



Portland General Electric Company

December 14, 1979

Trojan Nuclear Plant  
Docket 50-344  
License NPF-1

Director of Nuclear Reactor Regulation  
ATTN: Mr. A. Schwencer, Chief  
Operating Reactors Branch #1  
Division of Operating Reactors  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Sir:

Attached please find supplemental information (Attachments I and II) concerning the Trojan Nuclear Plant Auxiliary Feedwater (AFW) System, which was requested in your telecopy of December 10, 1979 and pursuant to discussions with members of your staff. The attached information delineates the Trojan design in the area of: (1) Automatic initiation of AFW System, and (2) AFW flow indication to steam generators.

Description of Trojan plant design of the above two areas have been originally provided to the NRC as PGE response to NUREG-0578 on October 17, 1979, and supplemented in our response dated November 26, 1979 to NRC questions (Mr. D. Eisenhut's letter dated October 3, 1979). It is our belief that the attached supplement is sufficiently descriptive to satisfy your requests.

Sincerely,

C. Goodwin, Jr.  
Assistant Vice President  
Thermal Plant Operation and  
Maintenance

CG/KM/mg/4sa9B27  
Attachment

c: Mr. Lynn Frank, Director  
State of Oregon  
Department of Energy

Mr. D. G. Eisenhut  
Division of Operating Reactors  
U. S. Nuclear Regulatory Commission

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D. EISENHUT 1 1

ATTACHMENT I

SUPPLEMENTAL INFORMATION IN RESPONSE  
TO THE NRC REQUEST ON DECEMBER 10, 1979

1. Section 2.1.7.a - Automatic Initiation of the Auxiliary Feedwater (AFW) System

NRC Request:

We require that the licensee provide information that describes how the AFW automatic initiation system design meets each of the control grade functional criteria in NUREG-0578 (2.1.7.a) and the clarifications to NUREG-0578 in the October 30, 1979 NRC (H. Denton) letter to all operating plants. The information should be sufficiently descriptive to permit independent technical review of the information and a conclusion that each of the criteria are met.

To demonstrate conformance with Criteria 1, 2, 5, and 7, specific descriptive information (reference to specific FSAR sections is acceptable) supported by electrical drawings, such as schematic or elementary wiring diagrams, should be submitted.

For power supply Criteria 4 and 6, the licensee should submit a table or a detailed power distribution one-line diagram indicating power supply channels for each component.

To demonstrate testability Criteria 3, the licensee should submit a summary description of the functional test procedures along with the existing or proposed test interval - (eg, Standard Technical Specification surveillance performance for typical engineered safety feature systems).

PGE Response:

Subsequent to the issuance of NUREG-0578 and the NRC letter, dated September 13, 1979, Trojan design had been reviewed and sufficiently descriptive information was submitted to the NRC on October 17, 1979. The information in that submittal provided a description of AFW System design including appropriate reference to the specific Trojan FSAR sections where possible.

Enclosed, in Attachment II, are a summary table of power supply for major components in the auxiliary feedwater system and a copy of associated electrical schematics and logic drawings. The summary table delineates power source, required voltages and the function of components to be powered.

Periodic Operating Tests (POT) procedures have been written which outline in detail the methods and reporting to be used in testing the pumps, valves and their initiating circuits required by the Technical Specifications (see Paragraphs 4.7.1.2.1 and 4.7.1.2.2). The 31-day interval tests are covered in:

POT-5-1 AFW Pump Performance

POT-5-2 AFW Valve Performance and Valve Lineup

The 18-month interval tests are covered in:

POT-5-3 AFW 18-Month System Performance (Auto Start of Pumps)

POT-25-2e Testing of SSPPS Slave Relays to Initiate AFW Auto Start

2. Section 2.1.7.b - Auxiliary Feedwater Flow Indication to Steam Generators

NRC Request:

We require information of the similar nature to that described in 2.1.7.a, above, to demonstrate conformance with the 2.1.7.b criteria and clarifications to NUREG-0578 on October 30, 1979 NRC (H. Denton) letter to all operating plants; namely, single failure, testability, power supply, and indication accuracy.

PGE Response:

The design description of existing auxiliary feedwater (AFW) flow indicators, as well as capabilities of indirect flow indication by steam generator water level and local AFW flow switches were provided in our submittal, dated October 17, 1979.

