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May 14, 1986
JAFP-86-0437

U.S. Nuclear Regulatory Commission
Region I
631 Park Avenue
King of Prussia, PA 19406

ATTENTION: DR. THOMAS E. MURLEY, REGIONAL ADMINISTRATOR

SUBJECT: RESPONSE TO NRC BULLETIN (IEB) NO. 85-03
"MOTOR OPERATED VALVE COMMON MODE FAILURES DURING PLANT TRANSIENTS DUE TO IMPROPER SWITCH SETTINGS"

Attachments:
A) Basis for Selection of Motor-Operated Valves For IEB No. 85-03
B) Design Basis Differential Pressure Requirements
C) IEB No. 85-03 Activities to Date and Schedules
D) Reactor Core Isolation Cooling FIG-OP-19-1
E) High Pressure Coolant Injection FIG-OP-15-1

Dear Dr. Murley:

The purpose of this letter is to provide the Authority's response to IE Bulletin 85-03 for the FitzPatrick plant. The Authority has identified the valves within the scope of the Bulletin and completed the design review requested in action item (a). As a result of this review, no valves have been identified with design differential pressures lower than the differential pressures anticipated in actual service.

The Authority is actively participating in the Owners Group effort to develop generic operating differential pressures for valves within the scope of this Bulletin. This work is scheduled to be completed by September, 1986. The Authority will review its response in light of these results and revise it if necessary.

The action items (b), (c) and (d) will be completed by the end of the refueling outage scheduled for January, 1987.

The detailed response to all the action items of the Bulletin are provided in Attachments A,B, and C of this letter.

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Attachment A contains the bases for the selection of the motor-operated valves within the High Pressure Coolant Injection (HPCI) and Reactor Core Isolation Cooling (RCIC) systems which are included under the scope of the subject bulletin.

Attachment B provides the design basis for the operation of each of the valves identified in Attachment A.

Attachment C provides a description of the activities undertaken to date by the Authority to develop a program to accomplish Items (b) through (d) under "Actions for All Holders of Operating Licenses or Construction Permits" of the subject bulletin. Also included in this attachment is a schedule for completion of these items.

Attachments D and E are applicable system drawings.

R. Converse

RADFORD J. CONVERSE
RESIDENT MANAGER

RJC:mac
cc: W. Fernandez
V. Walz
NRC Resident Inspector
DCC
RMS-WPO Distribution

ATTACHMENT A

Basis For Selection of Motor-Operated Valves For IEB No. 85-03

This attachment contains the basis for the selection of the motor-operated valves within the HPCI and RCIC systems which are included within the scope of the subject bulletin. The specific guidelines from the subject bulletin follow:

> For motor-operated valves in the high pressure coolant injection/core spray and emergency feedwater systems (RCIC for BWRs) that are required to be tested for operational readiness in accordance with 10 CFR 50.55a(g), develop and implement a program to ensure that valve operator switches are selected, set and maintained properly. This should include the following components:
>
> a. Review and document the design basis for the operation of each valve. This documentation should include the maximum differential pressure expected during both opening and closing the valve for both normal and abnormal events to the extent that these valve operations and events are included in the existing, approved design basis, (i.e., the design basis documented in pertinent licensee submittals such as FSAR analyses and fully-operating and emergency procedures, etc). When determining the maximum differential pressure, those single equipment failures and inadvertent equipment operations (such as inadvertent valve closures or openings) that are within the plant design basis should be assumed.

The In Service Test (IST) program submitted to the Commission for the second ten-year interval in November of 1985 (JPN 85-82) included eleven valves in the HPCI system and only the containment isolation valves associated with the RCIC system. This limitation of RCIC valves was earlier approved by the NRC First Interval Safety Evaluation of Request for Relief from Inservice Testing Requirements dated 12/5/83. For the purpose of this bulletin, the Authority has included those RCIC valves which provide functions comparable to HPCI valves which are within the scope of the bulletin.

13-MOV-130 and 23-MOV-59 have been excluded from the requirements of this bulletin. These normally open motor operated valves in the turbine exhaust vacuum breaker lines are in series with redundant check valves. The requirement to shut these normally open motor-operated valves would indicate multiple check valve failure, a situation which is outside the JAF design basis.

