

FGE

July 1, 1980

Trojan Nuclear Plant  
Docket 50-344  
License NPF-1

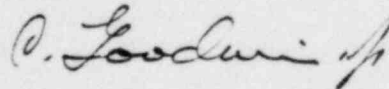
Director of Nuclear Reactor Regulation  
ATTN: Mr. Robert A. Clark, Chief  
Operating Reactors Branch No. 3  
Division of Licensing  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

Dear Sir:

Attached please find a copy of the additional information regarding the Trojan Nuclear Plant Auxiliary Feedwater (AFW) System that was requested in your letter of May 14, 1980. The attachment constitutes PGE's responses to the NRC positions identified in Enclosure 1 of your May 14, 1980 letter.

It should be noted that the information requested in Enclosure 2 of your October 3, 1979 letter (Item D - Basis for AFW System Flow Requirements) had already been provided to the NRC (refer to C. Goodwin's letter to D. G. Eisenhut on November 5, 1980) and this item is closed.

Sincerely,



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

CG/KM/sa/4jcd7A26  
Attachment

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

THIS DOCUMENT CONTAINS  
POOR QUALITY PAGES

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ATTACHMENT 1

PGE Response to the May 14, 1980  
NRC Request for Additional Information  
on the Auxiliary Feedwater System

A. Short-Term Recommendations (GS-2, -4, -5, -6 and -7)

NRC Positions

PGE responses on these items are acceptable to the NRC except the Recommendation GS-7 which is still under the NRC review.

PGE Response

No additional action is required.

B. Additional Short-Term Recommendations

1. NRC Position

The Licensee's response to this recommendation is acceptable. However, the Licensee should verify that one of the condensate storage tank level indications and alarms will be powered from a battery-backed bus.

PGE Response

The redundant CST level instrumentation and alarm switches, discussed in PGE Response of December 31, 1979, are all powered from an instrument bus which is energized from a battery. The CST level indication system with a low-low level alarm will be in service by the startup of Cycle 3.

2. NRC Position

The Licensee indicates that the AFW pump/driver vender strongly discourages performance of an endurance test. It is our position that you perform an endurance test for each AFW pump prior to startup of Cycle 3 in accordance with the attached revised Additional Short-Term Recommendation 2. Note that the test requirement has been reduced from 72 hr. to 48 hr. The Licensee should commit to follow the provisions of the revised AFW pump endurance test requirements and submit the requested test information.

PGE Response

An endurance test has been conducted on both turbine-driven and diesel-driven AFW pumps prior to startup of Cycle 3 in accordance with the enclosure to the May 14, 1980 NRC letter, "Revised Short Term Recommendation 2". Conditions and results of the endurance test are presently being evaluated. A summary of the test results will be available for submittal to the NRC no later than July 25, 1980.

3. NRC Position

The Licensee's response to this recommendation is currently being evaluated by the Lessons Learned Implementation Task Force.

PGE Response

No action is required.

4. NRC Position

The Licensee's response to this recommendation is acceptable.

PGE Response

No action is required.

C. Long-Term Recommendations

1. NRC Position - Recommendation GL-2

The Licensee's response to this recommendation is acceptable (see Recommendation GL-4).

PGE Response

No additional action is required (refer to Recommendation GL-4 for additional information).

2. NRC Position - Recommendation GL-3

The Licensee's response to this recommendation is not complete. The Licensee should provide a description including the appropriate drawings of the modifications to be performed to ensure that the turbine-driven AFW pump, its associated systems and flow path will automatically provide adequate AFW flow for at least 2 hr. during a loss of all a-c power condition.

PGE Response

As described in the PGE response of December 31, 1979, automatic initiation and operation of one AFW pump, flow path and essential instrumentation will be provided independent of any a-c power source for at least 2 hr.

The turbine-driven AFW pump and its associated systems are being modified in two parts to achieve an a-c power independence. First, the cooling water system to the turbine-driven AFW pump, previously supplied from service water booster pumps, has been modified to accomplish a closed system of self-cooling. This modification provides cooling water circulation from the pump third-stage crossover through the lube oil bearing coolers and back to the pump suction (see attached Figures 1 and 2).

