUTION
INSURE SYSTEM VENTS ARE OPEN

8.1.2.39 Using V-SP-56-14, pump the systems empty as far as possible with the chemical flush unit, discharging into tanker trucks. Complete draining by gravity. Close V-SP-56-14 when complete. Dispose of flushing solution in the Coolwater Evaporation Pond.

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW THE CONDENSER TO OVERFILL AND FLOOD THE TURBINE

8.2 Manual Cleaning

8.2.1 Open the condenser Hot Well, manually clean, inspect and close up.

_____/_____
INITIAL DATE

8.2.2 Open the Deaerator Storage Tank, manually clean, inspect and close up.

_____/_____
INITIAL DATE

8.2.3 Open the two inline Demineralizer's vessels, manually clean, inspect and close up.

_____/_____
INITIAL DATE

8.2.4 Open the TSS Flash Tank, manually clean, inspect and close up.

_____/_____
INITIAL DATE

8.2.5 Remove temporary strainers TF-SP-1-1, TF-SP-9-3 and TF-SP-12-4, clean and re-install.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.2.6 Remove the eighteen receiver system boiler modules feedwater inlet filters, clean in a sonic cleaner with non-ionic surfactant and re-install.

_____/_____
INITIAL DATE

8.3 Alkaline Flush and Demineralized Water Rinse

NOTE

ALL VALVES ARE TO BE CLOSED UNLESS DIRECTED OTHERWISE BY THESE PROCEDURES.

8.3.1 Condensate System Alkaline Flush

8.3.1.1 Verify that initial conditions have been established as required in Section 7.2.2.

_____/_____
INITIAL DATE

8.3.1.2 Open V-SP-12-16, V-SP-10-15, V-SP-24-9, PV-405. Set FV-112 for recirculation to condenser. Open FV-112 downstream block.

_____/_____
INITIAL DATE

8.3.1.3 Fill system with service water using SP-61 Block. Use temporary tygon tubing level indicator on condenser to bring level to above top row of tubes. Keep level above tubes during this flush. Use chemical flushing unit for filling if needed.

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW CONDENSER LEVEL TO FLOOD INTO THE TURBINE

8.3.1.4 Start circulation with chemical flushing unit. Bring the water temperature into the 150°F to 160°F range using steam from the rental boiler. Use SP-53 block to control temperature. Use SP-60 block to drain condensate from the heat exchanger.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

- 8.3.1.5 Add the following chemicals to the Hot Circulating Solution and bring the solution to the indicated chemical percentages:

<u>Volume Percentage of Chemical in Solution</u>	<u>Chemical</u>
10%	Vertan 643
1.0	Trisodium Phosphate

Circulate 2 hours.

_____/_____
INITIAL DATE

- 8.3.1.6 Open L.P. Heater E-904 inlet, outlet and by-pass, LV-83B downstream block. Throttle with LV-83B in manual and V-SP-11-21 to maintain deaerator pressure at 40 PSIG maximum. Set FV-112 for flow thru deaerator. Maintain solution temperature between 160° and 180°F limits. Add water and chemicals as needed. Circulate for 4 hours.

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW DEAERATOR PRESSURE TO EXCEED 40 PSIG.

8.3.2 Feedwater Systems and Receiver Alkaline Flush

- 8.3.2.1 Open V-SP-10-6, H.P. Heater E-903 inlet, H.P. Heater E-902 outlet and the H.P. Heater by-pass, CCS-303 upstream and downstream blocks, PV-2002, LV-74C and its upstream and downstream blocks, CCS-312 block, LV-24A and its upstream and downstream blocks, LV-83A and its downstream block, AOV-2004, AOV-2203, AOV-2202, AOV-2201, AOV-2103, AOV-2102, AOV-2101, CCS-376 Block, V-FW-228-203, TV-2301, TV-2302, TV-2303, TV-2401, TV-2402, TV-2403, TV-2501, TV-2502, TV-2503, TV-2601, TV-2602, TV-2603, TV-2701, TV-2702, TV-2703, TV-2801, TV-2802, TV-2803, RBWISK-04 thru RBWISK-21, AOV-2313, AOV-2314, AOV-2315, AOV-2413, AOV-2414, AOV-2415, AOV-2513, AOV-2514, AOV-2515, AOV-2613, AOV-2614, AOV-2615, AOV-2713, AOV-2714, AOV-2715, AOV-2813, AOV-2814, AOV-2815, V-CO-201-201, AOV-2901, AOV-2915, PV-2002, V-SP-9-20, AOV-2007, LV-74A and its upstream and downstream blocks, LV-74C and its upstream and downstream blocks, AOV-2911, AOV-2914,

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.3.2.1 PV-2906, PV-647B and its
(Contd) upstream and downstream blocks, DR-9 Block, DR-33
Block, FV-1007 and its upstream and downstream
Blocks and by-pass, DR-11 Block. Close V-SP-1-1,
V-SP-24-9, SP-59 Block, SP-3 Block, SP-4 Block, SP-5
Block, SP-19 Block, SP-20 Block, SP-21 Block,
V-SP-9-20. Open AOV-2007 as necessary to vent all
air from the receiver. Add water and chemicals as
needed. Maintain temperature and levels within
limits. Circulate for 4 hours.

_____/_____
INITIAL DATE

8.3.2.2 Open UV-2905, DR-34 Block, FV-1006 and its by-pass
and upstream and downstream blocks, MOV-1030 and its
by-pass, DR-13 Block, DR-19 Block, V-MS-3-301,
UV-3102 and its by-pass, LV-3116 and its upstream
and downstream block, TDWIS, TV-3015, DR-21 Block,
DR-20 Block, DR-18 Block, V-MS-4-302, V-MS-4-304,
AOV-3206, PV-3207, AOV-3306, PV-3307, THSBV-1,
THSBV-2, V-CO-301-301, V-CO-302-302, PV-3110 and its
downstream block, PV-3111 and its downstream block,
DR-27 block, V-CO-15-307, LV-74D-1 and its upstream
and downstream blocks, LV-74D-2 and its upstream and
downstream blocks, LV-74B and its upstream and
downstream blocks, PV-647C and its upstream and
downstream blocks, PV-640 and its upstream and
downstream blocks. Close V-CO-201-201. Circulate
for 4 hours.

_____/_____
INITIAL DATE

8.3.2.3 Open DR-12 Block, DR-8 Block, PV-1001 and its
upstream block, MOV-1031 and its by-pass,
V-SP-25-11. Circulate for 4 hours.

_____/_____
INITIAL DATE

8.3.2.4 Open V-SP-10-5, LV-3505, LV-3605, AOV-3118,
AOV-3117, AOV-3717, AOV-3817, DR-25 Block, DR-26
Block, V-SP-25-12, AOV-3218, AOV-3318, DR-23 Block,
DR-24 Block. Close V-SP-10-6. Circulate 6 hours.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.3.2.5 Shutoff steam supply. Using V-SP-56-14, drain the systems under nitrogen pressure, discharging into tanks and transfer the solution to the coolwater evaporation pond.

_____/_____
INITIAL DATE

8.3.3 DELETE

8.4 Rust Removal Flush, Rinse and Neutralization/Passivation Rinses

NOTE

ALL VALVES ARE TO BE CLOSED UNLESS DIRECTED OTHERWISE BY THE PROCEDURES.

8.4.1 Condensate System Rust Removal Flush

8.4.1.1 Verify that initial conditions have been established as required in Section 7.2.3.

_____/_____
INITIAL DATE

8.4.1.2 Open V-SP-12-16, V-SP-10-15, V-SP-24-9, PV-405. Set FV-112 for recirculation to condenser. Open FV-112 downstream block.

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW CONDENSER LEVEL TO FLOOD INTO THE TURBINE

NOTE

CIRCULATION RATES MUST BE CONTROLLED TO KEEP PIPELINE VELOCITIES IN THE RANGE OF 1.5 TO 3.0 FEET PER SECOND DURING THE ACID FLUSHING.

8.4.1.3 Start circulation with chemical flushing unit. Bring the water temperature down by cooling to 140°F to 150°F range using steam from the rental boiler. Use SP-53 block to control temperature. Use SP-60 block to drain condensate from the heat exchanger.

_____/_____
INITIAL DATE

8.4.1.4 Add the following chemicals to the Hot Circulating Solution as indicated below:

Add formic acid to bring the pH to 6.5, then add the inhibitor A-196. When the inhibitor is in solution, continue adding formic acid until the pH is 5.0. Circulate the above solution at a temperature of 140° to 160°F for 1 1/2 to 2 hours after the iron and chelant concentrations have stabilized.

Sample	Iron In Solution PPm Fe	Chelant Strength %
--------	----------------------------	-----------------------

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

_____/_____
INITIAL DATE

8.4.1.5 Open L.P. Heater E-904 inlet, outlet and by-pass, LV-83B downstream block. Throttle with LV-83B in manual and V-SP-11-21 to maintain deaerator pressure at 40 PSIG maximum. Set FV-112 for flow thru deaerator. Maintain solution temperature between 140° and 160°F limits. Add water and chemicals as needed. Circulate until iron in solution and Chelant strength stabilizes.

Sample	Iron In Solution PPm Fe	Chelant Strength %
--------	----------------------------	-----------------------

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW DEAERATOR PRESSURE TO EXCEED 40 PSIG.

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.4.2 Feedwater Systems and Receiver Rust Removal Flush

8.4.2.1 Open V-SP-10-6, H.P. Heater E-903 inlet, H.P. Heater E-902 outlet and the H.P. Heater by-pass, CCS-303 upstream and downstream blocks, PV-2002, LV-74C and its upstream and downstream blocks, CCS-312 block, LV-24A and its upstream and downstream blocks, LV-83A and its downstream block, AOV-2004, AOV-2203, AOV-2202, AOV-2201, AOV-2103, AOV-2102, AOV-2101, CCS-376 Block, V-FW-228-203, TV-2301, TV-2302, TV-2303, TV-2401, TV-2402, TV-2403, TV-2501, TV-2502, TV-2503 TV-2601, TV-2602, TV-2603, TV-2701, TV-2702, TV-2703, TV-2801, TV-2802, TV-2803, RBWISK-04 thru RBWISK-21, AOV-2313, AOV-2314, AOV-2315, AOV-2413, AOV-2414, AOV-2415, AOV-2513, AOV-2514, AOV-2515, AOV-2613, AOV-2614, AOV-2615, AOV-2713, AOV-2714, AOV-2715, AOV-2813, AOV-2814, AOV-2815, V-CO-201-201, AOV-2901, AOV-2915, PV-2002, V-SP-9-20, AOV-2007, LV-74A and its upstream and downstream Blocks, LV-74C and its upstream and downstream Blocks, AOV-2911, AOV-2914, PV-2906, PV-647B and itsupstream and downstream blocks, DR-9 Block, DR-33 Block, FV-1007 and its upstream and downstream Blocks and by-pass, DR-11 Block. Close V-SP-1-1, V-SP-24-9, SP-59 Block, SP-3 Block, SP-4 Block, SP-5 Block, SP-19 Block, SP-20 Block, SP-21 Block, V-SP-9-20. Open AOV-2007 as necessary to vent all

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.4.2.1 air from the receiver. Add water to maintain (Contd.) levels and maintain temperature within limits. Circulate until iron in solution and Chelant strength stabilize.

