NORTHEAST UTILITIES

THE CONNECTICUT LIGHT AND POWER COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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February 13, 1985

Docket No. 50-423
B11449

Director of Nuclear Reactor Regulation
Mr. B. J. Youngblood, Chief
Licensing Branch No. 1
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Reference: (1) B. J. Youngblood to W. G. Counsil, SER for Millstone Nuclear Power Station, Unit No. 3, dated August 2, 1984.

Dear Mr. Youngblood:

Millstone Nuclear Power Station, Unit No. 3
Transmittal of Responses to the SER Open Items

Enclosed are Northeast Nuclear Energy Company's (NNECO) responses to SER open items concerning the seismic and dynamic qualification program for Millstone Unit No. 3. These responses should fully resolve the Staff's concerns regarding the open items.

If there are any questions, please contact our licensing representative directly.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY
et. al.

BY NORTHEAST NUCLEAR ENERGY COMPANY
Their Agent

W. G. Counsil
Senior Vice President

By: R. W. Bishop
Secretary

A048
1/40

STATE OF CONNECTICUT)
) ss. Berlin
COUNTY OF HARTFORD)

Then personally appeared before me R. W. Bishop, who being duly sworn, did state that he is Secretary of Northeast Nuclear Energy Company, an Applicant herein, that he is authorized to execute and file the foregoing information in the name and on behalf of the Applicants herein and that the statements contained in said information are true and correct to the best of his knowledge and belief.

Notary Public

Attachment I

Responses to SER Open Items

Item No.	Description
SER 7.1-1	Description of Seismic Qualification Program in FSAR
SER 7.1-2	As-Built Mounting Condition
SER 7.1-3	Piping loads Transmitted to Pump and Valve Bodies
SER 7.1-4	Aging and Sequential Testing
SER 7.1-5	Westinghouse Generically Qualified Equipment
SER 7.1-6	Qualification Using Single Axis and/or Frequency Test
SER 7.1-7	Master Equipment list
SER 7.2-1	Design Criteria for Pump and Valve Internal Parts
SER 7.2-2	Equipment to be Tested in Operational Condition
SER 7.2-3	Pump and Valve Operability Review Team (PVORT) Audit
SER 7.2-4	Master Equipment List
SER 7.2-5	Aging
SER 7.2-6	Independent Qualification Versus Assembly Qualification

RGJ/cac

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.1-1 Description of Seismic Qualification Program in FSAR (SER Section 3.10.1)

The applicant should describe their seismic qualification program for NSSS safety-related mechanical equipment in the FSAR.

Response (2/85)

NSSS safety-related mechanical equipment is qualified by analysis and a combination of analysis and testing. The analysis methods used by Westinghouse are described in FSAR Sections 3.7 and 3.9. In addition, WCAP-9714, which has been approved by the staff, describes the NSSS (Westinghouse) seismic qualification methodology for both mechanical and electrical equipment. A description of the qualification of active valves utilizing a combination of testing and analysis is provided in FSAR Section 3.9.3. A list of active pumps and valves (NSSS scope) is presented in FSAR Tables 3.9N-11 and 3.9N-12.

Attachment 1 provides the tables for non-NSSS active pumps, active valves, mechanical equipment, and Class 1E equipment which will be included in a subsequent FSAR amendment.

ATTACHMENT 1

Testing Methodology Utilized On:

Mechanical Equipment

Class 1E Electrical Equipment

Active Pumps

Active Valves

Seismic Qualification Tracking System
MNPS-3 FSAR
Legend for Tables 3.9B-13, 3.9B-14, and 3.10B-1

Building:

Auxiliary Boiler Room	ABR
Auxiliary Building	AB
Circulating and Service Water Pumphouse	CSP
Condensate Polishing Enclosure	CPE
Containment Structure	CS
Control Building	CB
Emergency Generator Enclosure	EGE
Engineered Safety Features Building	ESB
Fuel Building	FB
Hydrogen Recombiner Buildings	HRB
Main Steam Valve Building	MSV
MCC and Rod Control Area (in Auxiliary Building)	MRC
Office Building	OB
Outside Yard	OY
Service Building	SB
Turbine Building	TB
Various	VAR
Waste Disposal Building	WDB
Warehouse	WH

QUAL METH: Qualification Method

ANLYS: Analysis "S" for Static
Analysis "D" for Dynamic
Analysis "N" for Not Applicable

TEST FREQ. Test Frequency: "SF" for Single Frequency
"MF" for Multiple Frequency
"NA" for Not Applicable

TEST DIR. Test Direction: "SD" for Single Direction
"MD" for Multiple Direction
"NA" for Not Applicable

NAT FREQS: Lowest Natural Frequency (33+ = Greater Than 33
33- = Less than 33)

F/B Front to Back
S/S Side to Side
VERT Vertical

LOADS: SEIS: Indicate if seismic loads are applicable. Yes (Y) or No (N).

OTHER DYN: Indicate if other dynamic loads are applicable. Yes (Y)62 or No (N).

REQ'D INPUT (ZPA): Applicable G level (where 2 values are given they are horizontal and vertical respectively).

FUNCTION CODES:

1. Emergency Reactor Shutdown
2. Containment Isolation
3. Core Cooling
4. Containment Heat Removal
5. Core Residual Heat Removal
6. Prevent Release of Radioactive Material
7. Safety/Nonsafety Isolation
8. Control Building Isolation

TABLE 3.9B-13
SUMMARY OF ACTIVE PUMPS(NON-NSSS)

EQUIPMENT NO.	DESCRIPTION VENDOR NAME	PUMP TYPE REQ INP ZPA	ANLYS FREQ DIR SYS	ACTIVE FUNCTION ASME CLASS
3CCE*P1A	CHARGING PUMP COOLING PP GOULD PUMPS	CENTRIF .27.16	S NA NA CCE	1,3 ASME III,CL3
3CCE*P1B	CHARGING PUMP COOLING PP GOULD PUMPS	CENTRIF .27.16	S NA NA CCE	1,3 ASME III,CL3
3CCI*P1A	SAFETY INJ PP COOLING PP GOULD PUMPS	CENTRIF .23.12	S NA NA CCI	1,3,5 ASME III,CL3
3CCI*P1B	SAFETY INJ PP COOLING PP GOULD PUMPS	CENTRIF .23.12	S NA NA CCI	1,3,5 ASME III,CL3
3CCP*P1A	REAC.PLNT.CMPNT CLG PP BINGHAM-WILLMTTE	BLANK .27.16	S NA NA CCP	3,5,6 ASME III,CL3
3CCP*P1B	REAC.PLNT.CMPNT CLG PP BINGHAM-WILLMTTE	BLANK .27.16	S NA NA CCP	3,5,6 ASME III,CL3
3CCP*P1C	REAC.PLANT.CMPNT CLG PP BINGHAM-WILLMTTE	BLANK .27.16	S NA NA CCP	3,5,6 ASME III,CL3
3CMS*P1	CONT. ATMOS. MON. PUMP	CENTRIF	CMS	6
3EGD*P1A	EMER GEN CRANKCA VAC PP	CENTRIF	EGD	1,2,3,4,5,6
3EGD*P1B	EMER GEN CRANKCA VAC P	CENTRIF	EGD	1,2,3,4,5,6
3EGF*P1A	EMER.GEN.FUEL OIL XFER.P GOULDS PUMPS	VERT .32.15	S NA NA EGF	1,2,3,4,5,6 ASME III,CL3
3EGF*P1B	EMER.GEN.FUEL OIL XFER.P GOULD PUMPS	VERT .32.15	S NA NA EGF	1,2,3,4,5,6 ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE PUMPS(NON-NSSS)

EQUIPMENT NO.	DESCRIPTION VENDOR NAME	PUMP TYPE REQ INP ZPA	ANLYS FREQ DIR SYS ASME CLASS	ACTIVE FUNCTION
3EGF*P1C	EMER.GEN.FUEL OIL XFER.P GOULDS PUMPS	VERT .32.15	S NA NA EGF ASME III,CL3	1,2,3,4,5,6
3EGF*P1D	EMER.GEN.FUEL OIL XFER.P GOULDS PUMPS	VERT .32.15	S NA NA EGF ASME III,CL3	1,2,3,4,5,6
3EGO*P1A	M-DRV ROCKER ARM PRELUBE	CENTRIF 	 EGO	1,2,3,4,5,6
3EGO*P1B	M-DRV ROCKER ARM PRELUBE	CENTRIF 	 EGO	1,2,3,4,5,6
3EGO*P2A	E DRY ROCKER ARM LUBE	CENTRIF 	 EGO	1,2,3,4,5,6
3EGO*P2B	F DRY ROCKER ARM LUBE	CENTRIF 	 EGO	1,2,3,4,5,6
3EGO*P3A	ENGINE DRIVEN LUBE OIL PUMP	CENTRIF 	 EGO	1,2,3,4,5,6
3EGO*P3B	ENGINE DRIVEN LUBE OIL PUMP	CENTRIF 	 EGO	1,2,3,4,5,6
3EGO*P4A	PRE LUBE OIL AND FILTER PUMP	CENTRIF 	 EGO	1,2,3,4,5,6
3EGO*P4B	PRE LUBE OIL AND FILTER PUMP	CENTRIF 	 EGO	1,2,3,4,5,6
3EGS*P1A	ENGINE DRIVEN PUMP COLT	CENTRIF 	 EGS	1,2,3,4,5,6
3EGS*P1B	ENGINE DRIVEN PUMP COLT	CENTRIF 	 EGS	1,2,3,4,5,6
3EGS*P2A	JACKET WATER PUMP COLT	CENTRIF 	 EGS	1,2,3,4,5,6
3EGS*P2B	JACKET WATER PUMP	CENTRIF 	 EGS	1,2,3,4,5,6
3EGS*P3A	INTERCOOLER WATER PUMP	CENTRIF 	 EGS	1,2,3,4,5,6

TABLE 3.9B-13
SUMMARY OF ACTIVE PUMPS(NON-NSSS)