The second modification in the turbine-driven AFW system to be completed by the end of 1980 consists of a replacement of steam inlet motor-operated valves to solenoid-operated pneumatic valves in order to achieve a-c independence. The solenoid valves are powered from the preferred a-c power source with a Seismic 1 backup air supply system consisting of accumulator, check valves and associated piping (see attached Figure 3). The pneumatic valve will fail in the open position on loss of preferred a-c power and shall fail "as is" on loss of backup air supply.

3. NRC Position - Recommendation GL-4

The Licensee's response to this recommendation is acceptable; however, the Licensee should verify that the low suction pressure trips for the AFW pumps will be safety grade.

PGE Response

The instrument and control systems for the low suction pressure trips of the AFW pumps are safety grade (Class 1E) and are designed to withstand the design seismic event. Each AFW pump has its own channelized low suction pressure trip instrument loop.

4. NRC Position - Recommendation GL-5

See Recommendation GS-7 above.

PGE Response

No action required.

5. NRC Position - Addition of Motor-Driven AFW Pump

The Licensee's response to this recommendation is acceptable. However, the Licensee should provide us with copies of the revised AFW system drawings for the additional motor-driven pump.

PGE Response

We are presently modifying the Trojan plant P&ID to reflect design change of additional motor-driven AFW pump. The final revision of the P&ID has not been completed; therefore, for your information, we have attached a copy of the Interim Drawing Change Notice (Figure 4) and a sketch describing the motor-driven pump (Figure 5).

6. NRC Position - AFW System Pipe Break

The Licensee's response to this recommendation is not acceptable. It is our position that adequate protection be provided for the diesel-driven AFW pump for postulated rupture of the turbine-driven AFW pump discharge piping in the diesel-driven

pump room. In addition, the Licensee should ensure that the new motor-driven AFW pump train is separate from existing AFW pump trains in order to ensure that a break in the AFW system (not associated with the motor-driven pump train) could not affect the motor-driven pump. In lieu of the above, the Licensee can describe the means for achieving a safe shutdown condition by use of other available systems following such a postulated event.

PGE Response

We are continuing our evaluation on this subject. Our response will be provided to the NRC by July 25, 1980.

D. NRC Position - Basis for AFW System Flow Requirements

The Licensee indicates that a response to Enclosure 2 of our October 3, 1979 letter concerning a request for information on AFW system flow requirements will be provided. The Licensee should provide this information as soon as possible.

PGE Response

The PGE response to Enclosure 2 of the NRC letter of October 3, 1979 regarding AFW system flow requirements has been already submitted to the NRC (refer to C. Goodwin's letter to D. G. Eisenhut on February 5, 1980). Thus, this item is closed.