Sample	Iron In Solution PPm Fe	Chelant Strength %
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

INITIAL _____ / _____ DATE

8.4.2.2 Open UV-2905, DR-34 Block, FV-1006 and its by-pass and upstream and downstream blocks, MOV-1030 and its by-pass, DR-13 Block, DR-19 Block, V-MS-3-301, UV-3102 and its by-pass, LV-3116 and its upstream and downstream block, TDWIS, TV-3015, DR-21 Block, DR-20 Block, DR-18 Block, V-MS-4-302, V-MS-4-304, AOV-3206, PV-3207, AOV-3306, PV-3307, THSBV-1, THSBV-2, V-CO-301-301, V-CO-302-302, PV-3110 and its downstream block, PV-3111 and its downstream block, DR-27 block, V-CO-15-307, LV-74D-1 and its upstream and downstream blocks, LV-74D-2 and its upstream and downstream blocks, LV-74B and its upstream and downstream blocks, PV-647C and its upstream and downstream blocks, PV-640 and its upstream and downstream blocks. Close V-CO-201-201. Circulate until iron in solution and Chelant strength stabilize.

Sample	Iron In Solution PPm Fe	Chelant Strength %
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

INITIAL _____ / _____ DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.4.2.3 Open DR-12 Block, DR-8 Block, PV-1001 and its upstream block, MOV-1031 and its by-pass, V-SP-25-11. Circulate until iron in solution and Chelant strength stabilize.

Sample	Iron In Solution PPm Fe	Chelant Strength %
--------	----------------------------	-----------------------

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

_____/_____
INITIAL DATE

8.4.2.4 Open V-SP-10-5, LV-3505, LV-3605, AOV-3118, AOV-3117, AOV-3717, AOV-3817, DR-25 Block, DR-26 Block, V-SP-25-12, AOV-3218, AOV-3318, DR-23 Block, DR-24 Block. Close V-SP-10-6. Circulate until iron in solution and Chelant strength stabilize.

Sample	Iron In Solution PPm Fe	Chelant Strength %
--------	----------------------------	-----------------------

_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

_____/_____
INITIAL DATE

8.4.2.5 Shutoff steam supply. Using V-SP-56-14, drain the systems under nitrogen pressure, discharging into tanks and transfer the solution to the coolwater evaporation pond.

_____/_____
INITIAL DATE

8.4.3 Citric Acid System Rinse

8.4.3.1 Open V-SP-12-16, V-SP-10-15, V-SP-24-9, PV-405. Set FV-112 for recirculation to condenser. Open FV-112 downstream block.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.4.3.2 Fill system with service water using SP-61 block. Add citric acid to establish a 3.5 to 4 pH solution. Use temporary tygon tubing level indicator on condenser to bring level to above top row of tubes. Keep level above tubes during this rinse. Use chemical flushing unit for filling if needed.

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW CONDENSER LEVEL TO FLOOD INTO THE TURBINE

8.4.3.3 Continue displacing the Vertan solution with the citric solution until all the Vertan solution is taken out. This will be accomplished when the conductivity of the fill solution is within 500 mmhos from the drain solution.

_____/_____
INITIAL DATE

8.4.3.4 Open L.P. Heater E-904 inlet, outlet and by-pass, LV-83B downstream block. Throttle with LV-83B in manual and V-SP-11-21 to maintain deaerator pressure at 40 PSIG maximum. Set FV-112 for flow thru deaerator. Add water as needed. Circulate for 1 hour.

Conductivity, mmhos/cm

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW DEAERATOR PRESSURE TO EXCEED 40 PSIG.

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.4.4 Feedwater Systems and Receiver Citric Acid Rinse

8.4.4.1 Open V-SP-10-6, H.P. Heater E-903 inlet, H.P. Heater E-902 outlet and the H.P. Heater by-pass, CCS-303 upstream and downstream blocks, PV-2002, LV-74C and its upstream and downstream blocks, CCS-312 block, LV-24A and its upstream and downstream blocks, LV-83A and its downstream block, AOV-2004, AOV-2203, AOV-2202, AOV-2201, AOV-2103, AOV-2102, AOV-2101, CCS-376 block, V-FW-228-203, TV-2301, TV-2302, TV-2303, TV-2401, TV-2402, TV-2403, TV-2501, TV-2502, TV-2503, TV-2601, TV-2602, TV-2603, TV-2701, TV-2702, TV-2703, TV-2801, TV-2802, TV-2803, RBWISK-04 thru RBWISK-21, AOV-2313, AOV-2314, AOV-2315, AOV-2413, AOV-2414, AOV-2415, AOV-2513, AOV-2514, AOV-2515, AOV-2613, AOV-2614, AOV-2615, AOV-2713, AOV-2714, AOV-2715, AOV-2813, AOV-2814, AOV-2815, V-CO-201-201, AOV-2901, AOV-2915, PV-2002, V-SP-9-20, AOV-2007, LV-74A and its upstream and downstream blocks, LV-74C and its upstream and downstream blocks, AOV-2911, AOV-2914, PV-2906, PV-647B and its upstream and downstream blocks, DR-9 Block, DR-33 Block, FV-1007 and its upstream and downstream Blocks and by-pass, DR-11 Block. Close V-SP-1-1, V-SP-24-9, SP-59 Block, SP-3 Block, SP-4 Block, SP-5 Block, SP-19 Block, SP-20 Block, SP-21 Block, V-SP-9-20. Open AOV-2007 as necessary to vent all air from the receiver. Add water to maintain levels as needed. Sample Rinse water to see if it meets the 500 mmhos/cm conductivity differential. Circulate system for 1 hour.

Conductivity, mmhos/cm _____

INITIAL

DATE

8.4.4.2 Open UV-2905, DR-34 Block, FV-1006 and its by-pass and upstream and downstream blocks, MOV-1030 and its by-pass, DR-13 Block, DR-19 Block, V-MS-3-301, UV-3102 and its by-pass, LV-3116 and its upstream and downstream block, TDWIS, TV-3015, DR-21 Block, DR-20 Block, DR-18 Block, V-MS-4-302, V-MS-4-304, AOV-3206, PV-3207, AOV-3306, PV-3307, THSBV-1, THSBV-2, V-CO-301-301, V-CO-302-302, PV-3110 and its downstream block, PV-3111 and its downstream block, DR-27 block, V-CO-15-307, LV-74D-1 and its upstream and downstream blocks, LV-74D-2 and its upstream and downstream blocks, LV-74B and its upstream and downstream blocks, PV-647C and its upstream and downstream blocks, PV-640 and its upstream and

8.0 PROCEDURE AND DATA COLLECTION (Continued)

downstream blocks. Close V-CO-201-201. Maintain levels. Sample rinse water to see if it meets the 500 mmhos/cm conductivity differential. Circulate for 1 hour.

Conductivity, mmhos/cm _____
_____/_____
INITIAL DATE

- 8.4.4.3 Open DR-12 Block, DR-8 Block, PV-1001 and its upstream block, MOV-1031 and its by-pass, V-SP-25-11. Maintain levels. Sample rinse water to see if it meets the 500 mmhos/cm conductivity differential and circulate 1 Hour.

Conductivity, mmhos/cm _____
_____/_____
INITIAL DATE

- 8.4.4.4 Open V-SP-10-5, LV-3505, LV-3605, AOV-3118, AOV-3117, AOV-3717, AOV-3817, DR-25 Block, DR-26 Block, V-SP-2512, AOV-3218, AOV-3318, DR-23 Block, DR-24 Block. Close V-SP-10-6. Maintain levels. Sample rinse water to see if it meets the 500 mmhos/cm conductivity differential and circulate for 1 hour.

Conductivity, mmhos/cm _____
_____/_____
INITIAL DATE

- 8.4.4.5 Using V-SP-56-14, drain the systems under nitrogen pressure discharging into tanks and transfer the solution to the coolwater evaporation pond.

_____/_____
INITIAL DATE

- 8.4.4.6 Repeat Sections 8.4.3 and 8.4.4 until a final rinse water sample conductivity is less than 500 mmhos/cm conductivity differential.

8.4.5 Condensate System Neutralization/Passivation Rinse

- 8.4.5.1 Open V-SP-12-16, V-SP-10-15, V-SP-24-9, PV-405. Set FV-112 for recirculation to condenser. Open FV-112 downstream block.

_____/_____
INITIAL DATE

8.4.5.2 Fill system with demineralized water with ammonia being used to adjust the pH to 9.5 to 10 using SP-52 block. Use temporary tygon tubing level indicator on condenser to bring level to above top row of tubes. Keep level above tubes during this rinse. Use chemical flushing unit for filling if needed.

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW CONDENSER LEVEL TO FLOOD INTO THE TURBINE

8.4.5.3 Continue displacing until the conductivity of the drain solution is less than 50 mmhos above the make-up demineralized water.

_____/_____
INITIAL DATE

8.4.5.4 Add the following chemicals to the circulating solution and bring the solution to the indicated chemical strengths:

<u>Solution Chemical Strength</u>	<u>Chemical</u>
200 ppm	Hydrazine

Circulate to insure system is clean. Maintain chemical strengths.

_____/_____
INITIAL DATE

8.4.5.5 Open L.P. Heater E-904 inlet, outlet and by-pass, LV-83B downstream block. Throttle with LV-83B in manual and V-SP-11-21 to maintain deaerator pressure at 40 PSIG maximum. Set FV-112 for flow thru deaerator. Add water as necessary to maintain chemical strengths. Circulate to insure system is clean.