Pursuant to the telephone conversation between PGE and your staff, by January 1, 1980, the AFW flow instrument channels will be powered from the vital instrument buses through appropriate isolation devices.

With regard to functional test and indication accuracy, flow transmitters and indicating instruments are calibrated every refueling outage to maintain an accuracy of  $\pm 1/2$  percent for the transmitters and  $\pm 2$  percent for the indicators.

The design of the existing cables for the AFW flow indicators satisfies the same requirements as for the other indication devices in accordance with the licensing commitments in the Trojan FSAR. Therefore, by modifying the power supply to the AFW flow instrument channels, it is our belief that the Trojan design satisfies the NRC requirements in NUREG-0578 as well as the NRC letter of clarifications on October 30, 1979.

## ATTACHMENT II

Sheet 1 of 2

## AUXILIARY FEEDWATER SYSTEM POWER SOURCES

Component	Function	Voltage	Source	Schematic Diagram*
<b>A. Steam Turbine-Driven Pump 102A</b>				
1. Trip & Throttle Valve MO-3071	Manual/auto control	125V d-c	Bus D10, BKR 72-1023	E-333
2. Steam Inlet Valve MO-3170	Control & indication	480V a-c	MCC B23, BKR 52-2334	E-326
3. Steam Inlet Valve MO-2218	Control & indication	480V a-c	MCC B23, BKR 52-2304	E-372
Steam Inlet Valve MO-2228	Control & indication	480V a-c	MCC B21, BKR 52-2139	
Steam Inlet Valve MO-2238	Control & indication	480V a-c	MCC B23, BKR 52-2314	
Steam Inlet Valve MO-2248	Control & indication	480V a-c	MCC B21, BKR 52-2143	
4. S. G. Flow Control Valves CV-3004A1, B1, C1 & D1	Remote controllers	120V a-c	Pref. Instr. Bus Y11, BKR 14	E-637
	Local controllers & MOVs	120V a-c	Pref. Instr. Bus Y11, BKR 12	
5. Auto Start & S. G. Blowdown Isolation (Channel A)		120V a-c	Pref. Instr. Bus Y11, BKR 11	E-373
6. Pressure Loop Instruments PY3083A1 & A2; PDC3083A Power Supplies JQ1909A1 & PQ514 PDY3083A, POK3083A	Remote speed control	120V a-c	Pref. Instr. Bus Y11, BKR 11	E-1722
		120V a-c	Pref. Instr. Bus Y11, BKR 12	
	Local Speed Control	120V a-c	Pref. Instr. Bus Y11, BKR 12	
7. Service Water System AFW Pump Suction Valve M03045A	Control & indication	480V a-c	MCC B25, BKR 52-2533	E-381

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ATTACHMENT II

Sheet 2 of 2

AUXILIARY FEEDWATER SYSTEM POWER SOURCES

<u>Component</u>	<u>Function</u>	<u>Voltage</u>	<u>Source</u>	<u>Schematic Diagram*</u>
<b>B. Diesel-Driven Pump 102B</b>				
1. Diesel	Start & control	24V d-c	Battery	M12-36 &
	Battery charger	120V a-c	Pref. Instr. Bus Y22, BKR 12	E-332
	Indication	120V a-c	Pref. Instr. Bus Y22, BKR 12	
2. Auto Start & S. G. Blowdown Isolation (Channel B)		120V a-c	Pref. Instr. Bus Y22, BKR 11	E-373
3. Pressure Loop Instruments PY3083B1 & B2, PDC3083B Power Supplies JQ1909B1 & PQ 545 PDY3083B, PDK3083B	Remote speed control	120V a-c	Pref. Instr. Bus Y22, BKR 11	E-1722
		120V a-c	Pref. Instr. Bus Y22, BKR 12	
	Local speed control	120V a-c	Pref. Instr. Bus Y22, BKR 12	
4. S. G. Flow Control Valves CV-3004A2, B2, C2 & D2	Remote controllers	120V a-c	Pref. Instr. Bus Y22, BKR 18	E-637
	Local controllers	120V a-c	Pref. Instr. Bus Y22, BKR 12	
5. Service Water System AFW Pump Suction Valve MO-3045B	Control & indication	480V a-c	MCC B26, BKR 52-2637	E-381

\* A copy of the schematic diagram is attached for your information.

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