FIG-I

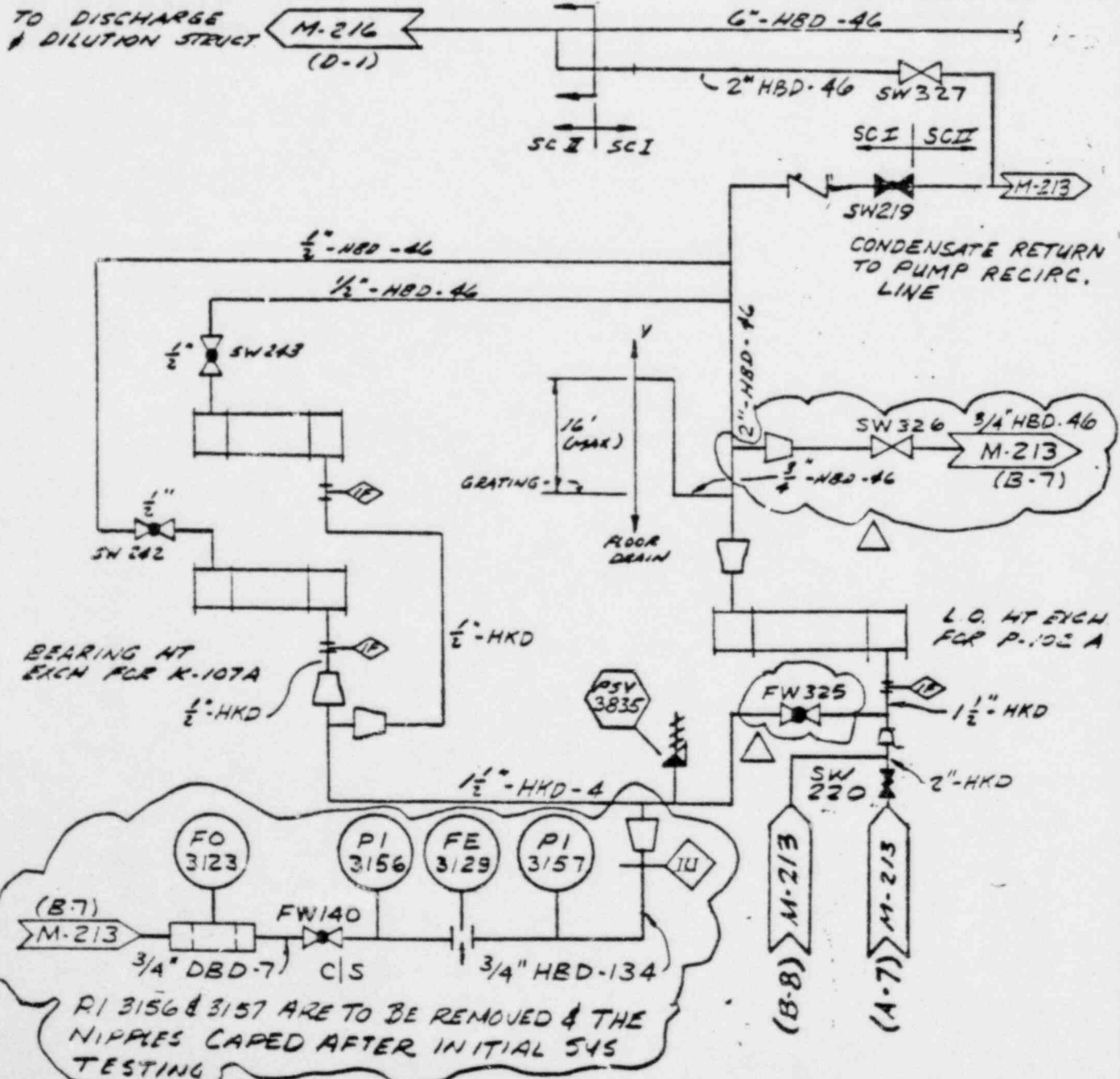
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 FOR CONSTRUCTION  
*Shah* 10-30-79  
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INTERIM  
 DRAWING CHANGE  
 NOTICE

JOB NO.	DRAWING NO.	REV.
6478	M-218	X
IDCN NO. 9	PAGE 1 OF 1	
DATE 9-11-79 BY MRN		
ACTION ENGINEER <i>L E Dwyer</i>		
APPROVAL <i>[Signature]</i>		

REASON FOR CHANGE WRITTEN AGAINST REV. 17 FOR RDC 78-020(M)