_____/_____
INITIAL DATE

CAUTION

DO NOT ALLOW DEAERATOR PRESSURE TO EXCEED 40 PSIG.

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.4.6 Feedwater Systems and Receiver Neutralization/Passivation Rinse

8.4.6.1 Open V-SP-10-6, H.P. Heater E-903 inlet, H.P. Heater E-902 outlet and the H.P. Heater by-pass, CCS-303 upstream and downstream blocks, PV-2002, LV-74C and its upstream and downstream blocks, CCS-312 block, LV-24A and its upstream and downstream blocks, LV-83A and its downstream block, AOV-2004, AOV-2203, AOV-2202, AOV-2201, AOV-2103, AOV-2102, AOV-2101, CCS-376 Block, V-FW-228-203, TV-2301, TV-2302, TV-2303, TV-2401, TV-2402, TV-2403, TV-2501, TV-2502, TV-2503, TV-2601, TV-2602, TV-2603, TV-2701, TV-2702, TV-2703, TV-2801, TV-2802, TV-2803, RBWISK-04 thru RBWISK-21, AOV-2313, AOV-2314, AOV-2315, AOV-2413, AOV-2414, AOV-2415, AOV-2513, AOV-2514, AOV-2515, AOV-2613, AOV-2614, AOV-2615, AOV-2713, AOV-2714, AOV-2715, AOV-2813, AOV-2814, AOV-2815, V-CO-201-201, AOV-2901, AOV-2915, PV-2002, V-SP-9-20, AOV-2007, LV-74A and its upstream and downstream blocks, LV-74C and its upstream and downstream blocks, AOV-2911, AOV-2914, PV-2906, PV-647B and its upstream and downstream blocks, DR-9 Block, DR-33 Block, FV-1007 and its upstream and downstream blocks and by-pass, DR-11 Block. Close V-SP-1-1, V-SP-24-9, SP-59 Block, SP-3 Block, SP-4 Block, SP-5 Block, SP-19 Block, SP-20 Block, SP-21 Block, V-SP-9-20. Open AOV-2007 as necessary to vent all air from the receiver. Add water as necessary to maintain levels and maintain chemical strength. Circulate to insure system is clean.

_____/_____
INITIAL

DATE

8.4.6.2 Open UV-2905, DR-34 Block, FV-1006 and its by-pass and upstream and downstream blocks, MOV-1030 and its by-pass, DR-13 Block, DR-19 Block, V-MS-3-301, UV-3102 and its by-pass, LV-3116 and its upstream and downstream block, TDWIS, TV-3015, DR-21 Block, DR-20 Block, DR-18 Block, V-MS-4-302, V-MS-4-304, AOV-3206, PV-3207, AOV-3306, PV-3307, THSBV-1, THSBV-2, V-CO-301-301, V-CO-302-302, PV-3110 and its downstream block, PV-3111 and its downstream block, DR-27 block, V-CO-15-307, LV-74D-1 and its upstream and downstream blocks, LV-74D-2 and its upstream and downstream blocks, LV-74B and its upstream and downstream blocks, PV-647C and its upstream and downstream blocks, PV-640 and its upstream and downstream blocks. Close V-CO-201-201. Add water as necessary to maintain levels and maintain chemical strengths. Circulate to insure system is clean.

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8.0 PROCEDURE AND DATA COLLECTION (Continued)

_____/_____
INITIAL DATE

- 8.4.6.3 Open DR-12 Block, DR-8 Block, PV-1001 and its upstream block, MOV-1031 and its by-pass, V-SP-25-11. Add water as necessary to maintain levels and maintain chemical strengths. Circulate to insure system is clean.

_____/_____
INITIAL DATE

- 8.4.6.4 Open V-SP-10-5, LV-3505, LV-3605, AOV-3118, AOV-3117, AOV-3717, AOV-3817, DR-25 Block, DR-26 Block, V-SP-25-12, AOV-3218, AOV-3318, DR-23 Block, DR-24 Block. Close V-SP-10-6. Add water as necessary to maintain levels and maintain chemical strengths. Circulate to insure system is clean.

_____/_____
INITIAL DATE

- 8.4.6.5 After the entire system is displaced, repeat steps 8.4.5.5 through 8.4.6.4 by heating the solution to 180° to 200°F and circulate for 1 hour.

_____/_____
INITIAL DATE

- 8.4.6.6 Using V-SP-56-14, drain the systems under nitrogen pressure to tanks and transfer the solution to the Coolwater Evaporation Pond.

_____/_____
INITIAL DATE

8.5 Steam Blow Cleaning

8.5.1 Filling the Receiver

- 8.5.1.1 Verify that initial conditions have been established as required in Section 7.2.4.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.5.1.2 Fill the Receiver with Demineralized water using the chemical flushing unit taking water from SP-52 Block. Open V-SP-12-16, V-SP-10-15, V-SP-10-6, H.P. Heaters by-pass, V-FW-200-201, AOV-2004, V-FW-228-203, RBWISK-04 thru -21, TV-2301, TV-2302, TV-2303, TV-2401, TV-2402, TV-2403, TV-2501, TV-2502, TV-2503, TV-2601, TV-2602, TV-2603, TV-2701, TV-2702, TV-2703, TV-2801, TV-2802, TV-2803. Close V-SP-10-5, V-SP-24-9, MOV-33, H.P. Heater E-903 inlet, H.P. Heater E-902 outlet, CCS-306 Block, CCS-303 inlet Block, TDWIS, AOV-2203, AOV-2202, AOV-2201, AOV-2103, AOV-2102, AOV-2101, AOV-2313, AOV-2314, AOV-2315, AOV-2413, AOV-2414, AOV-2415, AOV-2513, AOV-2514, AOV-2515, AOV-2613, AOV-2614, AOV-2615, AOV-2713, AOV-2714, AOV-2715, AOV-2813, AOV-2814, AOV-2815, V-CO-201-201.

_____/_____
INITIAL DATE

8.5.2 Main Steam Line Blows

NOTE

ALL VALVES ARE TO BE CLOSED UNLESS DIRECTED OTHERWISE BY THESE PROCEDURES.

8.5.2.1 Set the valves as follows:
Open PV-1000, V-VT-1-1, PV-2906, AOV-2911, UV-2905, MOV-1031, V-SP-25-10. Use V-SP-27-18 to throttle. Close V-SP-50-17, SP-53 Block, V-VT-11-2, DR-9 Block, DR-33 Block, FV-1007 upstream Block and its by-pass, PV-647B upstream block, AOV-2914, V-CO-201-201, AOV-2915, DR-10 Block, PV-1003 Upstream Block and its by-pass, DR-34 Block, FV-1006 upstream block and its by-pass, DR-13 Block, MOV-1030 and its by-pass; V-MS-6-1, DR-12 Block, MOV-1031 by-pass, MSS-507 Block, MSS-516 Block, V-SP-25-11.

_____/_____
INITIAL DATE

8.5.2.2 Throttle the following drains to atmosphere and insure they remain open during the main steam line blows: DR-9, DR-33, DR-10, DR-34, DR-13, DR-12. Furnish temporary lines to drains if necessary.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.5.2.3 Perform a line walkdown and close off all branch lines not mentioned in this procedure.

_____/_____
INITIAL DATE

8.5.2.4 Start a warm-up steam flow thru the blow circuit. Increase flow as opened drains start to flow steam. Finally, bring rental boiler to 50 PSIG and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.2.5 Check pipe supports and bolts for tightness.

_____/_____
INITIAL DATE

8.5.2.6 Wait 30 minutes then bring rental boiler to 100 PSIG and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.2.7 Check pipe supports and bolts for tightness.

_____/_____
INITIAL DATE

8.5.2.8 Wait 30 minutes then bring rental boiler to 200 psig and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.2.9 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.2.10 Wait 30 minutes then bring rental boiler to 300 PSIG and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.2.11 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.2.12 Wait 30 minutes then bring rental boiler to 400 PSIG and open V-SP-27-18 wide. Increase boiler firing to achieve a sustained 400 PSIG drum pressure. Observe PI-BOA and do not allow pressure to exceed 6 PSIG. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.2.13 Check Pipe Supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.2.14 Continue to repeat Procedure Steps 8.5.2.12 and 8.5.2.13 as often as necessary until a mild steel target bar inserted in the atmospheric blow pipe records a sufficiently low number of debris hits, as determined by the Test Engineer.

_____/_____
INITIAL DATE

CAUTION

THE PRESSURE AS INDICATED ON PI-BOA MUST NEVER EXCEED 6 PSIG.

8.5.3 Gland Steam Line Blows from Main Steam

8.5.3.1 Set the valves as follows:

Close MOV-1031, PV-1003 by-pass, DR-7 Block, TV-1004 downstream Block, AOV-1009 upstream Block, PV-1005 Upstream Block, PV-1005 By-Pass, MS-520 Block, MSS-524 Block, MSS-557 Block, PV-647A upstream Block, PV-647A by-pass, MOV-982. Open PV-1003 upstream block, V-MS-8-2, PV-1003. Use V-SP-27-18 to throttle.

_____/_____
INITIAL DATE

8.5.3.2 Throttle the following drains to atmosphere and insure they remain open during the gland steam blows: DR-9, DR-33, DR-10, DR-34, DR-13, DR-12, DR-7. Furnish temporary lines to drains if necessary.

_____/_____
INITIAL DATE

8.5.3.3 Perform a line walkdown and close off all branch lines not mentioned in this procedure.

_____/_____
INITIAL DATE

8.5.3.4 Start a warm-up steam flow thru the blow circuit. Increase flow as opened drains start to flow steam. Finally, bring rental boiler to 50 psig and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.3.5 Check Pipe Supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.3.6 Wait 30 minutes, then bring rental boiler to 75 psig and open V-SP-27-18 wide. Increase boiler firing to achieve a sustained 75 psig drum pressure. Blow for 15 minutes then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.3.7 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.3.8 Repeat procedure steps 8.5.3.6 and 8.5.3.7 three more times for a total of 1 hour of steam blowing.

2nd Blow

_____/_____
INITIAL DATE

3rd Blow _____ / _____
INITIAL DATE

4th Blow _____ / _____
INITIAL DATE

8.5.4 Admission Steam Line Blows

8.5.4.1 Set the valves as follows:

Close PV-1003 upstream block and by-pass, V-SP-25-10, MSS-558 Block, MSS-506 block, DR-12 block, PV-1005 upstream block and by-pass, DR-23 block, DR-24 block, AOV-3218, AOV-3318, DR-25 block, DR-26 block, AOV-3707 and its upstream block, AOV-3807 and its upstream block, AOV-3117, AOV-3118. Open MOV-1031, V-SP-25-11, V-SP-25-12, AOV-3717, AOV-3818.