EQUIPMENT NO.	DESCRIPTION VENDOR NAME	PUMP TYPE REQ INP ZPA	ANLYS FREQ DIR SYS ASME CLASS	ACTIVE FUNCTION
3EGS*P3B	INTERCOOLER WATER PUMP	CENTRIF	EGS	1,2,3,4,5,6
3FWA*P1A	HAYWARD-TYLER BINGHAM-WILLAMET	CENTRIF .32.13	S* NA NA FWA ASME III,CL3	5
3FWA*P1B	MTR.DRVN.SG AUX.FDPP BINGHAM-WILLAMET	CENTRIF .32.13	S* NA NA FWA ASME III,CL3	5
3FWA*P2	TURB DRIVEN AUX FD WTR PUMP BINGHAM-WILLAMET	CENTRIF .32.13	S NA NA FWA ASME III,CL3	5
3FWL*P4	MAIN LUBE OIL PUMP	CENTRIF .32.13	FWL ASME III,CL3	4
3FWL*P6A	MAIN LUBE OIL PUMP	CENTRIF .32.13	FWL ASME III,CL3	4
3FWL*P6B	MAIN LUBE OIL PUMP	CENTRIF .32.13	FWL ASME III,CL3	4
3HVK*P1A	CONT BLDG CHILLED WTR.P GOULD PUMPS	CENTRIF .50.15	S NA NA HVK ASME III,CL3	1,2,3,4,5
3HVK*P1B	CONT BLDG CHILLED WTR.P GOULD PUMPS	CENTRIF .50.15	S NA NA HVK ASME III,CL3	1,2,3,4,5
3HVK*P3A	O.L. PUMP CARRIER	CENTRIF .50.15	N MF MD HVK ASME III,CL2	1,2,3,4,5,6
3HVK*P3B	O.L. PUMP CARRIER	CENTRIF .50.15	N MF MD HVK ASME III,CL2	1,2,3,4,5,6
3QSS*P3A	QUENCH SPRAY PUMP GE.CO.	CENTRIF .23.12	D SF MD QSS ASME III,CL2	4,6
3QSS*P3B	QUENCH SPRAY PUMP GE.CO.	CENTRIF .23.12	D SF MD QSS ASME III,CL2	4,6
3RSS*P1A	CONTNMT.RECIRC.PUMP BINGHAM-WILLAMETT CO	CENTRIF .40.30	S NA NA RSS ASME III,CL 2	1,3,4
3RSS*P1B	CONTNMT.RECIRC.PUMP BINGHAM-WILLIAMETTE	CENTRIF .40.30	S NA NA RSS ASME III,CL 2	1,3,4

SEISMIC QUALIFICATION TRACKING SYSTEM
MNPS-3 FSAR

MSSCT3 02/05/85

TABLE 3.9B-13
SUMMARY OF ACTIVE PUMPS(NON-NSSS)

EQUIPMENT NO.	DESCRIPTION VENDOR NAME	PUMP TYPE REQ INP ZPA	ANLYS FREQ DIR SYS	ACTIVE FUNCTION ASME CLASS
3RSS*P1C	CONTNMT.RECIRC.PUMP BINGHAM-WILLIAMETTE	BLANK .40.30	S RSS	NA NA 1,3,4,6 ASME III,CL 2
3RSS*P1D	CONTNMT.RECIRC.PUMP BINGHAM-WILLIAMETTE	CENTRIF .40.30	S RSS	NA NA 1,3,4,6 ASME III,CL 2
3SFC*P1A	FUEL POOL COOLING PUMP GOULDS PUMPS	CENTRIF .22.15	S SFC	NA NA 6 ASME III CLASS 3
3SFC*P1B	FUEL POOL COOLING PUMP GOULDS PUMPS	CENTRIF .22.15	S SFC	NA NA 6 ASME III CLASS 3
3SWP*P1A	SERVICE WATER PUMP HAYWARD-TYLER	VERT .40.16	D SWP	NA NA 1,2,3,4,5 ASME III,CL3
3SWP*P1B	SERVICE WATER PUMP HAYWARD-TYLER	VERT .40.16	D SWP	NA NA 1,2,3,4,5 ASME III,CL3
3SWP*P1C	SERVICE WATER PUMP HAYWARD-TYLER	VERT .40.16	D SWP	NA NA 1,2,3,4,5 ASME III,CL3
3SWP*P1D	SERVICE WATER PUMP HAYWARD-TYLER	VERT .40.16	D SWP	NA NA 1,2,3,4,5 ASME III,CL3
3SWP*P2A	CONT BLDG A/C BOOSTER PP GOULD PUMPS	CENTRIF .50.15	D SWP	NA NA 1,2,3,4,5 ASME III,CL3
3SWP*P2B	CONT BLDG A/C BOOSTER PP GOULD PUMPS	CENTRIF .50.15	D SWP	NA NA 1,2,3,4,5 ASME III,CL3
3SWP*P3A	MCC & ROD CONTROL AREA GOULD PUMPS	CENTRIF .32.18	D SWP	NA NA 1,2,3,4,5 ASME III,CL3
3SWP*P3B	MCC & ROD CONTROL AREA GOULD PUMPS	CENTRIF .32.18	D SWP	NA NA 1,2,3,4,5 ASME III,CL2

SEISMIC QUALIFICATION TRACKING SYSTEM
MNPS-3 FSAR

MSSCT3 02/05/85

TABLE 3.9B-13
SUMMARY OF ACTIVE PUMPS(NON-NSSS)

EQUIPMENT NO.	DESCRIPTION / VENDOR NAME	PUMP TYPE / REQ	INP	ZPA	ANLYS FREQ DIR / SYS	ASME CLASS	ACTIVE FUNCTION

LAST PAGE

ACTIVE FUNCTION CODES FOR PUMPS

1. EMERGENCY REACTOR SHUTDOWN
2. CONTAINMENT ISOLATION
3. CORE COOLING
4. CONTAINMENT HEAT REMOVAL
5. CORE RESIDUAL HEAT REMOVAL
6. PREVENT RELEASE OF RADIOACTIVE MATERIALS
7. SAFETY/NON SAFETY ISOLATION

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3BDG*CTV22A	BDG	
VDN= C		
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,6
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3BDG*CTV22B	BDG	
VDN= C		
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,6
		REQD INPUT ZPA= ASME CLASS= ASME III,CL2
3BDG*CTV22C	BDG	
VDN= C		
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,6
		REQD INPUT ZPA= ASME CLASS= ASME III,CL2
3BDG*CTV22D	BDG	
VDN= C		
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,6
		REQD INPUT ZPA= ASME CLASS= ASME III,CL2
3CCE*AOV26A	CCE	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCE*AOV26B	CCE	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO. SYS VALVE DESCRIPTION

3CCE*AOV30A CCE
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

3CCE*AOV30B CCE
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

3CCE*TV37A CCE
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

3CCE*TV37B CCE
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

3CCP*AOV10A CCP
VDN= C
V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5,7
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

3CCP*AOV10B CCP
VDN= C
V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5,7
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CCP*AOV178A	CCP	
VDN= C		
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV178B	CCP	
VDN= C		
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV178C	CCP	
VDN= C		
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV178D	CCP	
VDN= C		
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV179A	CCP	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV179B	CCP	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CCP*AOV180A	CCP	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV180B	CCP	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV19A	CCP	
VDN= C		
		V SIZE= 16.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV19B	CCP	
VDN= C		
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV194A	CCP	
VDN= C		
		V SIZE= 16.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV194B	CCP	
VDN= C		
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CCP*AOV197A	CCP	
VDN= C		
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*AOV197B	CCP	
VDN= C		
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*FV66A	CCP	
VDN= C		
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*FV66B	CCP	
VDN= C		
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CCP*MOV222	P	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT
VDN= VVI015-B		121 151
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,5,6,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III, CL3
3CCP*MOV223	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT
VDN= VVI015-B		121 151
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,5,6,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III, CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CCP*MOV224	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151
VDN= VVI015-B		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,5,6,7 REQD INPUT ZPA= 3G ASME CLASS= ASME III, CL3
3CCP*MOV225	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151
VDN= VVI015-B		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,5,6,7 REQD INPUT ZPA= 3G ASME CLASS= ASME III, CL3
3CCP*MOV226	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151
VDN= VVI015-B		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,5,6,7 REQD INPUT ZPA= 3G ASME CLASS= ASME III, CL3
3CCP*MOV227	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151
VDN= VVI015-B		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,5,6,7 REQD INPUT ZPA= 3G ASME CLASS= ASME III, CL3
3CCP*MOV228	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151
VDN= VVI015-B		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,5,6,7 REQD INPUT ZPA= 3G ASME CLASS= ASME III, CL3
3CCP*MOV229	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151
VDN= VVI015-B		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,5,6,7 REQD INPUT ZPA= 3G ASME CLASS= ASME III, CL3

MSSQT4 02/04/85

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CCP*MOV45A VDN= VVI015-B	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151 V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CCP*MOV45B VDN= VVI015-B	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151 V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CCP*MOV48A VDN= VVI015-B	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151 V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CCP*MOV48B VDN= VVI015-B	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151 V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CCP*MOV49A VDN= VVI015-B	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151 V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CCP*MOV49B VDN= VVI015-B	CCP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY 304 SS SHAFT & DISC RUBBER SEAT 121 151 V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

MSSQT4 02/04/85

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO. SYS VALVE DESCRIPTION

3CDS*CTV38A CDS
VDN= C
V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CDS*CTV38B CDS
VDN= C
V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CDS*CTV39A CDS
VDN= C
V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CDS*CTV39B CDS
VDN= C
V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CDS*CTV40A CDS
VDN= C
V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CDS*CTV40B CDS
VDN= C
V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CDS*CTV91A	CDS	
VDN= N/A		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CDS*CTV91B	CDS	
VDN= N/A		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*AV7054	CHS	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC=
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3CHS*AV8101	CHS	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC=
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*AV8143	CHS	
VDN= C		
		V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*AV8146	CHS	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO. SYS VALVE DESCRIPTION

3CHS*AV8147 CHS
VDN= C
V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CHS*AV8149A CHS
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CHS*AV8149B CHS
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CHS*AV8149C CHS
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CHS*CV8152 CHS
VDN= C
V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL1