Table 1 summarizes the high pressure injection system valves in the IST program (and comparable RCIC valves) and the basis for exclusion for those valves assessed to be outside the scope of the bulletin.

ATTACHMENT A

TABLE 1

HPCI and RCIC Valves Evaluated for Inclusion Within the Scope Of IEB No. 85-03

JAF ID	DESCRIPTION	COMMENT
RCIC System		
13 MOV 131	Turbine Steam Inlet	
13 MOV 15	Containment Inboard Steam Supply	
13 MOV 16	Containment Outboard Steam Supply	
13 MOV 18	Pump Suction From CST	
13 MOV 20	Pump Discharge Outboard Isolation	
13 MOV 21	Pump Inboard Discharge to Reactor	
13 MOV 27	Minimum Flow To Suppression Pool	
13 MOV 39	Pump Suction From Suppression Pool	
13 MOV 41	Pump Suction From Suppression Pool	
13 MOV 130*	Exhaust Vacuum Breaker Isolation	Outside Design Basis
13 MOV 132	Cooling Water Isolation	
HPCI System		
23 MOV 14	Turbine Steam Inlet	
23 MOV 15	Containment Inboard Steam Supply	
23 MOV 16	Containment Outboard Steam Supply	
23 MOV 17	Pump Suction From CST	
23 MOV 19	Pump Inboard Discharge To Reactor	
23 MOV 20	Pump Discharge Outboard Isolation	
23 MOV 25	Minimum Flow To Suppression Pool	
23 MOV 57	Pump Suction From Suppression Pool	
23 MOV 58	Pump Suction From Suppression Pool	
23 MOV 59*	Exhaust Vacuum Breaker Isolation	Outside Design Basis
23 MOV 60	Outboard Steam Supply Bypass	

* Valves determined to be outside the scope of the subject bulletin.

ATTACHMENT B

DESIGN BASIS DIFFERENTIAL PRESSURE REQUIREMENTS

This attachment contains the design basis differential pressures for the valves identified in Attachment A.

The differential pressure data given represents design values used for original valve and operator purchase specifications. Some of these values exceeded the design specification values provided by the NSSS vendor for the RCIC and HPCI systems. Differences between the purchase specification and NSSS design pressures are identified in notes to the table.

The Authority reviewed the Bulletin and identified the valves within its scope. The design values for the valve differential pressures as shown in Table 1 are greater than the anticipated valve differential pressures in actual service. The Authority is actively participating in the Owners Group effort to develop the generic operating differential pressures for valves within the scope of this Bulletin. This work is scheduled to be completed by September, 1986. The Authority will review its response in light of these results and revise it if necessary.

ATTACHMENT B

TABLE 1

DESIGN BASIS DIFFERENTIAL PRESSURES

JAF ID	DESCRIPTION	NORMAL POSITION	DESIGN DIFFERENTIAL PRESSURES OPEN PSID	SHUT PSID
RCIC System				
13 MOV-15	Containment Inboard Steam Supply	OPEN	1250(2)	1250(2)
13 MOV-16	Containment Outboard Steam Supply	OPEN	1250(2)	1250(2)
13 MOV-18	Pump Suction From CST	OPEN	50	50
13 MOV-20	Pump Discharge Outboard Isolation	OPEN	1320(3)	N/A
13 MOV-21	Pump Inboard Discharge to Reactor	CLOSED	1320(3)	1320(3)
13 MOV-27	Minimum Flow to Suppression Pool	CLOSED	1500	1500
13 MOV-39	Pump Suction From Suppression Pool	CLOSED	50	50
13 MOV-41	Pump Suction From Suppression Pool	CLOSED	50	50
13 MOV-131	Turbine Steam Inlet	CLOSED	1250(2)	N/A
13 MOV-132	Cooling Water Isolation	CLOSED	1320(3)	N/A
HPCI System				
23 MOV-14	Turbine Steam Inlet	CLOSED	1250(2)	N/A
23 MOV-15	Containment Inboard Steam Supply	OPEN	1250(2)	1250(2)
23 MOV-16	Containment Outboard Steam Supply	CLOSED	1250(1)	1250(2)
23 MOV-17	Pump Suction From CST	OPEN	50	50
23 MOV-19	Pump Inboard Discharge to Reactor	CLOSED	1320(3)	1320(3)