_____ / _____
INITIAL DATE

8.5.4.2 Throttle the following drains to atmosphere and insure they remain open during the admission steam line blows: DR-9, DR-33, DR-10, DR-34, DR-13, DR-12, DR-14, DR-23, DR-24, DR-25, DR-26. Furnish temporary lines to drains if necessary.

_____ / _____
INITIAL DATE

8.5.4.3 Perform a line walkdown and close off all branch lines not mentioned in this procedure.

_____ / _____
INITIAL DATE

8.5.4.4 Start a warm-up steam flow thru the blow circuit. Increase flow as opened drains start to flow steam. Finally, bring rental boiler to 50 psig and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____ / _____
INITIAL DATE

8.5.4.5 Check pipe supports and bolts for tightness.

_____ / _____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.5.4.6 Wait 30 minutes then bring rental boiler to 100 psig and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.4.7 Check pipe supports and bolts for tightness.

_____/_____
INITIAL DATE

8.5.4.8 Wait 30 minutes then bring rental boiler to 200 psig and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.4.9 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.4.10 Wait 30 minutes then bring rental boiler to 325 psig and open V-SP-27-18 wide. Increase boiler firing to achieve a sustained 325 psig drum pressure. Observe both PI-BOD and PI-BOE and do not allow pressures to exceed 6 psig. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.4.11 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.4.12 Continue to repeat procedure steps 8.5.4.10 and 8.5.4.11 as often as necessary until mild steel target bars inserted in the atmospheric blow pipes record sufficiently low number of debris hits, as determined by the Test Engineer.

_____/_____
INITIAL DATE

CAUTION

THE PRESSURES AS INDICATED ON PI-BOD AND PI-BOE MUST NEVER EXCEED 6 PSIG.

8.5.5 Gland Steam Line Blows from Admission Steam

8.5.5.1 Set the valves as follows:

Close AOV-1009 upstream and downstream blocks, V-MS-8-2, PV-1003 bypass, TV-1004 downstream block, MSS-520 block, MSS-524 block, MSS-557 block, PV-647A upstream block, PV-647A by-pass, MOV-982. Open PV-1005 its upstream and downstream blocks and by-pass, AOV-1008.

_____/_____
INITIAL DATE

8.5.5.2 Throttle the following drains to atmosphere and insure they remain open during the gland steam blows: DR-9, DR-33, DR-10, DR-34, DR-13, DR-12, DR-14, DR-7, DR-23, DR-24, DR-25, DR-26. Furnish temporary lines to drains if necessary.

_____/_____
INITIAL DATE

8.5.5.3 Perform a line walkdown and close off all branch lines not mentioned in this procedure.

_____/_____
INITIAL DATE

8.5.5.4 Start a warm-up steam flow thru the blow circuit. Increase flow as opened drains start to flow steam. Finally, bring rental boiler to 50 psig and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.5.5 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.5.6 Wait 30 minutes, then bring rental boiler to 75 psig and open V-SP-27-18 wide. Increase boiler firing to achieve a sustained 75 psig drum pressure. Blow for 15 minutes then close V-SP-27-18.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.5.5.7 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.5.8 Repeat procedure steps 8.5.5.6 and 8.5.5.7 three more times for a total of 1 hour of steam blowing.

2nd Blow _____/_____
INITIAL DATE

3rd Blow _____/_____
INITIAL DATE

4th Blow _____/_____
INITIAL DATE

8.5.6 Charging Steam Line Blows

8.5.6.1 Set the Valves as follows:

Close MOV-1031, MOV-1030 by-pass, DR-19 block, V-MS-3-301, DR-18 block, DR-21 Block, DR-20 block, PV-3207, PV-3307, PV-3207 sensing line, PV-3307 sensing line. Open MOV-1030, V-MS-4-302, V-MS-4-304, AOV-3206, AOV-3306.

_____/_____
INITIAL DATE

8.5.6.2 Throttle the following drains to atmosphere and insure they remain open during the charging steam line blows: DR-9, DR-33, DR-10, DR-13, DR-34, DR-12, DR-19, DR-18, DR-21, DR-20. Furnish temporary lines to drains if necessary.

_____/_____
INITIAL DATE

8.5.6.3 Perform a line walkdown and close off all branch lines not mentioned in this procedure.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.5.6.4 Start a warm-up steam flow thru the blow circuit. Increase flow as opened drains start to flow steam. Finally, bring rental boiler to 50 psig and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.6.5 Check pipe supports and bolts for tightness.

_____/_____
INITIAL DATE

8.5.6.6 Wait 30 minutes then bring rental boiler to 100 psig and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.6.7 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.6.8 Wait 30 minutes then bring rental boiler to 200 psig and open V-SP-27-18 wide. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.5.6.9 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.6.10 Wait 30 minutes then bring rental boiler to 300 psig and open V-SP-27-18 wide. Increase boiler firing to achieve a sustained 300 psig drum pressure. Observe both PI-BOB and PI-BOC and do not allow pressures to exceed 5 psig. Blow for 15 minutes, then close V-SP-27-18.

_____/_____
INITIAL DATE

8.0 PROCEDURE AND DATA COLLECTION (Continued)

8.5.6.11 Check pipe supports for loose bolts and cracked welds.

_____/_____
INITIAL DATE

8.5.6.12 Continue to repeat procedure steps 8.5.6.10 and 8.5.6.11 as often as necessary until mild steel target bars inserted in the atmospheric blow pipes record sufficiently low number of debris hits, as determined by the Test Engineer.

_____/_____
INITIAL DATE

CAUTION

THE PRESSURES AS INDICATED ON PI-BOB AND PI-BOC MUST NEVER EXCEED 5 PSIG.

8.6 Lay-Up of System

8.6.1 Dry Lay-up of System

This section of the procedure need only be performed if the chemically cleaned and steam blown plant cannot be started immediately and must be laid-up for a duration of up to one month.

8.6.1.1 Verify that initial conditions have been established as required in Section 7.2.5.

_____/_____
INITIAL DATE

8.6.1.2 Activate the plant nitrogen system and bring equipment up to its specified nitrogen purge pressure.

_____/_____
INITIAL DATE

8.6.1.3 Close all valves.

_____/_____
INITIAL DATE

8.6.1.4 Monitor nitrogen pressures daily and correct when necessary.

_____/_____
INITIAL DATE

9.0 SYSTEM RESTORATION

9.1 The temporary chemical flush unit is disconnected from the system.

_____/_____
INITIAL / DATE

9.2 All temporary piping and pipe fittings have been removed, and permanent piping installed.

_____/_____
INITIAL / DATE

9.3 Temporary strainers have been removed to the extent deemed necessary.

_____/_____
INITIAL / DATE

9.4 Permanent instruments have been installed.

_____/_____
INITIAL / DATE

9.5 Deaerator DA-901 has had its internals cleaned and re-installed.

_____/_____
INITIAL / DATE

9.6 Inline demineralizers V-901 and V-902 have had their internals re-installed.

_____/_____
INITIAL / DATE

9.7 Temporary tygon tubing level indicator has been removed from the condenser E-901.

_____/_____
INITIAL / DATE

9.8 The vapor barrier has been removed from inside the Condenser E-901.

_____/_____
INITIAL / DATE

9.9 Pipe supports are properly set for either operation or wet lay-up.

_____/_____
INITIAL / DATE

9.10 All disassembled valves have been inspected for damage, repaired if necessary and reassembled.

_____/_____
INITIAL / DATE

10.0 ATTACHMENTS

Appendix 10A	Master Tracking System
Appendix 10B	Abnormal Equipment and Circuits
Appendix 10C	Electrical Prerequisite Tests
Appendix 10D	Instrumentation and Control Prerequisite Tests and Calibrations
Appendix 10E	Mechanical Prerequisite Tests
Appendix 10F	Initial Status of Breakers for Test Procedure Step 8.1.1.1
Appendix 10G	Initial Status of Switches for Test Procedure Step 8.1.1.1
Appendix 10H	Initial Status - Valve Lineup for Test Procedure Steps 8.1.1.2 and 8.1.2.1

APPENDIX 10A

MASTER TRACKING SYSTEM

ITEM NO.	DESCRIPTION	SECTION AFFECTED	INITIAL/DATE
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APPENDIX 10B

ABNORMAL EQUIPMENT AND CIRCUITS

ITEM NO.	DESCRIPTION	SECTION AFFECTED	INITIAL/DATE
----------	-------------	------------------	--------------

APPENDIX 10C

ELECTRICAL PREREQUISITE TESTS

Component		Generic Test	Test Complete
Number	Description	Procedure No.	Initial/Date

N/A

APPENDIX 10D

INSTRUMENTATION & CONTROLS
PREREQUISITE TESTS AND CALIBRATIONS

Component				Generic Test Procedure No.	Test Complete Initial/Date
Number	Description	Set Point	Field Setting		

N/A

APPENDIX 10E

MECHANICAL PREREQUISITE TESTS

Number	Component Description	Generic Test Procedure No.	Test Complete Initial/Date
1	All instrumentation isolation valves have been closed.	N/A	

APPENDIX 10F

INITIAL STATUS OF BREAKERS FOR TEST PROCEDURE STEP 8.1.1.1

BREAKERS				
NUMBER	DESCRIPTION	POSITION	STATUS	INITIAL/DATE

APPENDIX 10F

INITIAL STATUS OF BREAKERS FOR TEST PROCEDURE STEP 8.1.1.1

BREAKERS		POSITION	STATUS	INITIAL/DATE
NUMBER	DESCRIPTION			
1	Condensate Hotwell Pump Motor P-907	Connected	Open	____/____
2	Power Feeder to Rental Boiler	Connected	Open	____/____
3	Power Feeder to Temporary Chemical Flush Unit	Connected	Open	____/____
4	Receiver Feed Pump Motor P-917	Dis- connected	Open	____/____
5	TSS Feedwater Pump Motor P-903	Dis- connected	Open	____/____
6	TSS Flash Tank Drain Pump Motor P-307	Dis- connected	Open	____/____