3CHS*CV8160 CHS
VDN= C
V SIZE= 2.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CHS*HCV190A	CHS	
VDN= EQUIP MFR		
		V SIZE= 1.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*HCV190B	CHS	
VDN= EQUIP MFR		
		V SIZE= 1.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*LCV112A	CHS	
VDN= N/A		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*LCV112B	CHS	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y 152 153
VDN= VGW015-Y		
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*LCV112C	CHS	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y 152 153
VDN= VGW015-Y		
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*LCV112D	CHS	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y 152 153
VDN= VGW015-Y		
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CHS*LCV112E	CHS	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGW015-Y		152 153
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MV8104	CHS	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MV8105	CHS	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGW150-X		1502 1512 1522
		V SIZE= 3.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3
		REQD INPUT ZPA= 2,1 ASME CLASS= ASME III,CL2
3CHS*MV8106	CHS	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGW150-X		1502 1512 1522
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MV8109A	CHS	*42*GLOBE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODY STELLITED TRIM SEAL WELDED BONNET OS&Y SWIVEL PLUG
VDN= VOW150-X		1501 1511
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MV8109B	CHS	*42*GLOBE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODY STELLITED TRIM SEAL WELDED BONNET OS&Y SWIVEL PLUG
VDN= VOW150-X		1501 1511
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CHS*MV8109C	CHS	*42*GLOBE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODY STELLITED TRIM SEAL WELDED BONNET OS&Y SWIVEL PLUG
VDN= VOW150-X		1501 1511
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MV8109D	CHS	*42*GLOBE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODY STELLITED TRIM SEAL WELDED BONNET OS&Y SWIVEL PLUG
VDN= VOW150-X		1501 1511
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MV8110	CHS	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MV8111A	CHS	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MV8111B	CHS	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 2.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8111C	CHS	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 2.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CHS*MV8112	CHS	*42*GLOBE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODY STELLITED TRIM SEAL WELDED BONNET OS&Y SWIVEL PLUG
VDN= VOM150-X		1501 1511
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MV8116	CHS	
VDN= EQIP MFR		
		V SIZE= 1.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8438A	CHS	
VDN= EQUIP MFR		
		V SIZE= 4.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8438B	CHS	
VDN= EQUIP MFR		
		V SIZE= 4.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8438C	CHS	
VDN= EQUIP MFR		
		V SIZE= 4.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8468A	CHS	
VDN= EQUIP MFR		
		V SIZE= 8.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CHS*MV8468B	CHS	
VDN= EQUIP MFR		
		V SIZE= 8.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8507A	CHS	
VDN= EQUIP MFR		
		V SIZE= 3.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8507B	CHS	
VDN= EQUIP MFR		
		V SIZE= 3.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8511A	CHS	
VDN= EQUIP MFR		
		V SIZE= 2.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8511B	CHS	
VDN= EQUIP MFR		
		V SIZE= 2.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*MV8512A	CHS	
VDN= EQUIP MFR		
		V SIZE= 2.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3CHS*HV8512B	CHS	
VDN= EQUIP MFR		
		V SIZE= 2.00 QUAL METH: ANLYS=D ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 2.1 ASME CLASS= ASME III
3CHS*TCV129	CHS	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*CTV20	CHS	
VDN= C		
		V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*CTV21	CHS	
VDN= C		
		V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*CTV23	CHS	
VDN= C		
		V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3CHS*MOV24	CHS	
VDN= C		
		V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO. SYS VALVE DESCRIPTION

3CVS*AOV23 CVS
VDN= C
V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CVS*CTV20A CVS
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CVS*CTV20B CVS
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CVS*CTV21A CVS
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CVS*CTV21B CVS
VDN= C
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3CVS*MOV25 CVS *41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SHIVEL PLUG
VDN= VOS150-X 902 912 1502 1512 1522
V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3DAS*CTV24	DAS	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DAS*CTV25	DAS	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DGS*CTV24	DGS	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DGS*CTV25	DGS	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DTH*AOV29A	DTH	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DTH*AOV29B	DTH	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3DTM*AOV29C	DTM	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DTM*AOV29D	DTM	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DTM*AOV61A	DTM	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DTM*AOV61B	DTM	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DTM*AOV61C	DTM	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3DTM*AOV61D	DTM	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO. SYS VALVE DESCRIPTION

3DTM*AOV63A DTM
VDN= C
V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3DTM*AOV63B DTM
VDN= C
V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3DTM*AOV63D DTM
VDN= C
V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3DTM*AOV64A DTM
VDN= C
V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3DTM*AOV64B DTM
VDN= C
V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

3DTM*AOV64D DTM
VDN= C
V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3EGS*AOV43A	EGS	
VDN= C		
		V SIZE= 5.00 QUAL METH: ANLYS= ,FREQ= ,DIR= ACTIVE FUNC= 1,2,3,4,5,6
		REQD INPUT ZPA= ASME CLASS= ASME III, CL3
3EGS*AOV43B	EGS	
VDN= C		
		V SIZE= 5.00 QUAL METH: ANLYS= ,FREQ= ,DIR= ACTIVE FUNC= 1,2,3,4,5,6
		REQD INPUT ZPA= ASME CLASS= ASME III, CL3
3FPN*CTV48	FPH	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FPH*CTV49	FPH	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*AOV23A	FHA	
VDN= C		
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL 3
3FHA*AOV23B	FHA	
VDN= C		
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL 3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3FHA*AOV25	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL 3
3FHA*AOV26	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL 3
3FHA*AOV37	FHA	
VDN= C		
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3FHA*AOV62A	FHA	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y
VDN= VGH090-B		901 911 921
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3FHA*AOV62B	FHA	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y
VDN= VGH090-B		901 911 921
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3FHA*HV31A	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3FHA*HV31B	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*HV31C	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*HV31D	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*HV32A	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*HV32B	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*HV32C	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3FHA*HV32D	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*HV36A	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*HV36B	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*HV36C	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*HV36D	FHA	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHA*MOV35A	FHA	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y
VDN= VGW090-B		901 911 921
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3FWA*MOV35B	FWA	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y
VDN= VGW090-B		901 911 921
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FWA*MOV35C	FWA	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y
VDN= VGW090-B		901 911 921
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FWA*MOV35D	FWA	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y
VDN= VGW090-B		901 911 921
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FWS*CTV91A	FWS	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM BOLTED BONNET OS&Y
VDN= VGW090-E		901 911 921
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 2.8G ASME CLASS= ASME III,CL2
3FWS*CTV91B	FWS	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM BOLTED BONNET OS&Y
VDN= VGW090-E		901 911 921
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 2.8G ASME CLASS= ASME III,CL2
3FWS*CTV91C	FWS	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM BOLTED BONNET OS&Y
VDN= VGW090-E		901 911 921
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 2.8G ASME CLASS= ASME III,CL2

MSSQT4 02/04/85

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3FHS*CTV41D	FHS	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM BOLTED BONNET OS&Y
VDN= VGN090-E		901 911 921
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 2.8G ASME CLASS= ASME III,CL2
3FHS*LV550	FHS	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHS*LV560	FHS	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHS*LV570	FHS	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3FHS*LV580	FHS	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3GSN*CTV105	GSN	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3GSN*CV8033	GSN	
VDN= C		
		V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HVC*AOV20	HVC	
VDN= C		
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= B
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVC*AOV21	HVC	
VDN= C		
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= B
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVC*AOV22	HVC	
VDN= C		
		V SIZE= 16.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= B
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVC*AOV23	HVC	
VDN= C		
		V SIZE= 16.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= B
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVC*AOV25	HVC	
VDN= C		
		V SIZE= 16.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= B
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3HVC*AOV2[illegible]	HVC	
VDN= C		
		V SIZE= 16.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 8
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVC*PCV68A	HVC	
VDN= C		
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 8
		REQD INPUT ZPA= .60.17 ASME CLASS= ASME III
3HVC*PCV68B	HVC	
VDN= C		
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 8
		REQD INPUT ZPA= .60.17 ASME CLASS= ASME III
3HVC*SOV74A	HVC	
VDN= C		
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 8
		REQD INPUT ZPA= 3.0 ASME CLASS= ASME III,CL3
3HVC*SOV74B	HVC	
VDN= C		
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 8
		REQD INPUT ZPA= 3.0 ASME CLASS= ASME III,CL3
3HVK*PDV32A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3HVK*PDV32B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV39A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV39B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV91A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV91B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ^SME III,CL3
3HVK*TV68A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3HVK*TV68B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV69A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV69B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV70A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV70B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV71A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3HVK*TV71B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV72A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV72B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV73A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV73B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV74A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3HVK*TV74B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV75A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV75B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV76A	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV76B	HVK	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HVK*TV77A	HVK	
VDN= N/A		
		V SIZE= ? 50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQU INPUT ZPA= 3.0 ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3HVK*TV77B	HVK	
VDN= N/A		
		V SIZE= 2.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3,4,5
		REQD INPUT ZPA= 3.0 ASME CLASS= ASME III,CL3
3HVU*CTV32A	HVU	
VDN= N/A		
		V SIZE= 42.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HVU*CTV32B	HVU	
VDN= N/A		
		V SIZE= 42.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HVU*CTV33A	HVU	
VDN= N/A		
		V SIZE= 42.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HVU*CTV33B	HVU	
VDN= N/A		
		V SIZE= 42.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3IAS*HOV72	IAS	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3IAS*PV15	IAS	
VDN= N/A		
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3LHS*MOV40A	LHS	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3LHS*MOV40B	LHS	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3LHS*MOV40C	LHS	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3LHS*MOV40D	LHS	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HSS*AOV31A	HSS	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3MSS*AOV31B	MSS	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*AOV31D	MSS	
VDN= N/A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III
3MSS*CTV27A	MSS	*32*GLOBE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y SWIVEL PLUG
VDN= VON090-B		901 911 921
		V SIZE= 30.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 9
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*CTV27B	MSS	*32*GLOBE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y SWIVEL PLUG
VDN= VON090-B		901 911 921
		V SIZE= 30.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 9
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*CTV27C	MSS	*32*GLOBE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y SWIVEL PLUG
VDN= VON090-B		901 911 921
		V SIZE= 30.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 9
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*CTV27D	MSS	*32*GLOBE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y SWIVEL PLUG
VDN= VON090-B		901 911 921
		V SIZE= 30.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 9
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3HSS*HV28A	HSS	
VDN= C		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 9 REQD INPUT ZPA= 3B ASME CLASS= ASME III,CL2
3HSS*HV28B	HSS	
VDN= C		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 9 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HSS*HV28C	HSS	
VDN= C		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 9 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HSS*HV28D	HSS	
VDN= C		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 9 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HSS*MOV17A	HSS	*32*GLOBE STOP CHECK VALVE 900 LB BW A216 WCB CS BODY STELLITED TRIM PRESSURE SEAL BONNET OS&Y PISTON TY
VDN= VKN090-A		PE 901 911 921 V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HSS*MOV17B	HSS	*32*GLOBE STOP CHECK VALVE 900 LB BW A216 WCB CS BODY STELLITED TRIM PRESSURE SEAL BONNET OS&Y PISTON TY
VDN= VKN090-A		PE 901 911 921 V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3MSS*MOV17D VDN= VGN090-A	MSS	*32*GLOBE STOP CHECK VALVE 900 LB BW A216 WCB CS BODY STELLITED TRIM PRESSURE SEAL BONNET OS&Y PISTON TY PE 901 911 921 V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*MOV18A VDN= VGN090-B	MSS	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y 901 911 921 V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5,6 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*MOV18B VDN= VGN090-B	MSS	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y 901 911 921 V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5,6 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*MOV18C VDN= VGN090-B	MSS	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y 901 911 921 V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5,6 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*MOV18D VDN= VGN090-B	MSS	*32*GATE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y 901 911 921 V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5,6 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*MOV74A VDN= VGN090-B	MSS	*32*GLOBE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y SHIVEL PLUG 901 911 921 V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5,6 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3MSS*MOV74B	MSS	*32*GLOBE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y SWIVEL PLUG
VDN= VOH090-B		901 911 921
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5,6
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*MOV74C	MSS	*32*GLOBE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y SWIVEL PLUG
VDN= VOH090-B		901 911 921
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5,6
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*MOV74D	MSS	*32*GLOBE VALVE 900 LB BW A216 WCB CS BODY STELLITEDTRIM PRESSURE SEAL BONNET OS&Y SWIVEL PLUG
VDN= VOH090-B		901 911 921
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5,6
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3MSS*PV20A	MSS	
VDN= C		
		V SIZE= 8.00 QUAL METH: ANLYS= ,FREQ= ,DIR= ACTIVE FUNC= 1,5,6
		REQD INPUT ZPA= ASME CLASS= ASME III,CL 3
3MSS*PV20B	MSS	
VDN= C		
		V SIZE= 8.00 QUAL METH: ANLYS= ,FREQ= ,DIR= ACTIVE FUNC= 1,5,6
		REQD INPUT ZPA= ASME CLASS= ASME III,CL 3
3MSS*PV20C	MSS	
VDN= C		
		V SIZE= 8.00 QUAL METH: ANLYS= ,FREQ= ,DIR= ACTIVE FUNC= 1,5,6
		REQD INPUT ZPA= ASME CLASS= ASME III,CL 3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3HSS*PV20D	HSS	
VDN= C		
		V SIZE= 8.00 QUAL METH: ANLYS= ,FREQ= ,DIR= ACTIVE FUNC= 1,5,6
		REQD INPUT ZPA= ASME CLASS= ASME III,CL 3
3PGS*CV8028	PGS	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3PGS*CV8046	PGS	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3QSS*AOV27	QSS	
VDN= N/A		
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL 2
3QSS*AOV28	QSS	
VDN= C		
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3QSS*MOV29A	QSS	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y 152 153
VDN= VGN015-Y		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3,4,6
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3QSS*MOV29B	QSS	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGW015-Y		152 153
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3,4,6
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3QSS*MOV34A	QSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VWI015-K		152 153
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4,6
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3QSS*MOV34B	QSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VWI015-K		152 153
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4,6
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RCS*AV8145	RCS	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL1
3RCS*MV8000A	RCS	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGW150-X		1502 1512 1522
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RCS*MV8000B	RCS	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGW150-X		1502 1512 1522
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