TABLE 1 (continued)

JAF ID	DESCRIPTION	NORMAL POSITION	DESIGN DIFFERENTIAL PRESSURES OPEN PSID	SHUT PSID
HPCI System				
23 MOV-20	Pump Discharge Outboard Isolation	OPEN	1320(3)	N/A
23 MOV-25	Minimum Flow to Suppression Pool	CLOSED	1500	1500
23 MOV-57	Pump Suction From Suppression Pool	CLOSED	50	50
23 MOV-58	Pump Suction From Suppression Pool	CLOSED	50	50
23 MOV-60	Outboard Steam Supply Bypass	OPEN	1250(2)	1250(2)

(1) Bypass around the outboard steam supply isolation valve results in pressure equalization prior to opening. The HPCI steam supply header is kept warmed and pressurized through the normally open bypass valve 23-MOV-60.

(2) NSSS system specifications require these valves to function against a differential pressure of 1135 psia.

(3) NSSS system specifications require these valves to function against a pump head of 2800 ft. (approximately 1213 psig).

ATTACHMENT C

IEB No. 85-03 Activities to Date and Schedules

This attachment identifies activities undertaken to date to accomplish items (b) through (d) of the bulletin. A schedule for future efforts is also included.

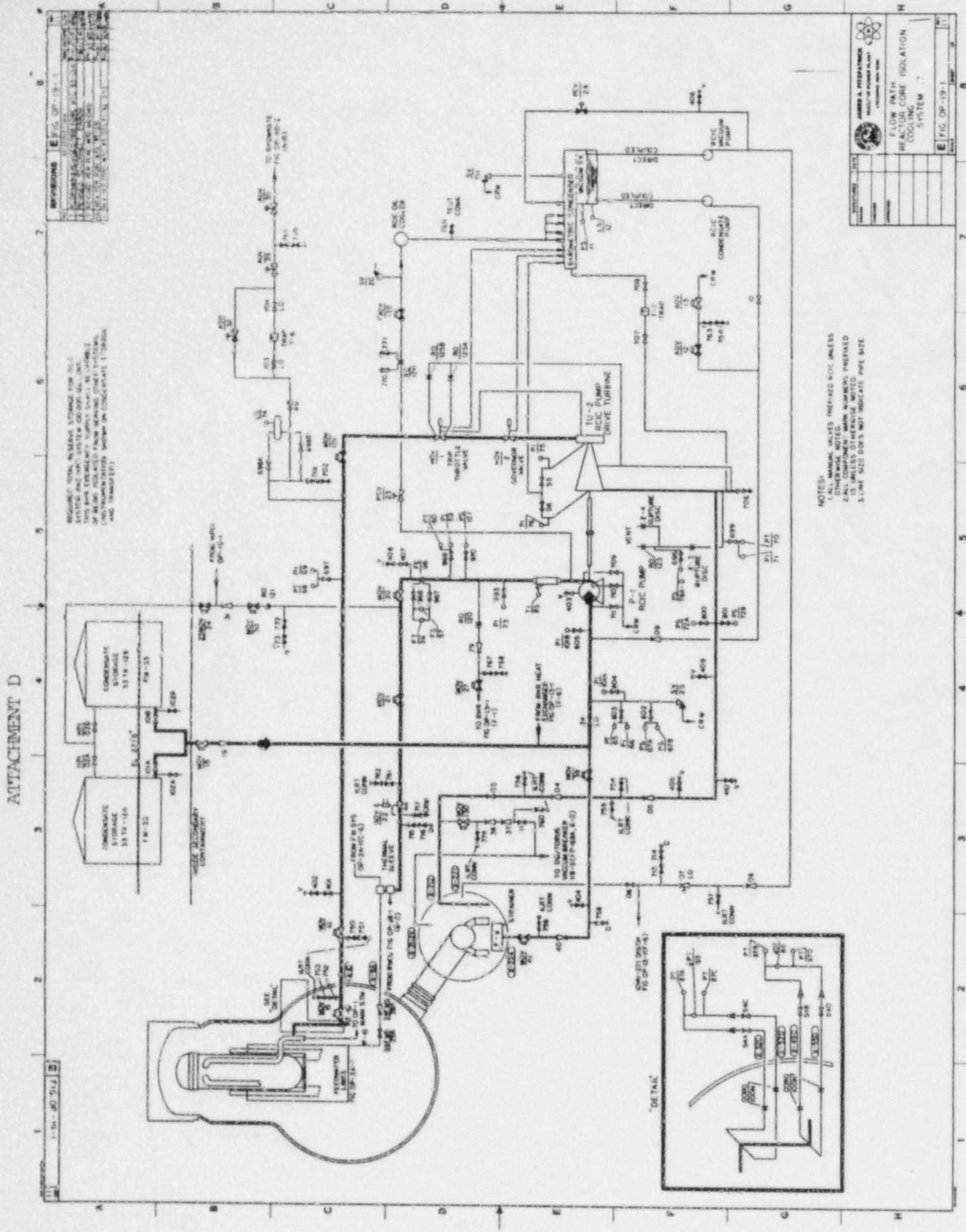
Item (b) - The Authority has had a program in place for control of valve motor operator switch settings for some time. Prior to commercial operation, the Authority had the motor operator vendor formally recalculate the switch settings utilizing the design differential pressures to ensure accuracy.