APPENDIX 10G

INITIAL STATUS OF SWITCHES FOR TEST PROCEDURE STEP 8.1.1.1

SWITCH		STATUS	INITIAL/DATE
NUMBER	DESCRIPTION		
HS-131A	Condensate Hotwell Pump (Remote)	Off	____/____
HS-131B	Condensate Hotwell Pump (Local)	OFF	____/____
HS-50A	TSS Feedwater Pump (Remote)	Off	____/____
HS-50B	TSS Feedwater Pump (Local)	Off	____/____
HS-44A	Receiver Feedwater Pump (Remote)	Off	____/____
HS-44B	Receiver Feedwater Pump (Local)	Off	____/____
HS-3112	TSS Flash Tank Drain Pump (Remote)	Off	____/____

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.1.2

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	J-11	Hot Well Pump Suction	O		
N/A	P3-12B	J-9	CCS-342 Block	C		
N/A	P3-12B	J-9	Hot Well Pump Discharge	T		
V-SP-24-9	P3-12B	J-3	Flush Unit Condensate System Inlet	C		
N/A	P3-12B	J-7	CCS-320 Block	C		
N/A	P3-12B	J-8	CCS-314 Block	C		
V-SP-25-11	P3-12B	C-12	Main Steam Blow Isolation	C		
V-SP-25-12	P3-12B	C-12	Admission Steam Blow Stop	C		
V-SP-11-21	P3-12B	L-7	Deaerator Drain to Condenser	T		
N/A	P3-12B	J-7	CCS-378 Block	C		
HV-400	P3-12B	J-7	Deminerlizer V-901 Inlet	C		
HV-408	P3-12B	J-7	Deminerlizer V-902 Inlet	C		
HV-404	P3-12B	I-7	Deminerlizer V-901 Outlet	C		
HV-412	P3-12B	I-7	Deminerlizer V-902 Outlet	C		
PV-405	P3-12B	I-7	Inline Deminerlizer By-Pass	O		
N/A	P3-12B	H-6	WTS-1017 Block	C		

O = Open C - Closed T - Throttled L O - Locked Open LC - Locked Closed 980
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APPENDIX 10H

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.1.2 (Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	H-6	WTS-1017 Block	C		
N/A	P3-12B	H-8	WTS-1030 Block	C		
N/A	P3-12B	G-7	WTS-1021 Block	C		
N/A	P3-12B	G-8	WTS-1014 Block	C		
LV-146B	P3-12B	G-7	Condenser High Level Dump	C		
FV-112	P3-12B	G-7	Condensate Recirculation	*		
N/A	P3-12B	F-7	L.P. Heater E-904 Inlet	C		
N/A	P3-12B	F-7	L.P. Heater E-904 Outlet	C		
N/A	P3-12B	F-7	L.P. Heater E-904 By-Pass	O		
N/A	P3-12B	E-8	CCS-353 Block	C		
LV-83B	P3-12B	D-8	Deaerator Level Control	T		
N/A	P3-12B	D-7	Deaerator Condensate Inlet	O		
N/A	P3-12B	D-7	CCS-311 Block	C		
N/A	P3-12B	D-7	MSS-545 Deaerator Inlet	C		
N/A	P3-12B	D-6	FV-659 Upstream Block	C		
N/A	P3-12B	D-5	LV-24A Downstream Block	C		

O = Open C = Closed T = Throttled LO = Locked Open LC = Locked Closed

*See Procedure

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INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.1.2 (Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	C-6	MSS-581 Upstream Trap Block	C		
N/A	P3-12B	C-6	MSS-581 Trap By-Pass	C		
N/A	P3-12B	C-4	PV-647B Downstream Block	C		
N/A	P3-12B	A-4	PV-647C Downstream Block	C		
NV-629B	P3-12B	C-7	Extraction Steam to Deaerator Non-Return	C		
N/A	P3-12B	C-7	MSS-559 Deaerator Inlet Block	C		
N/A	P3-12B	E-6	CCS-383 Block	C		
N/A	P3-12B	F-6	WTS-1013 Block	C		
N/A	P3-12B	F-6	WTS-1020 Block	C		
N/A	P3-12B	I-6	Receiver Feedwater Pump Suction	C		
N/A	P3-12B	K-6	CCS-380 Block	C		
N/A	P3-12B	K-6	TS Feedwater Pump Suction	C		
V-SP-61-19	P3-12C	M-2	Temporary Service Water Supply	*		
N/A	P3-12B	E-7	CCS-346 Block	C		
N/A	P3-12B	E-7	CCS-372 Block	C		
N/A	P3-12B	G-8	FV-112 Discharge Block	0		

O = Open C - Closed T - Throttled L0 - Locked Open LC - Locked Closed

*See Procedure

APPENDIX IOH

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.1.2 (Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	F-12	LV-83A Downstream Block	C		
LV-83A	P3-12B	G-12	Deaerator High Level Dump	O		
N/A	P3-12B	E-11	CCS-303 Block	C		
N/A	P3-12B	E-13	LV-74C Downstream Block	C		
N/A	P3-12B	E-13	LV-74D-2 Downstream Block	C		
N/A	P3-12B	E-13	LV-74D-1 Downstream Block	C		
N/A	P3-12B	F-12	CSS-376 Block	C		
N/A	P3-12C	F-3	DR-34 Block	C		
N/A	P3-12C	F-4	DR-8 Block	C		
N/A	P3-12C	C-7	DR-13 Block	C		
N/A	P3-12C	C-5	DR-12 Block	C		
N/A	P3-12C	F-6	DR-19 Block	C		
N/A	P3-12C	F-2	DR-33 Block	C		
N/A	P3-12C	D-2	DR-9 Block	C		
N/A	P3-12C	I-3	DR-11 Block	C		
N/A	P3-12C	C-9	DR-27 Block	C		

O = Open C - Closed T - Throttled LO - Locked Open LC - Locked Closed

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.1.2

(Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12C	G-11	DR-24 Block	C		
N/A	P3-12C	G-13	DR-23 Block	C		

O = Open C - Closed T - Throttled LC - Locked Closed
 *See Procedure L0 - Locked Open

APPENDIX X 10H

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.2.1.

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	J-11	Hotwell Pump Suction	C		
N/A	P3-12B	J-9	Hotwell Pump Discharge	C		
V-SP-12-16	P3-12C	M-3	Temporary Chemical Flush Unit Suction	0		
V-SP-10-15	P3-12C	L-3	Temporary Chemical Flush Unit Discharge	0		
V-SP-56-14	P3-12C	L-2	Tanker Truck Fill Block	*		
N/A	P3-12C	D-1	SP-52 Block	C		
V-SP-61-19	P3-12C	M-3	Temporary Service Water Supply	*		
N/A	P3-12B	I-3	SP-55 Block	*		
V-SP-10-6	P3-12B	I-4	Receiver System Flushing Block	C		
V-SP-10-5	P3-12B	J-4	TSS Flushing Block	C		
V-SP-24-9	P3-12B	J-3	Condensate System Flushing Block	C		
MOV-33	P3-12B	I-4	Receiver Feed Pump Discharge	C		
N/A	P3-12B	F-4	H.P. Heater E-903 Inlet	C		
N/A	P3-12B	C-4	H.P. Heater E-902 Outlet	C		
N/A	P3-12B	E-3	H.P. Heaters By-Pass	0		
N/A	P3-12B	C-4	CCS-306 Block	C		

0 = Open C = Closed T = Throttled L0 = Locked Open LC = Locked Closed

*See Procedure

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APPENDIX IOH

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.2.1 (Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	B-4	CCS-303 Inlet Block	C		
N/A	P3-12B	E-11	CCS-303 Outlet Block	O		
PV-2002	P3-12A	J-10	RWBV	C		
AOV-2004	P3-12A	J-3	RPWIV	C		
V-SP-1-1	P3-12A	K-2	Receiver Inlet Flush Block	O		
V-SP-1-2	P3-12A	J-1	Preheat Panels Backflush Block	C		
V-SP-2-3	P3-12A	J-2	Receiver Flush By-Pass	O		
N/A	P3-12A	J-3	Preheat Panels Backflush Outlet Block	C		
TV-23 - TV-28	P3-12A	I-8	RBWTCV-04 thru -21	C		
N/A	P3-12A	I-9	RBWISK-04 thru -21	C		
N/A	P3-12B	D-13	LV-74C Upstream Block	O		
LV-74C	P3-12B	E-13	RS Flash Tank Emergency Drain	O		
N/A	P3-12B	E-13	LV-74C Downstream Block	C		
N/A	P3-12B	B-6	LV-74A Upstream Block	O		
LV-74A	P3-12B	B-6	RS Flash Tank Cascade Drain	O		
N/A	P3-12B	B-5	LV-74A Downstream Block	C		

O = Open C - Closed T - Throttled LO - Locked Open LC - Locked Closed

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.2.1 (Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	E-5	LV-8 Downstream Block	C		
N/A	P3-12B	B-5	LV-74B Downstream Block	C		
N/A	P3-12B	F-4	MSS-545 Block	C		
N/A	P3-12B	E-4	MSS-520 Block	C		
N/A	P3-12B	E-4	MSS-546 Block	C		
NV-627	P3-12B	E-4	Extraction Steam to H.P. Heater E-903 Non-Return	C		
MOV-675	P3-12B	E-4	Extraction Steam Drain	C		
N/A	P3-12B	E-4	Trap Upstream Block	C		
N/A	P3-12B	F-4	MSS-540 Block	C		
N/A	P3-12B	F-4	MSS-539 Block	C		
N/A	P3-12B	F-4	MSS-576 Block	C		
N/A	P3-12B	F-4	MSS-577 Block	C		
N/A	P3-12B	F-4	CCS-312 Block	0		
LV-24A	P3-12B	E-5	H.P. Heater E-903 Cascade Drain	0		
N/A	P3-12B	E-5	LV-24A Downstream Block	C		
LV-24B	P3-12B	F-12	H.P. Heater E-903 Emergency Drain	0		