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TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3RHS*MV8701A VDN= VGH150-X	RHS	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y 1502 1512 1522 V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RHS*MV8701B VDN= VGH060-X	RHS	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y 602 V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RHS*MV8701C VDN= VGH150-X	RHS	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y 1502 1512 1522 V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RHS*MV8702A VDN= VGH060-X	RHS	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y 602 V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RHS*MV8702B VDN= VGH150-X	RHS	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y 1502 1512 1522 V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,5 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RHS*MV8702C VDN= VGH150-X	RHS	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y 1502 1512 1522 V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,5 REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3RHS*MV8716A	RHS	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGW060-X		602
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RHS*MV8716B	RHS	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGW060-X		602
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MOV20A	RSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VVI015-K		152 153
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MOV20B	RSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VVI015-K		152 153
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MOV20C	RSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VVI015-K		152 153
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MOV20D	RSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VVI015-K		152 153
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3RSS*MOV23A	RSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VVI015-K		152 153
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MOV23B	RSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VVI015-K		152 153
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MOV23C	RSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VVI015-K		152 153
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MOV23D	RSS	*61*BUTTERFLY VALVE 150 LB WAFER A351 CF8 TYPE 304 SS BODY SHAFT & DISC BONDED RUBBER SEAT
VDN= VVI015-K		152 153
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,4
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MOV38A	RSS	*42*GATE VALVE 300 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGH030-P		302
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MOV38B	RSS	*42*GATE VALVE 300 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGH030-P		302
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

MSSQT4 02/04/85

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3RSS*MV8837A	RSS	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGN060-X		602
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MV8837B	RSS	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGN060-X		602
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MV8838A	RSS	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGN060-X		602
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3RSS*MV8838B	RSS	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGN060-X		602
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SGF*AOV24A	SGF	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SGF*AOV24B	SGF	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SGF*AOV24C	SGF	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SGF*AOV24D	SGF	
VDN= C		
		V SIZE= 1.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*CV8823	SIH	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7,2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*CV8824	SIH	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7,2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*CV8843	SIH	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7,2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*CV8871	SIH	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SIH*CV8881	SIH	
VDN= N/A		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7,2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*CV8964	SIH	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8801A	SIH	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8801B	SIH	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8802A	SIH	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8802B	SIH	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SIH*MV8806	SIH	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGH015-Y		152 153
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8807A	SIH	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGH015-Y		152 153
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8807B	SIH	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGH015-Y		152 153
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8813	SIH	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8814	SIH	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8821A	SIH	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

MSSQT4 02/04/85

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SIH*MV8821B	SIH	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8835	SIH	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 4.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8920	SIH	*41*GLOBE VALVE 1500 LB SW A182 F316 TYPE 316 SS BODY STELLITED TRIM NO BONNET OS&Y SWIVEL PLUG
VDN= VOS150-X		902 912 1502 1512 1522
		V SIZE= 1.50 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8923A	SIH	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGN015-Y		152 153
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8923B	SIH	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGH015-Y		152 153
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIH*MV8924	SIH	*42*GATE VALVE 150 LB BW A351 CF8 TYPE 304 SS BODY &TRIM BOLTED BONNET OS&Y
VDN= VGH015-Y		152 153
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SIL*MV8804A	SIL	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGH060-X		602
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIL*MV8804B	SIL	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGH060-X		602
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIL*MV8808A	SIL	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIL*MV8808B	SIL	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIL*MV8808C	SIL	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIL*MV8808D	SIL	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SIL*MV8809A	SIL	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIL*MV8809B	SIL	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIL*MV8812A	SIL	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGH060-X		602
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIL*MV8812B	SIL	*42*GATE VALVE 600 LB BW A351 CF8 TYPE 304 SS BODYSTELLITED TRIM BOLTED BONNET OS&Y
VDN= VGH060-X		602
		V SIZE= 12.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SIL*MV8840	SIL	*42*GATE VALVE 1500 LB BW A351 CF8M TYPE 316 SS BODYSTELLITED TRIM WELDED BONNET OS&Y
VDN= VGH150-X		1502 1512 1522
		V SIZE= 8.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3,2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSP*CTV7	SSP	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SSP*CTV8	SSP	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV19A	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV19B	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV19C	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV19D	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV20	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SSR*CTV21	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV22	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV23	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV26	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV27	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV29	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SSR*CTV30	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SSR*CTV32	SSR	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CTV33	SSR	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CV8025	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SSR*CV8026	SSR	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2,7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*AOV39A	SHP	
VDN= C		
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SNP*AOV39B	SNP	
VDN= C		
		V SIZE= 10.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SNP*MOV102A	SNP	*61*BUTTERFLY VALVE 150 LB FLGD A216 WCB CS BODY MONEL SHAFT EPOXY COATED DISC RUBBER SEAT
VDN= VVF015-E		121 151
		V SIZE= 30.00 QUAL METH: ANLYS= ,FREQ= ,DIR= ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= ASME CLASS=
3SNP*MOV102B	SNP	*61*BUTTERFLY VALVE 150 LB FLGD A216 WCB CS BODY MONEL SHAFT EPOXY COATED DISC RUBBER SEAT
VDN= VVF015-E		121 151
		V SIZE= 30.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SNP*MOV102C	SNP	*61*BUTTERFLY VALVE 300 LB FLGD A216 WCB CS BODY SSDISC OR FACING RESILIENT SEATS & SEALS SERVICE CONDI
VDN= VVT030-E		TIONS TO BE SPECIFIED 301 311
		V SIZE= 30.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SNP*MOV102D	SNP	*61*BUTTERFLY VALVE 150 LB FLGD A216 WCB CS BODY MONEL SHAFT EPOXY COATED DISC RUBBER SEAT
VDN= VVF015-E		121 151
		V SIZE= 30.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SNP*MOV115A	SNP	
VDN= VPF015-A		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SHP*MOV115B	SHP	
VDN= VPF01S-A		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SHP*MOV130A	SHP	
VDN= VPF01S-A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SHP*MOV117B	SHP	
VDN= VPF01S-A		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SHP*MOV24A	SHP	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV24B	SHP	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SHP*MOV24C	SHP	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SHP*MOV24D	SHP	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SHP*MOV50A	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A216 WCB CS BODY MONEL SHAFT EPOXY COATED DISC RUBBER SEAT
VDN= VVF01S-E		121 151
		V SIZE= 30.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV50B	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A216 WCB CS BODY MONEL SHAFT EPOXY COATED DISC RUBBER SEAT
VDN= VVF01S-E		121 151
		V SIZE= 30.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV54A	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A351 CF8M TYPE 316 SS BODY & TRIM RUBBER SEAT
VDN= VVF01S-H		152 153 162 163 163L
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV54B	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A351 CF8M TYPE 316 SS BODY & TRIM RUBBER SEAT
VDN= VVF01S-H		152 153 162 163 163L
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV54C	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A351 CF8M TYPE 316 SS BODY & TRIM RUBBER SEAT
VDN= VVF01S-H		152 153 162 163 163L
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SHP*MOV54D	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A351 CF8M TYPE 316 SS BODY & TRIM RUBBER SEAT
VDN= VWF01S-M		152 153 162 163 163L
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV57A	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A351 CF8M TYPE 316 SS BODY & TRIM RUBBER SEAT
VDN= VWF01S-M		152 153 162 163 163L
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV57B	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A351 CF8M TYPE 316 SS BODY & TRIM RUBBER SEAT
VDN= VWF01S-M		152 153 162 163 163L
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV57C	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A351 CF8M TYPE 316 SS BODY & TRIM RUBBER SEAT
VDN= VWF01S-M		152 153 162 163 163L
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV57D	SHP	*61*BUTTERFLY VALVE 150 LB FLGD A351 CF8M TYPE 316 SS BODY & TRIM RUBBER SEAT
VDN= VWF01S-M		152 153 162 163 163L
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 3
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SHP*MOV71A	SHP	*61*BUTTERFLY VALVE 150 LB MATER A216 WCB CS BODY MONEL SHAFT EPOXY COATED DISC RUBBER LINED BODY
VDN= VWI01S-F		121 151
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SNP*MOV71B	SNP	*61*BUTTERFLY VALVE 150 LB WAFER A216 WCB CS BODY MONEL SHAFT EPOXY COATED DISC RUBBER LINED BODY
VDN= VVI015-F		121 151
		V SIZE= 18.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3SNP*PV112A1	SNP	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,5
		REQD INPUT ZPA= 3.03.0 ASME CLASS= ASME III
3SNP*PV112A2	SNP	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,5
		REQD INPUT ZPA= 3.03.0 ASME CLASS= ASME III
3SNP*PV112B1	SNP	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,5
		REQD INPUT ZPA= 3.03.0 ASME CLASS= ASME III
3SNP*PV112B2	SNP	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,5
		REQD INPUT ZPA= 3.03.0 ASME CLASS= ASME III
3SNP*PV113A1	SNP	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,4
		REQD INPUT ZPA= 3.03.0 ASME CLASS= ASME III