GEP 200-17, ATTACH. A, REV. 0

COORD. G.H-7.8

FIG. 2

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FOR CONSTRUCTION

*Shelton* 10-2-79  
SIGNATURE DATE



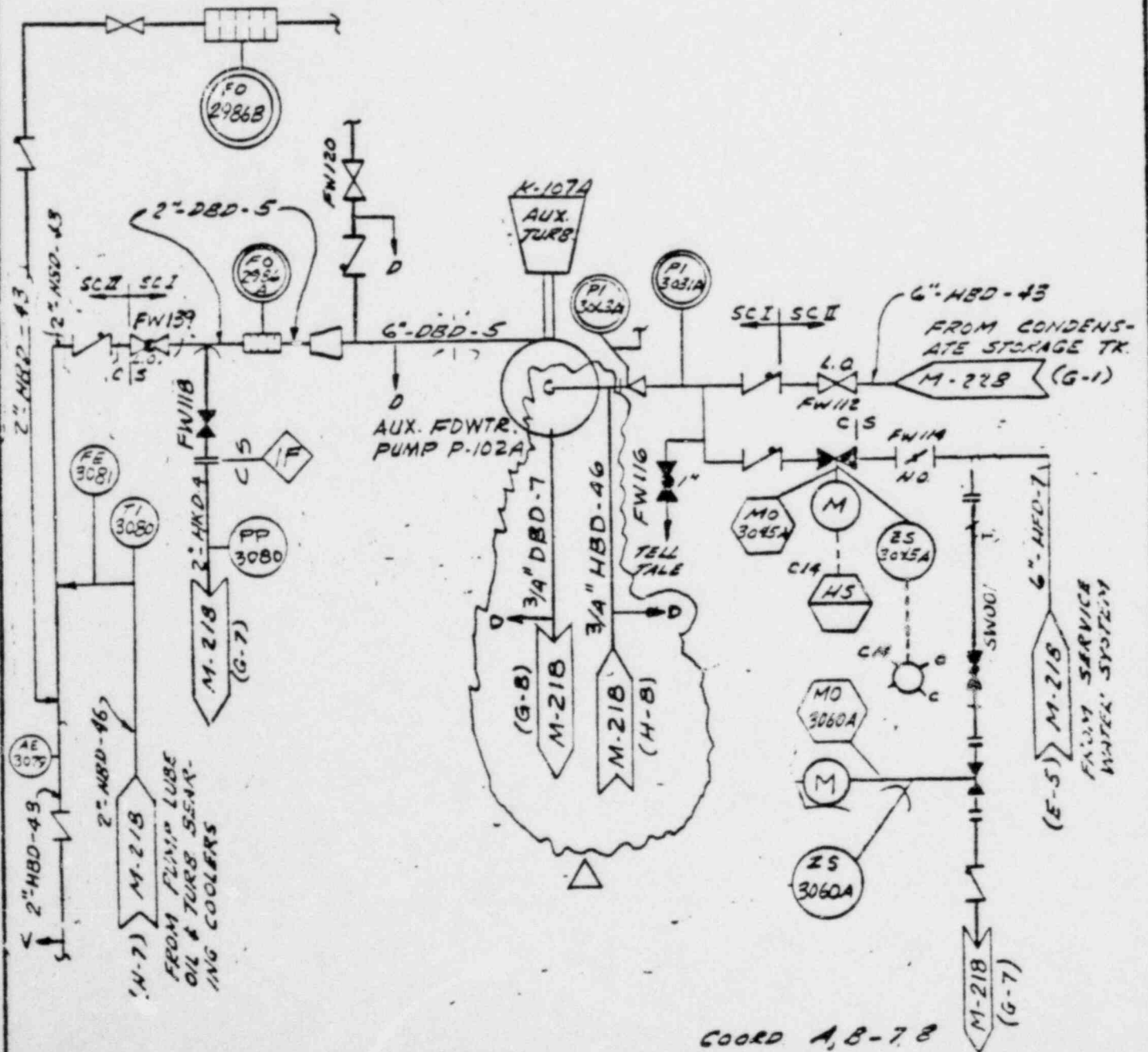
PORTLAND  
GENERAL  
ELECTRIC  
COMPANY

INTERIM  
DRAWING CHANGE  
NOTICE

JOB NO.	DRAWING NO.	REV.
6478	M-213	X
IDCN NO.	PAGE 1 OF 1	
DATE	BY	
9-11-79	MRN	
ACTION ENGINEER	<i>J. E. Dody</i>	
APPROVAL	<i>[Signature]</i>	