0 = Open C - Closed T - Throttled L0 - Locked Open LC - Locked Closed

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.2.1 (Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	F-12	LV-24B Downstream Block	0		
N/A	P3-12C	F-1	FV-1007 Upstream Block	0		
N/A	P3-12C	F-2	FV-1007 By-Pass	0		
N/A	P3-12C	E-2	PV-1000 Upstream Block	C		
A0V-2914	P3-12A	K-12	RFSOV	0		
PV-2906	P3-12A	K-12	RFSREV	0		
N/A	P3-12B	C-4	PV-647B Upstream Block	0		
PV-647B	P3-12B	C-4	RS Flash Tank Vent to Deaerator	0		
N/A	P3-12B	C-4	PV-647B Downstream Block	C		
A0V-2007	P3-12A	B-1	Receiver Vent - RPWVV	C		
N/A	P3-12A	B-2	SP-3 Block	C		
N/A	P3-12A	B-3	SP-4 Block	C		
N/A	P3-12A	B-3	SP-5 Block	C		
N/A	P3-12A	B-6	SP-19 Block	C		
N/A	P3-12A	B-7	SP-20 Block	C		
N/A	P3-12A	B-7	SP-21 Block	C		

0 = Open C - Closed T - Throttled L0 - Locked Open LC - Locked Closed

APPENDIX 10H

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.2.1 (Continued)

ALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
V-FW-228-203	P3-12A	F-8	Boiler Panels Feedwater Supply	0		
A0V-2203	P3-12A	H-2	RPWDV-3	0		
A0V-2202	P3-12A	H-3	RPWDV-2	0		
A0V-2201	P3-12A	H-4	RPWDV-1	0		
N/A	P3-12A	B-8	RPNIS	C		
A0V-2103	P3-12A	H-6	RPWDV-24	C		
A0V-2102	P3-12A	H-7	RPWDV-23	C		
A0V-2101	P3-12A	H-8	RPWDV-22	C		
V-SP-9-20	P3-12A	H-12	Boiler Panels By-Pass	0		
N/A	P3-12C	E-5	PV-1003 Upstream Block	C		
N/A	P3-12C	E-5	PV-1003 By-Pass	C		
N/A	P3-12C	F-5	DR-10 Block	C		
A0V-2901	P3-12A	J-11	RAWDI	0		
N/A	P3-12C	F-2	FV-1006 Upstream Block	0		
N/A	P3-12C	F-2	FV-1006 By-Pass	0		
M0V-1030	P3-12C	C-7	Charging Steam Block	0		

O = Open C - Closed T - Throttled LO - Locked Open LC - Locked Closed

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.2 (Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12C	C-7	MOV-1030 By-Pass	0		
PV-1001	P3-12C	E-3	Steam Dump	0		
N/A	P3-12C	E-4	PV-1001 Upstream Block	0		
MOV-1031	P3-12C	B-4	Steam to Turbine Block	0		
N/A	P3-12C	B-4	MOV-1031 By-Pass	0		
UV-2905	P3-12A	F-12	RDSIV	0		
AOV-2911	P3-12A	F-11	RFSIV	0		
AOV-2915	P3-12A	E-11	RFSIS	0		
V-CO-201-201	P3-12A	F-10	RAWIV	C		
FV-1006	P3-12C	F-2	Atomizing Steam Supply	0		
N/A	P3-12C	F-2	FV-1006 Downstream Block	0		
N/A	P3-12C	II-2	TV-1002 Downstream Block	C		
N/A	P3-12B	B-5	PV-640 Downstream Block	0		
V-SP-25-11	P3-12B	C-12	Main Steam Blow Isolation	C		
V-SP-25-12	P3-12B	C-12	Admission Steam Blow Stop	0		
V-SP-25-10	P3-12B	B-12	Main Steam Blow to Atmosphere Stop	C		

= Open C - Closed T - Throttled LO - Locked Open LC - Locked Closed 980

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.2.1 (Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	C-12	MSS-507 Block	C		
N/A	P3-12B	C-12	MSS-516 Block	C		
IIV-3102	P3-12C	F-7	TDSIV	C		
AOV-3206	P3-12C	C-10	THSIV-1	O		
PV-3207	P3-12C	D-10	THSWPR-1	O		
AOV-3306	P3-12C	C-13	THSIV-2	O		
PV-3307	P3-12C	D-13	THSWPR-2	O		
PV-3110	P3-12C	F-8	TTWPCV-1	O		
PV-3111	P3-12C	F-8	TTWPCV-2	O		
N/A	P3-12C	F-8	PV-3110 Downstream Block	O		
N/A	P3-12C	F-8	PV-3111 Downstream Block	O		
N/A	P3-12C	D-9	DR-21 Block	O		
N/A	P3-12C	D-11	DR-20 Block	O		
N/A	P3-12C	D-10	PV-3207 Sensing Line Block	C		
N/A	P3-12C	D-13	PV-3307 Sensing Line Block	C		
V-MS-4-302	P3-12C	C-10	TDSIS-2	O		

O = Open C - Closed T - Throttled L0 - Locked Open LC - Locked Closed

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.2.1 (Continued)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
V-MS-4-304	P3-12C	C-12	TDSIS-3	0		
N/A	P3-12C	C-9	DR-27 Block	0		
N/A	P3-12B	A-4	PV-647C Upstream Block	0		
N/A	P3-12B	B-4	PV-640 Upstream Block	0		
N/A	P3-12C	F-7	ST-1 Blocks (6 each)	C		
N/A	P3-12C	G-7	VT-15 Block	C		
N/A	P3-12C	G-7	CO-310 Block	C		
A0V-3118	P3-12C	G-7	TSSBV-2	0		
A0V-3117	P3-12C	G-7	TSSBV-1	0		
N/A	P3-12C	D-8	DR-18 Block	0		
N/A	P3-12C	J-14	DR-26 Block	0		
N/A	P3-12C	J-11	DR-25 Block	0		
N/A	P3-12B	B-6	LV-74B Upstream Block	0		
LV-74D-1	P3-12B	E-13	TSS Flash Tank Level Control	0		
LV-74D-2	P3-12B	E-13	TSS Flash Tank Level Control	0		
N/A	P3-12B	E-13	LV-74D-1 Upstream Block	0		

) = Open C - Closed T - Throttled L0 - Locked Open LC - Locked Closed

INITIAL STATUS - VALVE LINEUP LIST FOR TEST PROCEDURE STEP 8.1.2.1 (Continued)

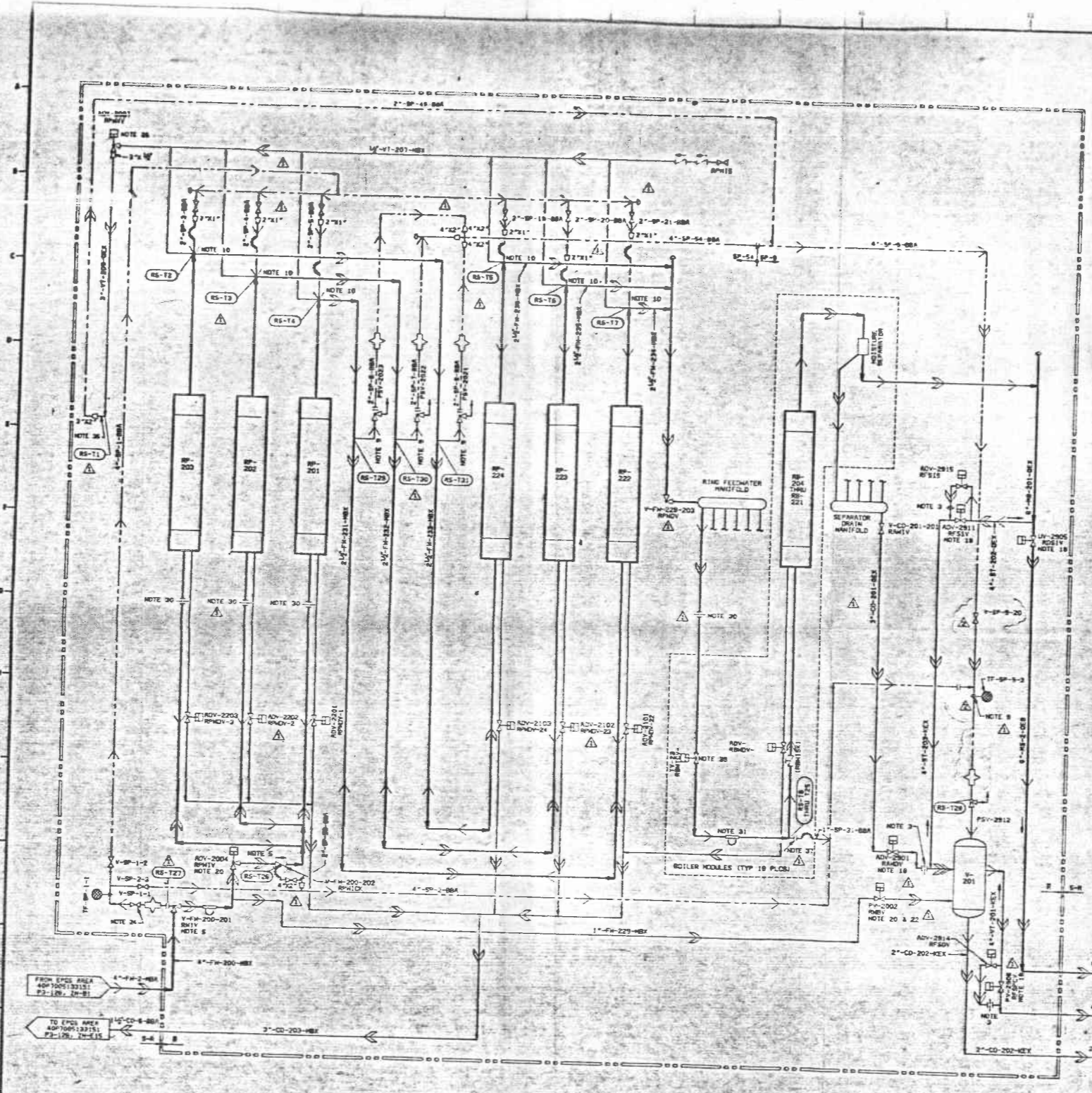
VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
N/A	P3-12B	E-13	LV-74D-1 Downstream Block	C		
N/A	P3-12B	E-13	LV-74D-2 Upstream Block	O		
N/A	P3-12B	E-13	LV-74D-2 Downstream Block	C		
V-CO-15-307	P3-12C	H-7	TFWIS	C		
PV-640	P3-12B	B-4	TSS Flash Tank Pressure Control	O		
N/A	P3-12B	A-5	PV-647C Downstream Block	O		
PV-647C	P3-12B	A-4	TSS Flash Tank Pressure Control	O		
LV-74B	P3-12B	B-6	TSS Flash Tank Level Control	O		
N/A	P3-12C	I-6	DR-14 Block	C		
N/A	P3-12C	I-5	PV-1005 Upstream Block	C		
N/A	P3-12C	I-5	PV-1005 By-Pass	C		
TSSWIS-1	P3-12C	I-10	AS-303 Block	C		
TSSWIS-2	P3-12C	I-13	AS-304 Block	C		
AOV-3707	P3-12C	I-10	TSSWV-1	C		
AOV-3807	P3-12C	I-13	TSSWV-2	C		