TABLE 3.9B-17
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SNP*PV113A2	SNP	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,4
		REQD INPUT ZPA= 3.03.0 ASME CLASS= ASME III
3SNP*PV113B1	SNP	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,4
		REQD INPUT ZPA= 3.03.0 ASME CLASS= ASME III
3SNP*PV113B2	SNP	
VDN= C		
		V SIZE= .00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,4
		REQD INPUT ZPA= 3.03.0 ASME CLASS= ASME III
3SNP*PV98A	SNP	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SNP*PV98B	SNP	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SNP*PV98C	SNP	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-MSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3SHP*PV98D	SHP	
VDN= C		
		V SIZE= 2.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SHP*TV35A	SHP	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3SHP*TV35B	SHP	
VDN= C		
		V SIZE= 6.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 1,3,4,5
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3VRS*CTV20	VRS	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3VRS*CTV21	VRS	
VDN= C		
		V SIZE= .75 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 2
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HTC*AOV24A	HTC	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO.	SYS	VALVE DESCRIPTION
3HTC*AOV24B	MTC	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL2
3HTC*AOV25A	MTC	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HTC*AOV25B	MTC	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HTC*AOV50A	MTC	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3
3HTC*AOV50B	MTC	
VDN= C		
		V SIZE= 3.00 QUAL METH: ANLYS=S ,FREQ=NA,DIR=NA ACTIVE FUNC= 7
		REQD INPUT ZPA= 3G ASME CLASS= ASME III,CL3

TABLE 3.9B-13
SUMMARY OF ACTIVE VALVES(NON-NSSS)

EQUIPMENT NO. SYS VALVE DESCRIPTION

LAST PAGE

ACTIVE FUNCTION CODES FOR VALVES

1. EMERGENCY REACTOR SHUTDOWN
2. CONTAINMENT ISOLATION
3. CORE COOLING
4. CONTAINMENT HEAT REMOVAL
5. CORE RESIDUAL HEAT REMOVAL
6. PREVENT RELEASE OF RADIOACTIVE MATERIALS
7. SAFETY/NON SAFETY ISOLATION
8. CONTROL BUILDING ISOLATION

TABLE 3.9B-14
MAJOR MECHANICAL EQUIPMENT (NON-NSSS)

EQUIPMENT CODE DESCRIPTION	LOCATION BLDG	ELEV	QUAL METHOD ANLYS	FREQ	DIR	HIGHEST REQUIRED INPUT (ZPA)
AIR CONDITIONING UNIT	AB	00066	SD	NA	NA	.41.18
	CB	00004	SD	NA	NA	.25.15
		00064	SD	NA	NA	.50.15
AIR CONDITIONING UNIT, SELF CONTAINED	ESB	00036	D	NA	NA	.32.13
CHILLER,LIQUID	CB	00064	D	NA	NA	.50.15
DAMPER		00021	S	NA	NA	.32.13
	AB	00024	S	NA	NA	.56.20
						.27.16
		00043	S	NA	NA	.41.18
						.32.18
		00066	S	NA	NA	.56.20
						.41.18
		00079	S	NA	NA	.41.18
	CB	00004	S	NA	NA	.30.15
						.25.15
		00047	S	NA	NA	.60.17
						.50.15
						.40.15
		00064	N	MF	MD	.50.15
			S	NA	NA	.60.17
						.50.15
						.30.15
	CSP		S	NA	NA	.49.16
	ESB	00004	S	NA	NA	.23.12
						.20.12
		00021	S	NA	NA	.40.14
						.32.13
						.23.12
		00036	S	NA	NA	.40.14
						.32.13
		00043	S	NA	NA	.40.14
	FB	00024	S	NA	NA	.48.18
		00052	S	NA	NA	.48.18
DAMPER, TORNADO PROTECTION	CB	00064	S	NA	NA	.60.17

TABLE 3.9B-14
MAJOR MECHANICAL EQUIPMENT (NON-NSSS)

EQUIPMENT CODE DESCRIPTION	LOCATION BLDG	ELEV	QUAL METHOD ANLYS	FREQ	DIR	HIGHEST REQUIRED INPUT (ZPA)
DAMPER, TORNADO PROTECTION	EGE	00041	S	NA	NA	.75.18
		00048	S	NA	NA	.75.18
		00051	S	NA	NA	.75.18
						.60.17
DAMPER,AIR OPERATED	AB		N	MF	MD	.56.20
						.41.18
		00066	N	MF	MD	.56.20
						.41.18
	CB	00057	N	MF	MD	.50.15
		00064	N	MF	MD	.60.17
	CSP	00028	N	MF	MD	.49.16
	ESB	00036	N	MF	MD	.40.14
						.32.13
	MSV		N	MF	MD	.48.16
		00092	N	MF	MD	.48.16
DAMPER,FIRE	AB	00024	N	MF	MD	.32.18
		00043	N	MF	MD	.32.18
		00066	N	MF	MD	.56.20
						.41.18
		00079	N	MF	MD	.56.20
	CB	00004	N	MF	MD	.50.15
						.30.15
						.25.15
		00024	N	MF	MD	.30.15
		00047	N	MF	MD	.50.15
		00064	N	MF	MD	.50.15
	ESB	00036	N	MF	MD	.40.14
						.32.13
	FB	00024	N	MF	MD	.32.18
		00079	N	MF	MD	.56.20
	PB	00024	N	MF	MD	.32.18
DAMPER,MOTOR OPERATED	AB	00066	N	MF	MD	.56.20
						.41.18
		00073	N	MF	MD	.56.20
		00066	N	MF	MD	.56.20
	CB	00064	N	MF	MD	.50.15
	EGE	00038	N	MF	MD	.55.15
		00043	N	MF	MD	.55.15

TABLE 3.9B-14
MAJOR MECHANICAL EQUIPMENT (NON-NSSS)

EQUIPMENT CODE DESCRIPTION	LOCATION BLDG	ELEV	QUAL METHOD ANLYS	FREQ	DIR	HIGHEST REQUIRED INPUT (ZPA)
DAMPER,MOTOR OPERATED	EGE	00049	N	HF	MD	.55.15
	ESB		N	HF	MD	.40.14
		00038	N	HF	MD	.40.14
		00043	N	HF	MD	.40.14
		00047	N	HF	MD	.40.14
	HRB					.30.13
	HSV		N	HF	MD	.25.13
		00029	N	HF	MD	.18.12
		00086				.48.16
ENGINE GENERATOR	EGE	00029				
EXCHANGER,HEAT	AB	00029	S	NA	NA	.27.16
	ESB	00036	S	SF	MD	0.65G
FAN	AB		S	NA	NA	.51.19
						.44.18
		00066				.47.19
			S	NA	NA	.51.19
						.44.18
						.41.18
		00074	S	NA	NA	.41.18
		00079	Y	NA	NA	.47.19
	CB	00004	S	NA	NA	.30.15
			Y	NA	NA	.25.15
		00064	Y	NA	NA	.50.15
	CSP	00032	S	NA	NA	.49.16
	EGE	00044	S	NA	NA	.55.15
	ESB	00036	S	NA	NA	.40.14
						.32.13
	MSV	00086	S	NA	NA	.50.16
FILTER	AB	00066	N	SF	MD	.41.18
			S	NA	NA	.41.18
		00079	S	NA	NA	.41.18
	CB	00004	N	SF	MD	.25.15
		00064	N	SF	MD	.50.15
			S	NA	NA	.50.15
	EGE					
		00029				

TABLE 3.9B-14
MAJOR MECHANICAL EQUIPMENT (NON-NSSS)

EQUIPMENT CODE DESCRIPTION	LOCATION BLDG	ELEV	QUAL METHOD ANLYS	FREQ	DIR	HIGHEST REQUIRED INPUT (ZPA)
FILTER	EGE	00027				
	ESB	00021				.32.13
RECOMBINER	HRB	00024	?!	MF	HD	.18.12
STRAINER,PERMANENT	EGE	00024				
TANK	AB	00043	S	SF	SD	.32.18
		00066	S	SF	SD	.41.18
	CB	00064	S	SF	SD	.50.15
	EGE	00004	S	SF	SD	.32.15
		00024				
			S	SF	SD	.32.15
		00027				
	ESB	00036	S	SF	SD	.32.13
	OY	00024	S	SF	HD	.48.24
					SD	.34.24
TURBINE	ESB	00021	S	NA	NA	.32.13

TABLE 3.10B-1
MAJOR CLASS 1E EQUIPMENT (NON-MSSS)

EQUIPMENT CODE DESCRIPTION	LOCATION BLDG	ELEV	QUAL METHOD ANLYS	FREQ	DIR	HIGHEST REQUIRED INPUT (ZPA)
RACK,STORAGE STAND	CB	00047	D	NA	NA	.40.15
			S	NA	NA	.40.15
BATTERY	CB	00004	S	MF	MD	.25.15
BOX,JUNCTION	CB	00004	S	NA	NA	.40.15
		00047	N	MF	MD	.40.15
CHARGER,BATTERY	CB	00004	N	MF	MD	.25.15
CONTROLLER,TEMPERATURE	CB		N	MF	MD	.40.15
		00048	N	MF	MD	.40.15
INDICATOR,FLOW	CB		N	MF	MD	.40.15
		00048	N	MF	MD	.40.15
	HRB		N	MF	MD	.18.12
INDICATOR,LEVEL	CB		N	MF	MD	.40.15
		00004	N	MF	MD	.40.15
		00048	N	MF	MD	.40.15
INDICATOR,PRESSURE	CB		N	MF	MD	.50.15
						.40.15
		00048	N	MF	MD	.40.15
	EGE	00025				
		00026				
	HRB		N	MF	MD	.18.12
INVERTER	CB	00004	S	NA	NA	.25.15
LEVEL INDICATING SWITCH	EGE	00040	N	MF	MD	.55.15
MAIN CONTROL BOARD	CB	00047	SD	NA	NA	.40.15

TABLE 3.10B-1
MAJOR CLASS 1E EQUIPMENT (NON-NSSS)