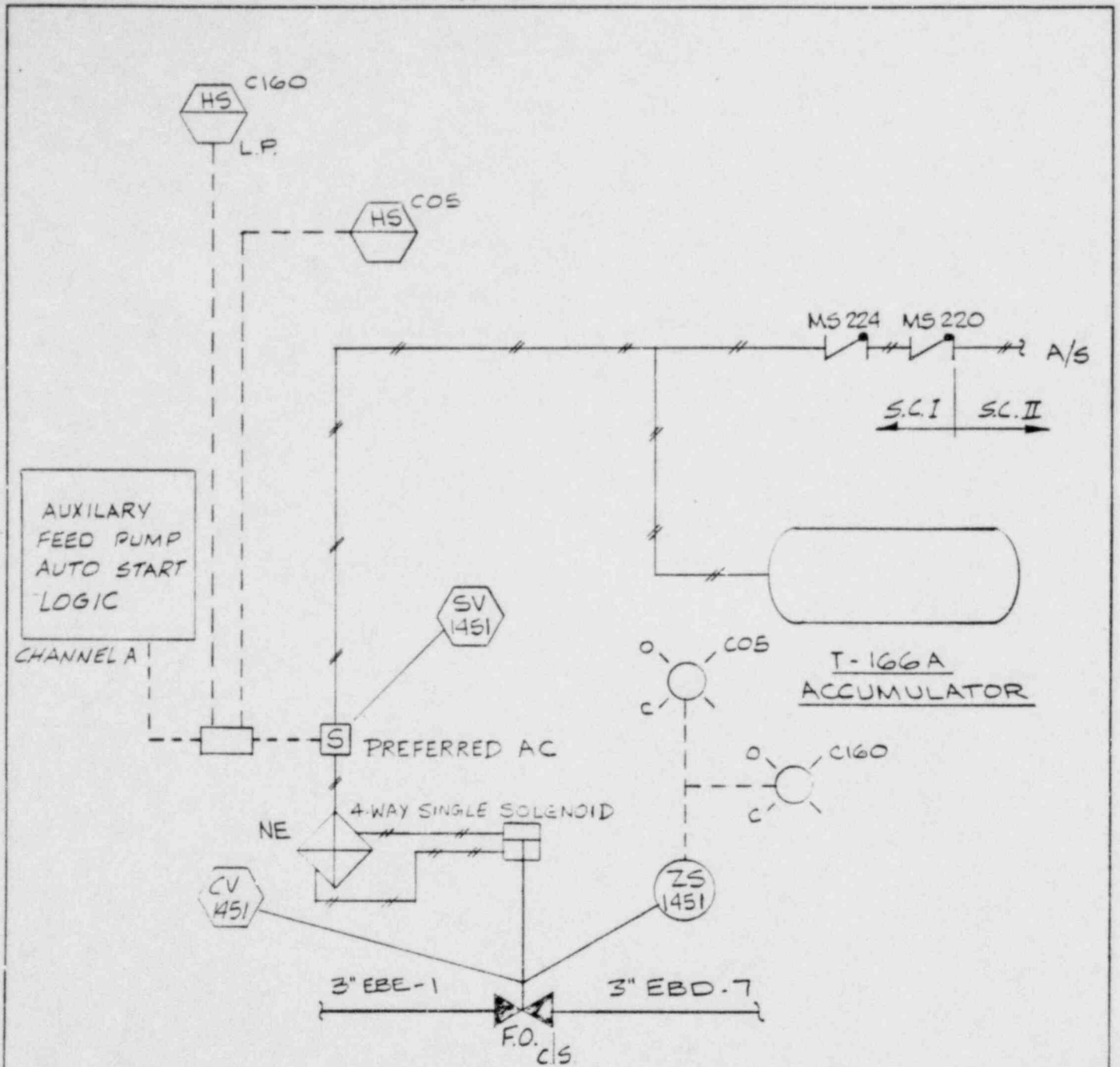
REASON FOR CHANGE: WRITTEN AGAINST REV. 18 FOR RDC 78-020(M)

GEP 200-17, ATTACH. A, REV. 0



COORD A, B-7 B

FIG. 3



THE ABOVE CONFIGURATION IS TYPICAL FOR EACH 3-INCH AFW TURBINE STEAM ADMISSION VALVE. A HANDWHEEL WILL BE PROVIDED FOR MANUAL OPERATION.