O = Open C = Closed T = Throttled L0 = Locked Open LC = Locked Closed

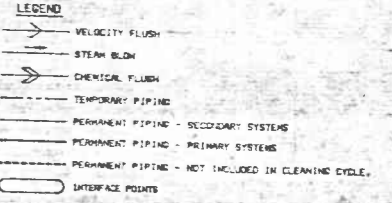
INITIAL STATUS - VALVE LINEUP TEST FOR TEST PROCEDURE STEP 8.1.1.1 (Continue)

VALVE TAG NO.	INFO ONLY DRAWING NUMBER	INFO ONLY COORD	DESCRIPTION	POSITION	INITIAL	DATE
LV-3505	P3-12C	L-6	TPWCV-1	C		
LV-3605	P3-12C	L-15	TPWCV-2	C		
N/A	P3-12B	K-4	CCS-375 Block	C		
MOV-1132	P3-12B	J-4	TS Feedwater Pump Discharge Block	C		
AOV-3708	P3-12C	L-9	Boiler E-305 Drain	C		
AOV-3808	P3-12C	L-12	Boiler E-306 Drain	C		
AOV-3717	P3-12C	I-10	TSSOV-1	0		
AOV-3817	P3-12C	I-12	TSSOV-2	0		
N/A	P3-12B	D-12	MSS-558 Block	C		
N/A	P3-12B	D-12	MSS-506 Block	C		
AOV-3218	P3-12C	F-11	THSWV-1	C		
AOV-3318	P3-12C	F-13	THSWV-2	C		

0 = Open C - Closed T - Throttled L0 - Locked Open LC - Locked Closed



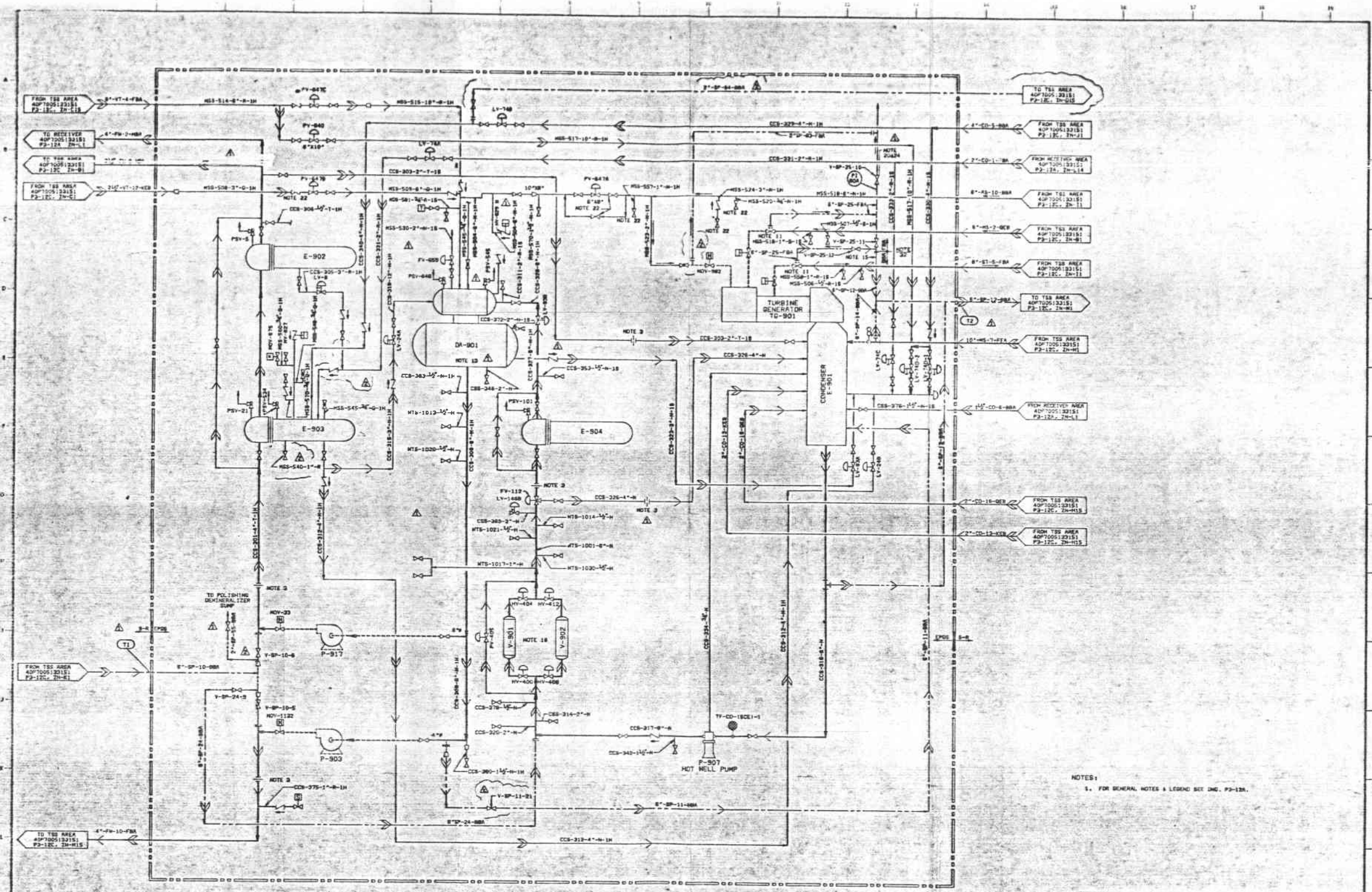
- NOTES**
1. ALL TEMPORARY PIPING AND FITTINGS TO REMAIN WITH THE MATERIAL SPECIFICATIONS INDICATED OR ACCORDANCE WITH 2-9 SPECIFICATIONS 201, 2-1.
 2. ALL TEMPORARY PIPING 2" AND SMALLER TO BE FIELD BLENDED TO POINTS INDICATED ON PS-120 AND PS-121. ALL TEMPORARY PIPING ON PS-120 TO BE FIELD BLENDED IN THE DIRECTION OF THE CONSTRUCTION MANAGER.
 3. REMOVE DRIFTS AND PROVIDE TEMPORARY SPACERS.
 4. REMOVE VALVE INTERNALS AND PROVIDE FLANGE COVERS.
 5. REMOVE VALVE INTERNALS AND FABRICATE CONNECTION.
 6. ALL LOW POINTS OF TEMPORARY PIPING TO BE PROVIDED WITH 2-1/4" DRAIN CONNECTION WITH VALVE.
 7. VALVE TO BE CLOSED DURING VELOCITY FLUSH AND STEAM BLOWS.
 8. REMOVE DEPRESSUREMETER INTERNALS IF POSSIBLE.
 9. FABRICATE CONNECTIONS, SAFETY VALVE BOOTLES TO BE INSTALLED PRIOR TO THE FLUSHING SEQUENCE IN ACCORDANCE WITH THE PHYSICAL CONSTRUCTION DRAWINGS. REMOVE THE UNWISSED AND UNTESTED FABRICATED AND WELDING PLATE AND SEAL TO HALF OF SIX SAFETY VALVE DISCHARGE FLANGES AND INSTALL TEMPORARY PIPING.
 10. TEMPORARY PIPE TO BE CONNECTED TO 1" INSPECTION PORTS.
 11. REMOVE VALVE INTERNALS, INSTALL SEAT & BLANKING FIXTURES AND STEAM BLOWDOWN CONNECTION FLANGES PROVIDED BY TURBINE MANUFACTURER.
 12. REMOVE INTERNALS OF DEGRADATION PRIOR TO VELOCITY AND CHEMICAL FLUSHES. CLEAN INTERNALS AND RE-INSTALL FOLLOWING PASSIVATION FLUSH.
 13. THE CONDENSATE SYSTEM TO BE FLUSHED SEPARATELY USING HOTWELL PUMP.
 14. THE FLUSHING SEQUENCE SHALL BE AS FOLLOWS:
 - A. VELOCITY FLUSH FEEDWATER TRENDS AND RECEIVERS.
 - B. VELOCITY FLUSH PREHEAT MODULES (BADA FLUSH).
 - C. VELOCITY FLUSH BOILER MODULES.
 - D. ALKALINE FLUSH FEEDWATER, RECEIVERS, THE BOILERS AND STEAM LINES.
 - E. CHEMICAL FLUSH OF FEEDWATER, RECEIVERS, THE BOILERS AND STEAM LINES.
 - F. RESTORATION OF PIPING ASSOCIATED WITH FLUSHING.
 15. REMOVE ALL TEMPORARY PIPING AND INSTALL THE FURNISHED HYDRO PUMP ASSEMBLIES IN THE SAFETY VALVE BOOTLES IN PREPARATION FOR HYDROSTATIC TEST AND RE-INSTALL PERMANENT PIPE.
 16. PIPING SHALL BE STEAM BLOWN IN THE FOLLOWING SEQUENCE:
 - A. MAIN STEAM TO TURBINE.
 - B. BLOW STEAM FROM MAIN STEAM.
 - C. ADMISSION STEAM.
 - D. BLOW STEAM FROM ADMISSION STEAM.
 - E. CHANGING STEAM.
 - F. HYDROSTATIC TEST RECEIVER, THE BOILERS AND STEAM LINES.
 17. INSTALL FBA PIPING FOR STEAM BLOW DOWN AFTER CHEMICAL FLUSH.
 18. DO NOT INSTALL INTERNALS UNTIL AFTER FLUSH AND STEAM BLOWS ARE COMPLETE.
 19. PROVIDE TEMPORARY PSV TO PROTECT AGAINST OVERPRESSURE DURING STEAM BLOW DOWN.
 20. VALVE TO BE CLOSED DURING VELOCITY FLUSH.
 21. PROVIDE TEMPORARY CLOSURE TO BE REMOVED AFTER VELOCITY FLUSH.
 22. VALVE TO REMAIN CLOSED DURING STEAM BLOWS.
 23. REMOVE DRIFTS AND PROVIDE TEMPORARY SPACERS FOR CHEMICAL FLUSH AND BLANKING PLATE FOR VELOCITY FLUSH AND STEAM BLOW.
 24. VALVE TO REMAIN CLOSED DURING CHEMICAL FLUSH.
 25. REMOVE DRIFTS AND PROVIDE BLANKING PLATE DURING VELOCITY AND CHEMICAL FLUSH.
 26. VALVE TO BE USED AS A SYSTEM VENT AND ONLY OPEN FOR FINAL RINSE.
 27. RECONNECT FOLLOWING VELOCITY FLUSH, DISCONNECT AND REINSTALL WELD CAP BEFORE STEAM BLOW AND RECONNECT FOLLOWING STEAM BLOW.
 28. REMOVE BLIND FLANGES AND RECONNECT LINES PRIOR TO CHEMICAL FLUSH.
 29. INSTALL SP-50 AFTER COMPLETION OF FLUSHES AND STEAM BLOWS.
 30. REMOVE FLOW METER ELEMENTS BEFORE INSULATION AND INSTALL CAP. RE-INSTALL AFTER FLUSHES.
 31. AFTER VELOCITY FLUSH, REMOVE FILTER ELEMENTS AND CLEAN IN SONIC CLEANER.
 32. REMOVE SP-12 AND INSTALL BLIND FLANGE PRIOR TO STEAM BLOW.
 33. REMOVE FLOW METER INTERNALS AND PROVIDE FLANGE COVER OR PLUG.
 34. INSTALL BLIND FLANGE DURING CHEMICAL FLUSH.
 35. INSTALL SUPERHEATER BY-PASS LINES AND BLIND OFF SUPERHEATER INLET AND OUTLET FLANGES FOR VELOCITY FLUSH AND STEAM BLOW. BY-PASS MUST BE REMOVED AND PERMANENT PIPING INSTALLED FOR CHEMICAL FLUSH.
 36. CUT VT-208 AT APPROXIMATELY ELEVATION 230' AND MAKE CONNECTION.
 37. SP-31 THRU SP-48 TO BE REMOVED AND WELD CAPS TO BE INSTALLED PRIOR TO FLUSHING THROUGH BOILER MODULES.
 38. BLIND OFF BOILER OUTLET DURING VELOCITY FLUSH AND STEAM BLOW.
 39. REMOVE VALVE SEAT ONLY.
 40. INSTALL BLINDS DURING BLIND STEAM LINE STEAM BLOWS.
 41. FINAL WELD TO TRAPS AND LEVEL CONTROL VALVES AT BOOTLES TO BE MADE AFTER STEAM BLOWS.
 42. AFTER COMPLETION OF ALL FLUSHES, STEAM BLOWS AND HYDROSTATIC TESTS, INSTALL ALL SAFETY VALVE SUPERSTRUCTURES UNDER THE SUPERVISION OF THE VALVE MANUFACTURER REPRESENTATIVE.
 43. REMOVE CHECK VALVE INTERNALS PRIOR TO ALL FLUSHES.