EQUIPMENT CODE DESCRIPTION	LOCATION BLDG	ELEV	QUAL METHOD ANLYS	FREQ	DIR	HIGHEST REQUIRED INPUT (ZPA)
MOTOR CONTROL CENTER	CB	00004	N	MF	MD	.25.15
	CSP	00014	N	MF	MD	.40.16
	EGE	00024	N	MF	MD	.32.15
	ESB	00036	N	MF	MD	.32.13
	MRC	00024	N	MF	MD	.27.16
PANEL	CB	00004	N	MF	MD	.25.15
			S	MF	MD	.40.15
						.25.15
				NA	NA	.25.15
		00024	S	NA	NA	.30.15
		00047	N	MF	MD	.40.15
			S	MF	MD	.40.15
				NA	NA	.40.15
		00064	S	NA	NA	.50.15
	CSP	00014	N	MF	MD	.40.16
			S	NA	NA	.40.16
	EGE	00024	N	MF	MD	.32.15
			S	NA	NA	.31.15
		00025	S	MF	MD	.32.15
	ESB	00036	N	MF	MD	.32.13
			S	NA	NA	.32.13
	MRC	00024	N	MF	MD	.27.16
			S	NA	NA	.27.16
		00025	S	MF	MD	.27.16
RADIATION INDICATING RELAY	AB	00043	N	MF	MD	.41.18
	ESB	00036	N	MF	MD	.40.14
	FB	00024	N	MF	MD	.25.15
	HRB	00024	N	MF	MD	.23.13
	MRC	00024	N	MF	MD	.32.18
		00043	N	MF	MD	.41.18
		00045	N	MF	MD	.41.18
	MSV	00024	N	MF	MD	.25.13
RADIOACTIVITY ELEMENT, PRIMARY	AB	00004				.27.16
		00024				.32.18
		00066				.56.20
			N	MF	MD	.41.18
	CB	00064	S	NA	NA	.60.17

TABLE 3.10B-1
MAJOR CLASS 1E EQUIPMENT (NON-NSSS)

EQUIPMENT CODE DESCRIPTION	LOCATION BLDG	ELEV	QUAL METHOD ANLYS	FREQ	DIR	HIGHEST REQUIRED INPUT (ZPA)
RADIOACTIVITY ELEMENT, PRIMARY	CS	00056				.65.30
		00071				.65.30
	ESB	-0610				.20.12
		00004				.23.12
		00021				.32.13
		00024	D	NA	NA	.32.13
	FB	00052				.48.18
	HRB	00024				.23.13
		00037	S	NA	NA	.23.13
		00052				.50.15
	MRC	00024				.32.18
		00045				.41.18
	MSV	00049				.48.16
		00070	D	NA	NA	.48.16
	OY	00024	S	NA	NA	.17.11
SWITCH,FLOW	AB	00066	NA	SF	MD	.32.18
		00067	NA	SF	MD	.32.18
	CB		NA	SF	MD	.60.17
		00048	N	MF	MD	.40.15
	ESB		NA	SF	MD	.32.13
	HRB		N	MF	MD	.18.12
SWITCH,LEVEL	AB	00004	N	MF	MD	.18.12
	CB	00047	N	MF	MD	.40.15
	EGE	00041				
	ESB		N	MF	MD	.20.12
		00004				.23.12
			N	MF	MD	.20.12
						.18.12
				SF	SD	.23.12
		00005				.23.12
			N	SF	SD	.23.12
	FB	00024	N	SF	SD	.31.15
SWITCH,PRESSURE	AB	00004				.27.16
		00028	N	SF	SD	.32.18
		00043	N	SF	SD	.41.18
		00066				.56.20
	CB					.60.17
			N	MF	MD	.50.15

TABLE 3.10B-1
MAJOR CLASS 1E EQUIPMENT (NON-NSSS)

EQUIPMENT CODE DESCRIPTION	LOCATION BLDG	ELEV	QUAL METHOD ANLYS	FREQ	DIR	HIGHEST REQUIRED INPUT (ZPA)
SWITCH,PRESSURE	CSP	00017				.40.16
	EGE	00027				
	ESB	00004	N	SF	SD	.23.12
		00021				.32.13
		00246				.32.13
SWITCH,TEMPERATURE	AB		N	MF	MD	.41.18
		00066	N	SF	SD	.32.18
	CB		N	MF	MD	.50.15
						.40.15
		00048	N	MF	MD	.40.15
	CSP		N	SF	SD	.49.16
		00015	N	SF	SD	.49.16
	EGE		N	SF	SD	.55.15
		00025	N	SF	SD	.55.15
		00027				
	HRB		N	MF	MD	.18.12
	HSV		N	SF	SD	.48.16
SWITCH,TRANSFER	AB	00024	N	MF	MD	.27.16
	EGE	00025				
	MRC	00046	N	MF	MD	.27.16
SWITCHGEAR	CB	00004	N	MF	MD	.25.15
TEMPERATURE ELEMENT, PRIMARY	AB	00004	N	MF	MD	3.0
		00024	N	MF	MD	3.0
		00066	N	MF	MD	.56.20
	CB		N	MF	MD	.60.17
						.50.15
		00008	N	MF	MD	.30.15
		00047	N	MF	MD	.50.15
		00064	N	MF	MD	3.0
		00076	N	MF	MD	3.0
	CS	00018	N	MF	MD	3.0
		00140	N	MF	MD	.80.30
		00150	N	MF	MD	.80.30
	ESB	00038	N	MF	MD	.40.14
	FB	00047	N	MF	MD	.31.15

TABLE 3.10B-1
MAJOR CLASS 1E EQUIPMENT (NON-NSSS)

EQUIPMENT CODE DESCRIPTION	LOCATION BLDG	ELEV	QUAL METHOD ANLYS	FREQ	DIR	HIGHEST REQUIRED INPUT (ZPA)
TEMPERATURE ELEMENT, PRIMARY	HRB					.18.12
			N	MF	MD	.18.12
TRANSFORMER	CB	00004	N	MF	MD	.25.15
TRANSFORMER AUXILIARIES			N	MF	MD	NA
	HRB	00038	N	MF	MD	.23.13
TRANSFORMER DRISTRIBUTION	CB	00004	N	MF	MD	.25.15
	CSP	00014	N	MF	MD	.40.16
	EGE	00024	N	MF	MD	.32.15
	ESB	00036	N	MF	MD	.32.13
	MRC	00024	N	MF	MD	.27.16
		00043	N	MF	MD	.32.18
TRANSMITTER,FLOW	CS	00003	N	MF	MD	.33.20
		00004	N	MF	MD	.33.20
		00024	N	MF	MD	.40.22
	ESB	00021	N	MF	MD	.24.12
		00048	N	MF	MD	.28.14
	ESF	00005	N	MF	MD	.20.12
	HRB		N	MF	MD	.18.12
	TB	00043	N	MF	MD	.30.20
TRANSMITTER,LEVEL	AB	00024	N	MF	MD	.27.16
	CS	00003	N	MF	MD	.33.20
		00024	N	MF	MD	.40.22
	ESB	00004	N	MF	MD	.20.12
UNIT SUBSTATION	CB	00004	N	MF	MD	.25.15
	MRC	00004	N	MF	MD	.25.15
		00024	N	MF	MD	.27.16

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.1-2 As-Built Mounting Condition (SER Section 3.10.1)

The applicant needs to clarify how the as-built mounting condition is determined to be equivalent to that used in qualification and how the RRS at the mounting location is determined to equal or exceed that used in qualification.

Response (2/85)

The applicant's policy is to provide equipment anchorage in accordance with that delineated on the vendor's production drawings. It is the vendor's responsibility to assure consistency of anchorage details between these production drawings and the seismic qualification report. Exceptions to the requirements of the production drawing are reconciled with the seismic qualification report by SWEC and/or the vendor in accordance with project procedures. As described in WCAP-8587 Section 6.2, all NSSS equipment is seismically qualified in accordance with the suppliers installation instructions.

Equipment location is specified prior to seismic qualification. RRS applicable to each piece of equipment or an enveloping RRS for equipment types with multiple locations is provided for the qualification test or analysis. The final report for site-specific qualification is reviewed for compliance with the input requirements. Generically qualified equipment is reviewed against RRS applicable to the location specified for the equipment.

Modifications and addition (or deletion) of components to seismically qualified equipment are controlled by written project procedures and implemented through the Engineering and Design Coordination Report (E&DCR) process. Proposed modifications are evaluated based on sound engineering practice with specific considerations as outlined below.

Internal modifications to equipment typically involve the addition of components to existing electrical equipment. The proposed modification is evaluated by:

- Reviewing the response of the local point of attachment to determine the appropriate RRS for the seismic qualification of the component. Specific RRS are prepared if necessary or local stiffening required. Seismic qualification of the component at its local attachment point is demonstrated.

- Considering the mass and stiffness effects on the local structure (e.g., subpanel response for an electrical cabinet), and ensuring local structural adequacy for the component attachment.

- Evaluating the gross effects of the additional mass/modification on the overall response of the structure including anchorage.

Equipment anchorage changes fall into two categories:

- o An indirect attachment to the building structure uses intervening structural members with an anchorage method qualified by the vendor. The intervening structure is designed rigidly to assure that the structural RRS remains appropriate for equipment qualification and that adequate load carrying capacity exists.

- o For direct attachments to the structure changes to the vendor qualified anchorage method although rarely utilized, usually involve replacement by equivalent strength (i.e., welds replacing bolts at the original bolt locations). All modifications are evaluated to assure that adequate systems stiffness is maintained and stress levels are within allowable values.

Modifications for which vendor qualification reports and data are insufficient to allow a precise evaluation of the effects of the modification are referred back to the equipment vendor for resolution.

The Staff requested examples of how changes in mounting detail or changes in RRS are controlled to ensure proper equipment qualification. Attachment 2 provides two E&DCRs as examples of how modifications to equipment are reconciled with the original seismic qualification reports.

E&DCR F-S-35353 provides alternative mounting details for HVAC panels. The referenced calculation on Page 1 of 6 provides the verification that the seismic qualification is maintained.

E&DCR F-E-33323 adds a junction box to a panel in order to facilitate the conduit installation. The justification that the seismic qualification is maintained is provided in the E&DCR.

Changes in RRS are controlled through project procedures. An example of this is the Emergency Generator Enclosure Building (EGE). A change in the acceleration response spectra (ARS) was identified; consequently, all seismic equipment in the building was reviewed for acceptability to the revised ARS. In cases where the architect/engineer was unable to make a positive determination, the revised ARS was submitted to the equipment vendor for requalification of the equipment. All seismic Category I equipment affected by the ARS change was subsequently documented as acceptable.