NO.		DATE		REVISIONS				BY	CHK.	ENGR.	APPR.
SCALE		DESIGNER		DRAWN BY: GEP				CHIEF ENGR.			
FGE								JOB NO. 6478		DRAWING NUMBER	
								FIG. 3		REV. 0	



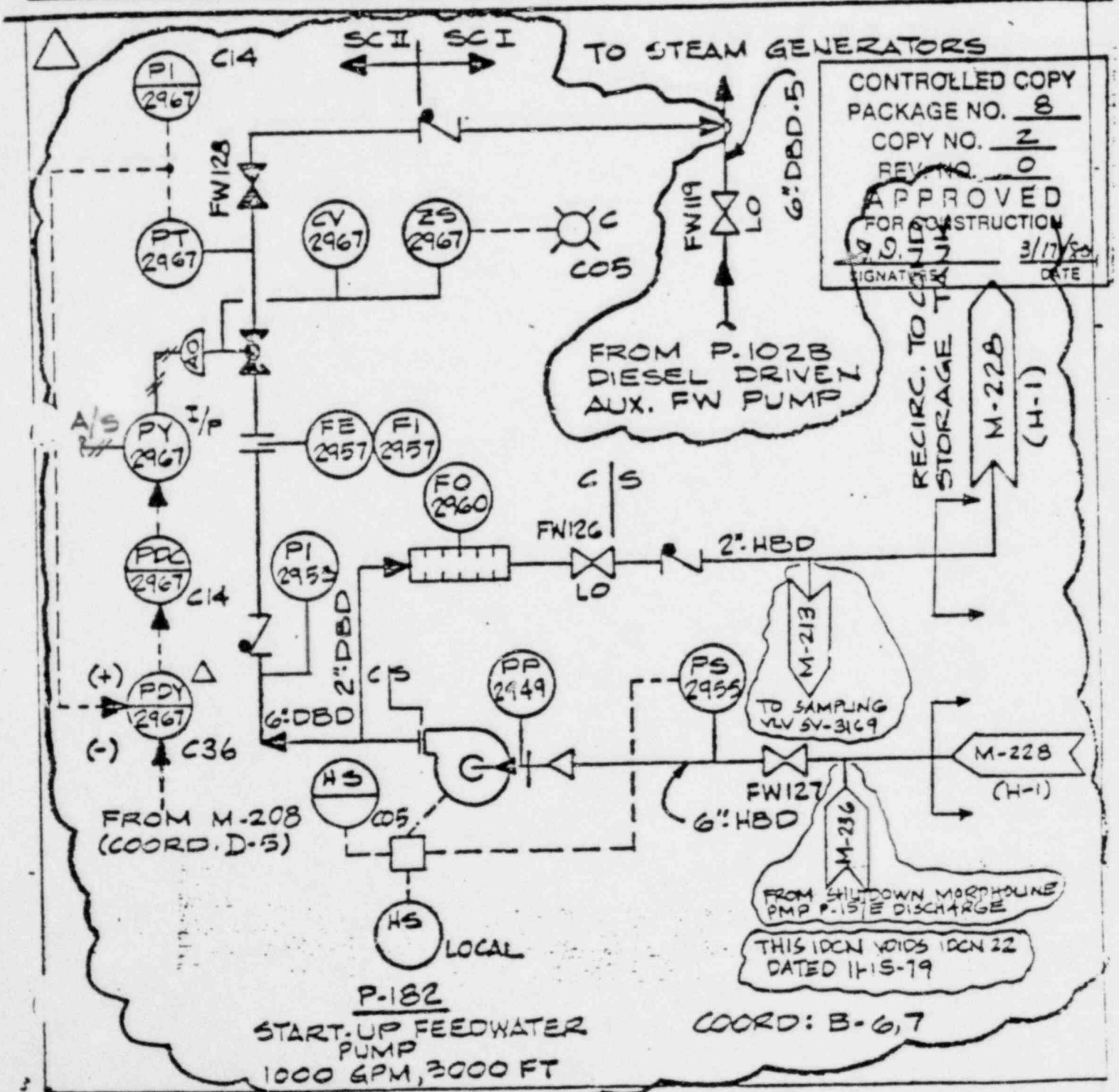
FIG. 4  
**INTERIM  
DRAWING CHANGE  
NOTICE**

WCHTEL

INDUSTRIAL DIVISION

DCN NO	DRAWING NO	REV NO
6478	M-213	X
DCN NO 25 Page 1 of 1 Pgs.		
DATE 2/11/83 BY: [Signature]		
APPROVAL: [Signature]		

Reason for change: WRITTEN AGAINST REV. 18 FOR RDC-77-139(M) TO ADD START-UP FEEDWATER PUMP SYSTEM PER (P-9943)