REVISIONS		REFERENCE DRAWINGS		PRINT RECORD	
NO.	DATE	BY	CHKD.	NO.	DATE
1	11/18/95	DLN	DLN	1	11/18/95
2	11/21/95	DLN	DLN	2	11/21/95

DEPARTMENT OF ENERGY
 SOLAR TEN MEGAWATT PROJECT OFFICE
 SAN FRANCISCO OPERATIONS OFFICE
 9230 FLAVIA DRIVE, SUITE 210
 MONTE CALIFORNIA, CA 94521

(P3-12A)



NOTES:
 1. FOR GENERAL NOTES & LEGEND SEE Dwg. P3-12A.

REVISIONS		REFERENCE DRAWINGS		PRINT RECORD	
1	APPROVED FOR CONSTRUCTION				
2	REVISED FROM NOTES 2024A, 2024B TO CSP-32A				
3	REVISED FROM CSP-32A TO CSP-32B				

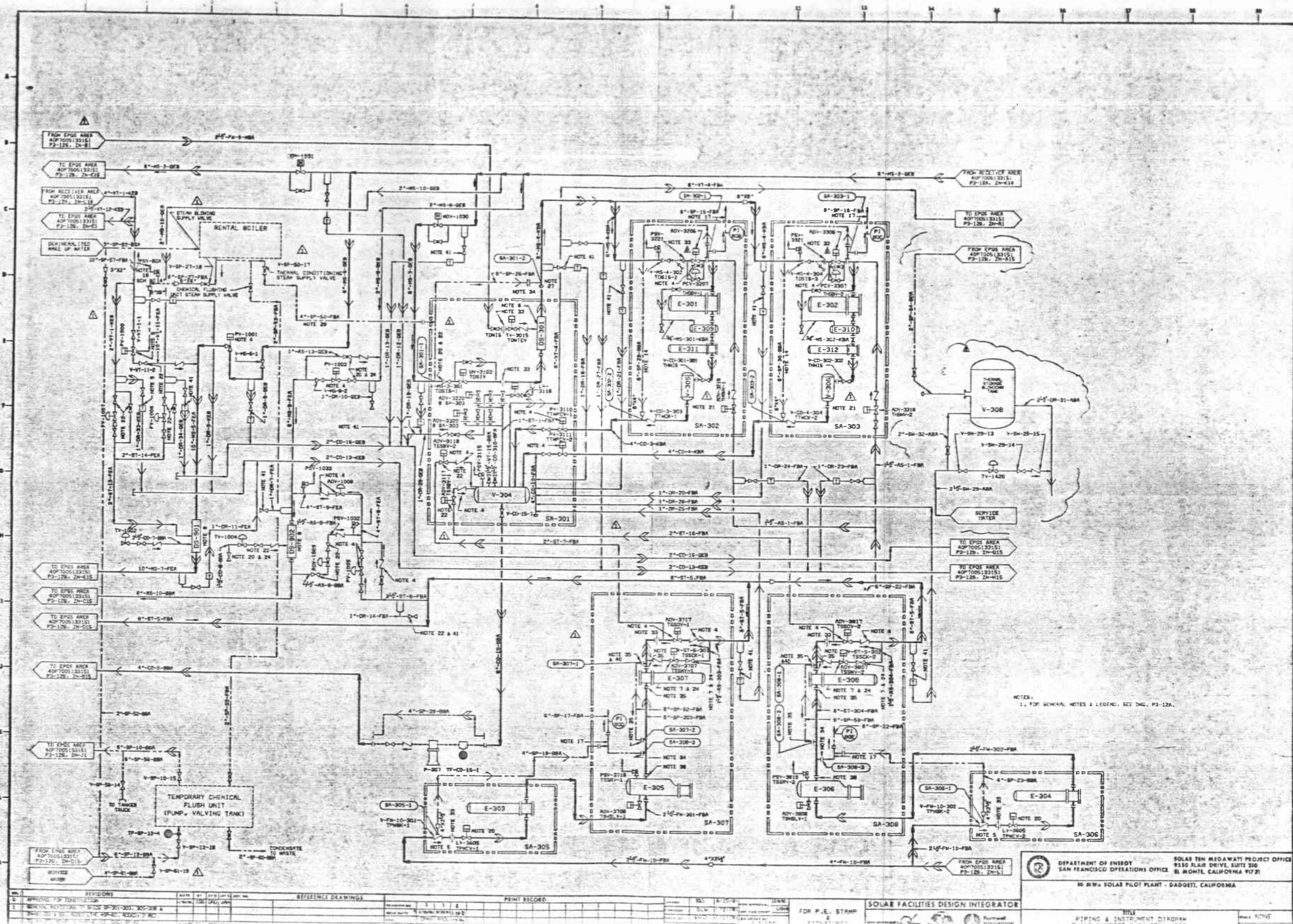
NO.	DATE	BY	CHKD.	APP.	REVISION
1	11/14/88	J. W. H.	J. W. H.	J. W. H.	ISSUED FOR CONSTRUCTION
2	11/14/88	J. W. H.	J. W. H.	J. W. H.	REVISED FROM CSP-32A TO CSP-32B

FOR P.E. STAMP AND SIGNATURE
 SEE P. 12A

DEPARTMENT OF ENERGY
 SAN FRANCISCO OPERATIONS OFFICE
 30 MW SOLAR PILOT PLANT - DAGGETT, CALIFORNIA

SOLAR FACILITIES DESIGN INTEGRATOR
 TITLE: P&ID AND INSTRUMENT DIAGRAM PLANT SUPPORT
 DRAWING NO.: P3-12B

(P3-12B)



NOTES:
 1. FOR GENERAL NOTES & LEGEND, SEE DWG. P3-12A.

NO.	REVISIONS	DATE	BY	CHKD.	APP'D.	REFERENCE DRAWINGS	PRINT RECORDED	FOR P.E. STAMP	SOLAR FACILITIES DESIGN INTEGRATOR	DEPARTMENT OF ENERGY SAN FRANCISCO OPERATIONS OFFICE 8150 FLAIR DRIVE, SUITE 300 EMERYVILLE, CALIFORNIA 94608	SOLAR THERMAL PILOT PLANT - SADDLE VALLEY, CALIFORNIA
1	INITIAL REVISION										
2	REVISION										

(P3-12C)

STMPD-592

AUG 10 1984

John:

Paet

I have a couple of questions on Test Procedure 980 (my ratty markup copy is provided for reference):

1. Several changes, and a couple of insert pages as marked by paper clips, were provided during the tests;
 - a) do you have a clean copy of the changes? Transmittal memo?
 - b) were these changes significant enough we should log them as a "Revision 1" in our files?
2. Was the bottom line on the cover sheet ever signed? (It is not, on any copy I've ever seen.)
3. Was there a transmittal letter for formal submission of T.P. 980 to STMPD? (I've never run across one.)

These questions are mostly to satisfy my curiosity. Not worth much effort. Doug

STMP0-59

AUG 10 1984

John: *Doets*

I have a couple of questions on Test Procedure 980 (my ratty markup copy is provided for reference):

1. Several changes, and a couple of insert pages as marked by paper clips, were provided during the tests;
 - a) do you have a clean copy of the changes? Transmittal memo?
 - b) were these changes significant enough we should log them as a "Revision 1" in our files?
2. Was the bottom line on the cover sheet ever signed? (It is not, on any copy I've ever seen.)
3. Was there a transmittal letter for formal submission of T.P. 980 to STMP0? (I've never run across one.)

These questions are mostly to satisfy my curiosity. Not worth much effort. *Doug*