Recognizing the advances that have been made in operator sizing methodology over the last decade, the Authority intends to obtain the additional valve specifications necessary to support the more detailed present day calculations for those valves identified in this bulletin response. This will be completed by January 1987 to support the testing schedule of item (c).

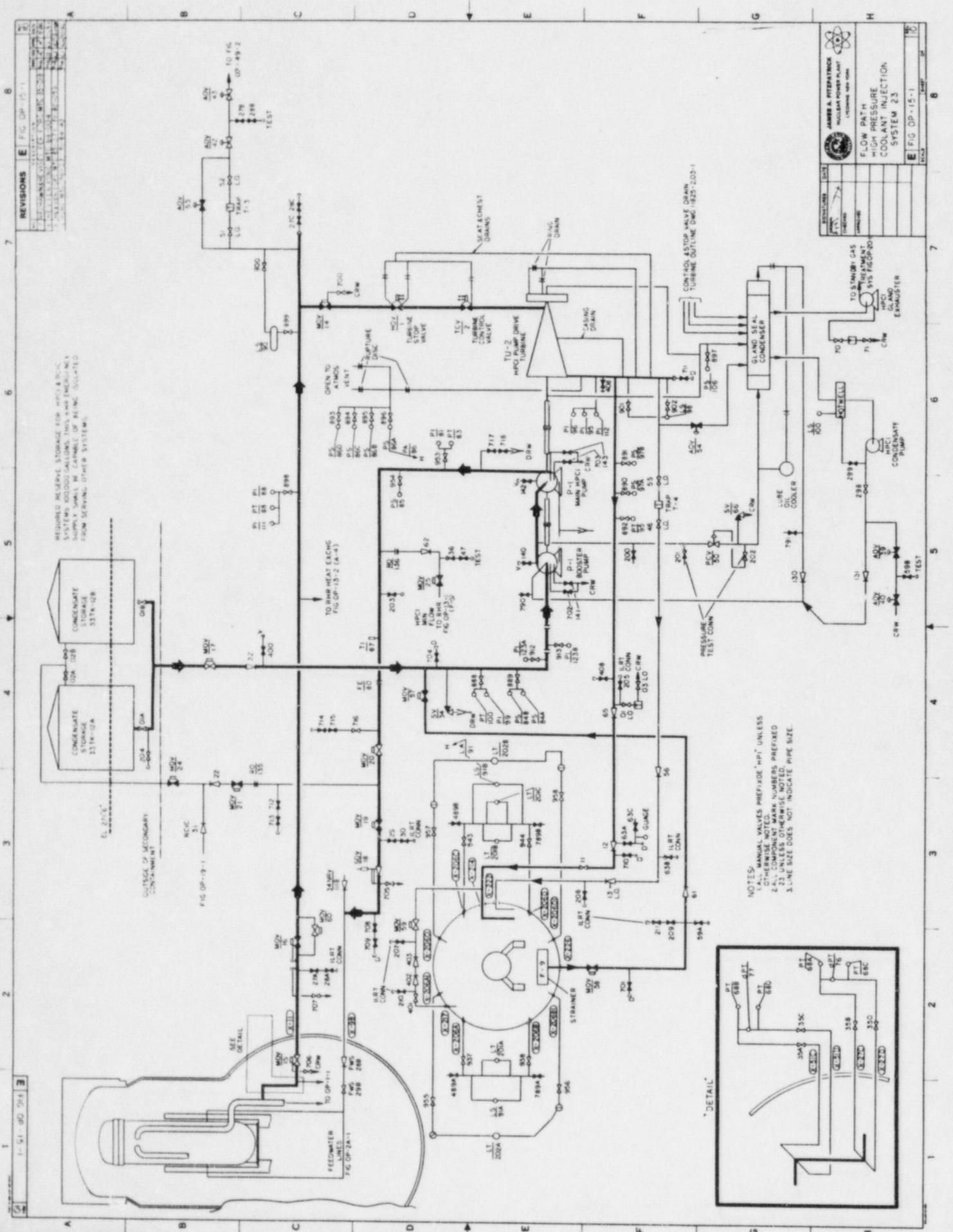
Item (c) - This item discusses valve testing to demonstrate operability. Testing cannot be performed until item (b) above is completed and the BWR Owner's Group results become available which may provide revised, but substantiated requirements for differential pressures. This information will allow determination of whether normal system operational pressure testing is acceptable or elevated or alternative pressure testing is necessary. The testing shall be accomplished by the start-up following the 1987 refueling outage.