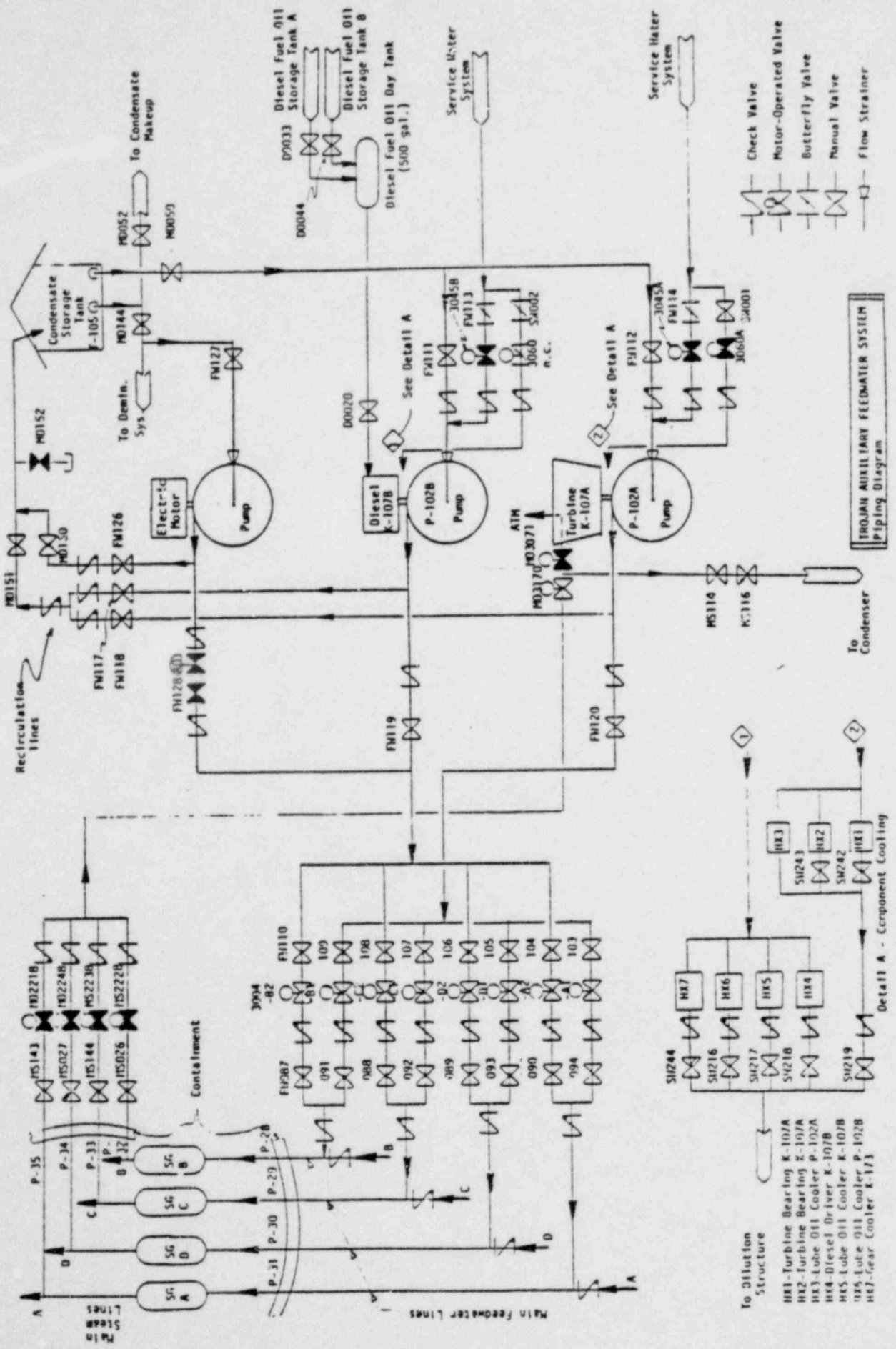


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**P-182**  
**START-UP FEEDWATER**  
**PUMP**  
**1000 GPM, 3000 FT**

COORD: B-6,7

T-4.5



TROJAN AUXILIARY FEEDWATER SYSTEM Piping Diagram