ATTACHMENT 2

MODIFICATIONS TO QUALIFIED EQUIPMENT

STONE AND WEBSTER ENGINEERING CORPORATION
ENGINEERING & DESIGN COORDINATION REPORT

4542

E&DCR NO. F-E-33323

PROJECT/CLIENT	MILLSTONE III /NUSCO
JOB ORDER NO	12179
P.O. NO (S.E.W.)	2400.000-350
REASON CODE (S)	V
EQUIP. I.D. NO (S)/SYS CODE (S)	NA /MSS
AREA/BLDG	6/CB
REFERENCE DOCUMENTS	SPEC 292, EE-42J, F-E-31812
SUPPLIER (OR SUBSUPPLIER) NAME	S&W
DESCRIPTION SUMMARY	ADD J.B. FOR CONDUIT INSTALLATION AT 3CES*1PNL122
REMARKS	SUPERSEDES E&DCR F-E-31812

PROBLEM DESCRIPTION

1) E&DCR F-E-31812 ADDS A JUNCTION BOX (HAF-35) TO 3CES*1PNL122 TO FACILITATE CONDUIT INSTALLATION. DUE TO INTERFERENCES WITH FRAME MEMBERS, INTERNAL TO 3CES*1PNL122, THE FIELD CANNOT LOCATE THE ANCHOR BOLTS AS SHOWN ON PAGE 4 OF E&DCR F-E-31812. THE FIELD REQUESTS TO RELOCATE THE ANCHOR BOLTS TO CLEAR THE INTERFERENCES.

2) FOR ORIGINAL PROBLEM DESCRIPTION SEE PAGE 2 OF THIS E&DCR. PLEASE RESOLVE.

AW8406050351

INITIATOR	AREA/DEPT DIV	TEL EXT	DATE	DATE NEEDED BY	APPROVED	ENGR RESP
R. LOESER	SEG	6107	6/5/84	6/12/84	JJL	EED

PROBLEM SOLUTION

1) TO CLEAR THE INTERFERENCES, THE FIELD SHALL MODIFY THE JUNCTION BOX FLANGES AND RELOCATE THE ANCHOR BOLTS AS SHOWN ON PAGE 5 OF THIS E&DCR. FOR ADDITIONAL INFORMATION REFER TO PAGE 4 OF THIS E&DCR.

2) ORIGINAL PROBLEM SOLUTION AS FOLLOWS: TO FACILITATE CONDUIT INSTALLATION INTO 3CES*1PNL122, THE FIELD SHALL ATTACH JUNCTION BOX HAF-35 TO PANEL PER DETAIL ON PAGE 3&5. STRUCTURAL INTEGRITY OF PANEL ANCHORAGE TO FLOOR IS MAINTAINED. REF. CALC. NO. 12179/SEO-C10.25

(CONTINUED ON PAGE 7)

APPROVED
ADVANCE AUTHORIZATION APPROVED
Supt. of Eng.
Date 6/6/84

THIS E&DCR SUPERSEDES E&DCR F-E-31812

AFFECTED DOCUMENT NUMBERS	TYPE	STATUS
EE-42J	D	C

RELATED ACTIVITIES	NA
QA CAT	I
CLIENT APP	REQ'D ☐ NR ☒
ANSWERED BY	DATE 6-6-84
RESP LEAD ENGR	DATE 6/14/84
MATERIALS ENGR	N/A
EQUIP. SPEC.	N/A
QSD OR EA	N/A
PROJ ENGR	DATE 6-15-84

SUB ITEM	WORK RESP	SUB ITEM	WORK RESP
01		02	
EQ RELEASE NO.		EQ RELEASE NO.	
WBS NO.		WBS NO.	

WORK COMPLETION NWR ☐ DATE
INSP. REPORT NO/SIG DATE
FINAL WORK TRACKING CLOSURE DATE

STATUS
C - WILL BE INCORPORATED
N - WILL NOT BE INCORPORATED
I - NO CHANGE

DESCRIPTION (01)	REMARKS (01)
DESCRIPTION (02)	REMARKS (02)

STONE AND WEBSTER ENGINEERING CORPORATION
ENGINEERING & DESIGN COORDINATION REPORT

2270

PAGE 1 OF 5

E&DCR NO F-E- 31812

JOB ORDER NO 12179

PROJECT/CLIENT	P O NO (S.F.W.)	REASON CODE (S)	EQUIP I.D. NO (S)/SYS CODE (S)	AREA/BLDG.
MILLSTONE III/NUSCO	2400.000-350	V	NA/MSS-3316A	6/CB

REFERENCE DOCUMENTS	SUPPLIER(OR SUBSUPPLIER)NAME
Spec. 292 EE425	S & W

DESCRIPTION SUMMARY	REMARKS
CONDUIT INSTALLATION: 3CES*IPNLI22	

PROBLEM DESCRIPTION

Field requests details for conduit installation at 3CES*IPNLI22.

Also Field requests grounding details for this panel. dk 4/27/84

AW840427 0067

INITIATOR	AREA/DEPT DIV	TEL EXT	DATE	DATE NEEDED	APPROVED	ENGR RESP
L. KONIECKI/H. KOERNER	CONST	215	4/27/84	5/02/84	WG	EEP

PROBLEM SOLUTION

REFER TO PAGE 1 FOR ORIGINAL PROBLEM SOLUTION

CALCULATION SHEET

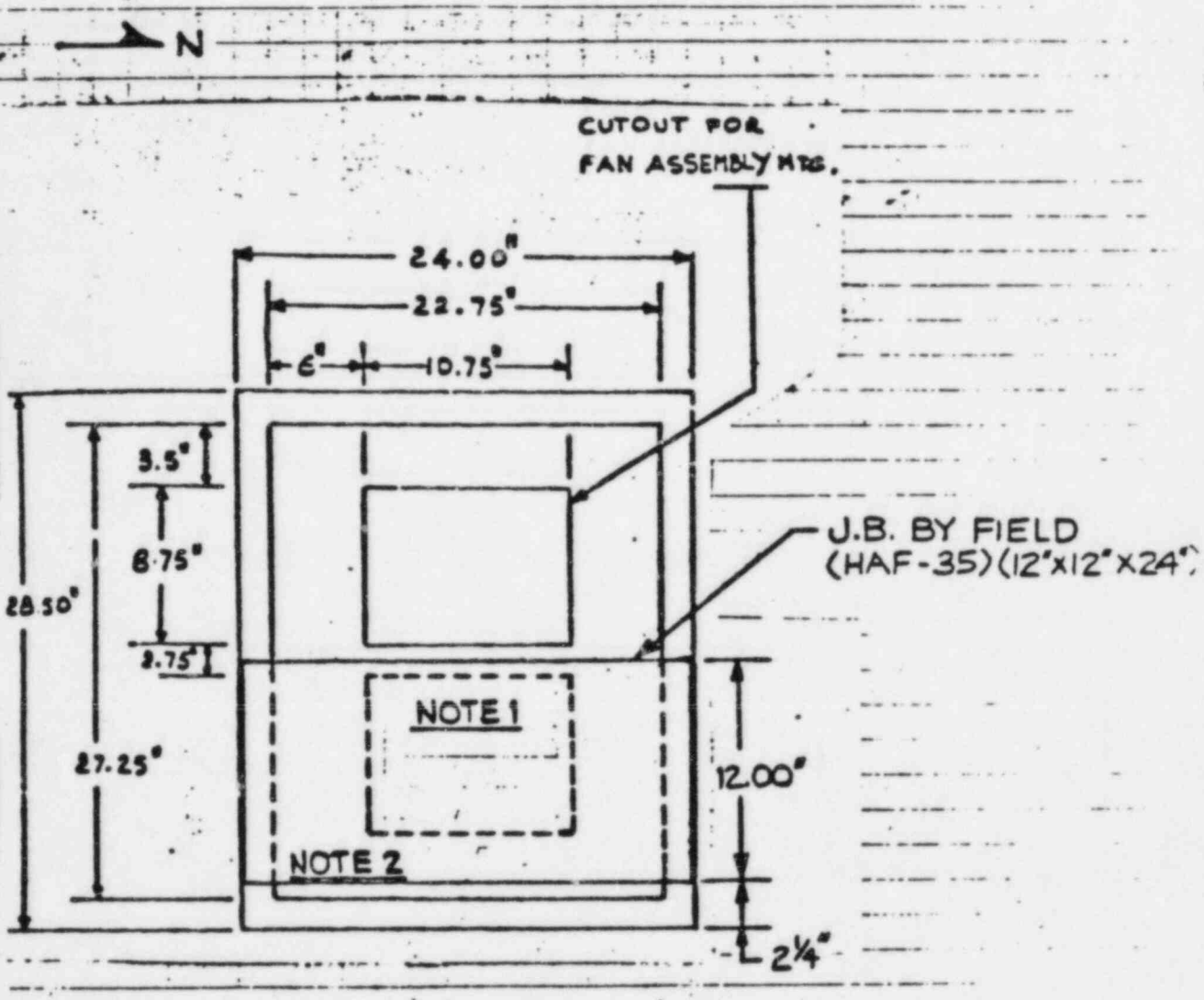
STONE & WEBSTER ENGINEERING CORPORATION

J.O./W.O./CALCULATION NO.	REVISION	PAGE

A5010 61

PREPARER/DATE	REVIEWER/CHECKER/DATE	INDEPENDENT REVIEWER/DATE

SUBJECT/TITLE	QA CATEGORY/CODE CLASS



TOP VIEW OF 3CES*IPNL122
WITH JUNCTION BOX INSTALLED

NOTES

1) REFER TO PAGE 3 OF THIS E&DCR FOR CONNECTOR PLATE MODIFICATION DETAILS.
2) REFER TO PAGE 4 OF THIS E&DCR FOR JUNCTION BOX CUT-OUT DETAILS.

REF DWG: 2472.710-392-176C

CALCULATION SHEET

STONE & WEBSTER ENGINEERING CORPORATION

J.O./W.O./CALCULATION NO.	REVISION	PAGE

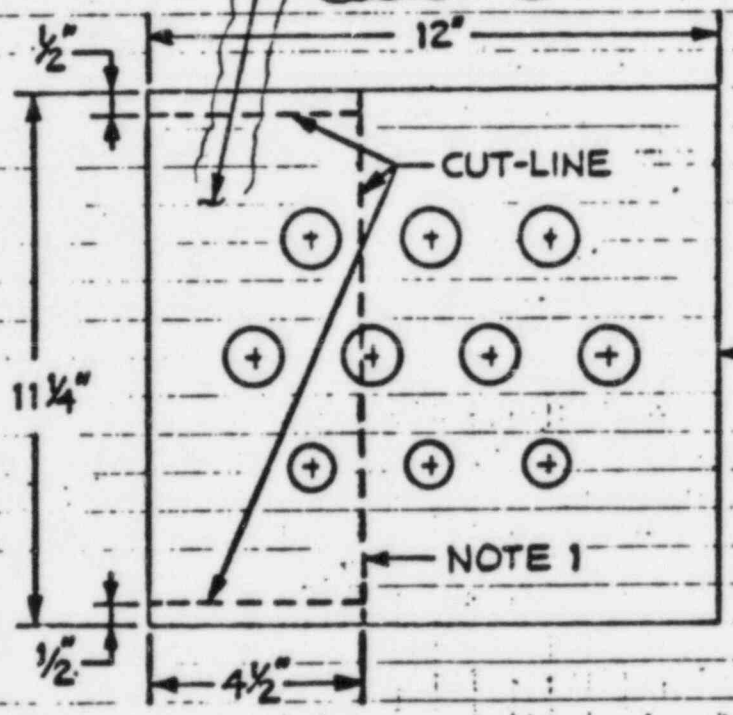
A5010 81

PREPARER/DATE	REVIEWER/CHECKER/DATE	INDEPENDENT REVIEWER/DATE

SUBJECT/TITLE | QA CATEGORY/CODE CLASS

E&DCR F-E-33323
PAGE 4 OF 9

FIELD TO TEMPORARILY REMOVE REMAINING PORTION OF CONNECTOR PLATE TO ALLOW FOR INSTALLATION OF JUNCTION BOX. JUNCTION BOX FLANGES ARE TO BE DRILLED TO SUIT LOCATION OF EXISTING TAPPED HOLES IN PANEL. THIS WILL ALLOW THE CONNECTOR PLATE TO BE RE-INSTALLED INSIDE THE JUNCTION BOX, UTILIZING THE SAME EXISTING HOLES.