For some operability tests on symetrical gate valves, the pressure will be applied from the reverse direction due to the inability to isolate upstream piping. The Authority's present intention is to perform elevated differential pressure tests using cold water as the pressurizing medium. Justification for alternative pressure testing, if applicable, will be submitted to support the 1987 refuel outage schedule.

Item (d) - This item addresses the procedural frame work to ensure that correct switch settings are utilized. The procedural format already exists and recent safety-related motor operator replacements substantiate that appropriate settings are obtained and utilized. A review of these procedures in the light of "applicable industry recommendations" will be performed before the end of the 1987 Refueling Outage, currently scheduled for completion in April, 1987.



ATTACHMENT D


JAMES A. FITZPATRICK NUCLEAR POWER PLANT
FLOW PATH
HIGH PRESSURE
COOLANT INJECTION
SYSTEM 23
E FIG OP-15-1
REVISIONS
E FIG OP-15-1
GLAND SEAL CONDENSER
TU-2
HPCI PUMP DRIVE TURBINE
P-1
MAIN HPCI PUMP
P-1
BOOSTER PUMP
HPCI GLAND EXHAUSTER
HPCI CONDENSATE PUMP
TURBINE STEAM VALVE
TURBINE CONTROL VALVE
CONDENSATE STORAGE 337A-128
CONDENSATE STORAGE 337A-128A
TO RHR HEAT EXCHG FIG OP-15-2 (A-4)
HPCI MIN FLOW TO RHR FIG OP-15-2
TO FIG OP-49-2
TO SYNGAS TREATMENT SYS FIG OP-20
CONTROL&STOP VALVE DRAIN TURBINE OUTLINE DWG 1825-203-1
PRESSURE TEST CONN
STRAINER
F-9
FEEDWATER LINES FIG OP-24-1
TO OP-11-1
SEE DETAIL
'DETAIL'
NOTES:
1. MANUAL VALVES PREFIXED "HPI" UNLESS OTHERWISE NOTED.
2. ALL COMPONENT MARK NUMBERS PREFIXED 23 UNLESS OTHERWISE NOTED.
3. LINE SIZE DOES NOT INDICATE PIPE SIZE.