CONNECTOR PLATE DETAILS

NOTES

1) FIELD TO MODIFY CONNECTOR PLATE AS SHOWN. EDGE OF PLATE TO BE DRESSED OR GROMMETTED AS NECESSARY TO PROTECT CABLES.
2) LOCATIONS FOR EXISTING CONNECTORS WILL REMAIN THE SAME.

SCALE: NONE

CALCULATION SHEET

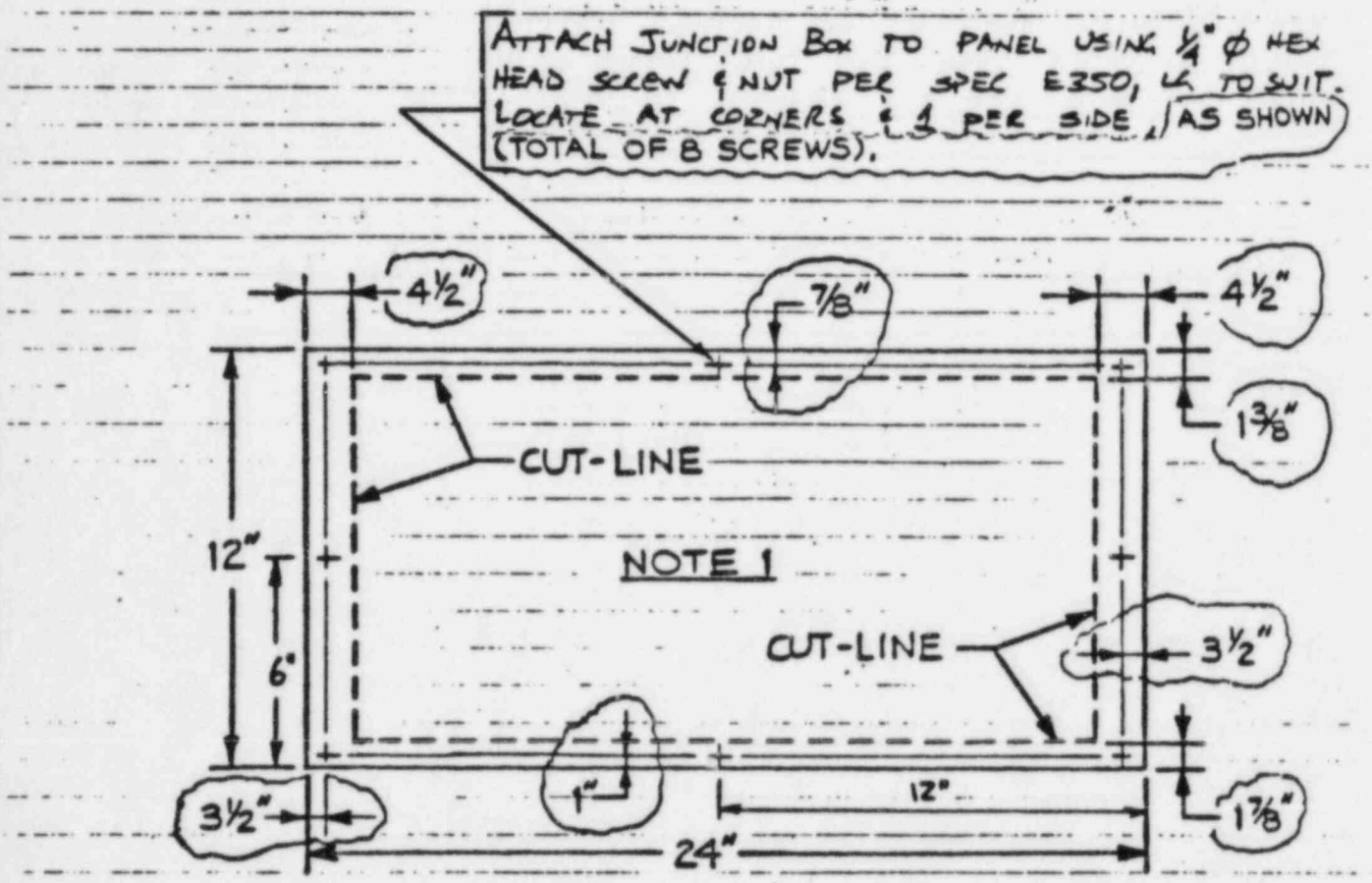
STONE & WEBSTER ENGINEERING CORPORATION

J.O./W.O./CALCULATION NO.	REVISION	PAGE

A5010 81

PREPARER/DATE	REVIEWER/CHECKER/DATE	INDEPENDENT REVIEWER/DATE

SUBJECT/TITLE	QA CATEGORY/CODE CLASS



FIELD JUNCTION BOX CUT-OUT DETAILS
(LOOKING AT BOTTOM OF BOX)

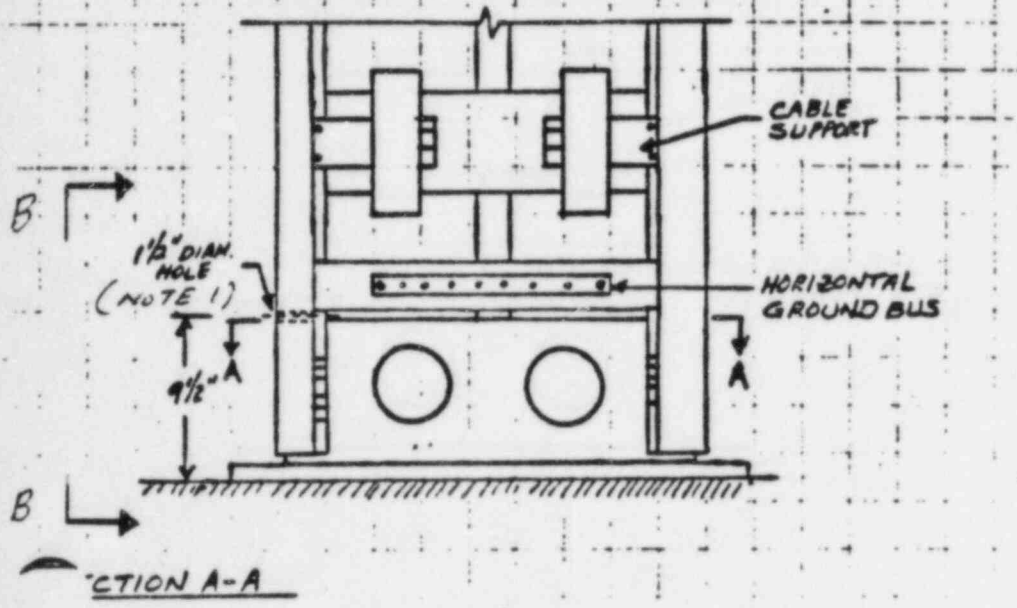
NOTES

1) FIELD TO CUT BOTTOM OF JUNCTION BOX IN ACCORDANCE WITH DIMENSIONS GIVEN.
2) FIELD TO PROVIDE PROTECTIVE EDGE DRESSING OR GROMMET AS NECESSARY.
3) FIELD TO INSTALL GASKET BETWEEN JUNCTION BOX AND 3CES*IPNL122. SIZE GASKET TO FLANGE DIMENSIONS AFTER CUT-OUT HAS BEEN REMOVED.

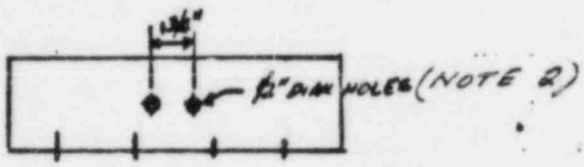
SCALE: NONE

GROUNDING DETAILS FOR 3CES*IPNLI22

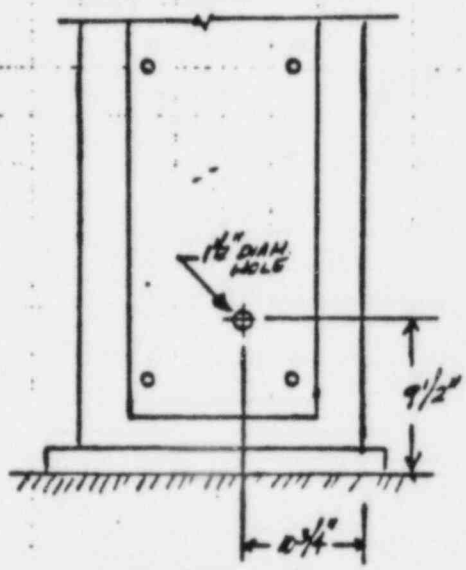
1) REAR VIEW WITHOUT COVERS



SECTION A-A



2) SIDE VIEW WITH COVERS



SECT B-B

NOTES:

1) FIELD IS TO DRILL A 1½" DIAMETER HOLE ON THE SIDE OF 3CES*IPNLI22 AT THE LOCATION SHOWN. HOLE TO BE GROMMETTED AS NECESSARY TO PROTECT THE GROUND CABLES (2/0 ARE BARE COPPER).

2) FIELD IS TO DRILL TWO ½" DIAM. HOLES AS SHOWN ABOVE FOR THE ATTACHMENT OF THE GROUND CABLES USING BURNDY NY LUG TYPE YA DOUBLE INDENT.

3) FIELD TO ATTACH GROUND CABLE TO BUILDING STEEL.

*CALCULATION SHEET

STONE & WEBSTER ENGINEERING CORPORATION

J.O./W.O./CALCULATION NO.	REVISION	PAGE

PREPARER/DATE	REVIEWER/CHECKER/DATE	INDEPENDENT REVIEWER/DATE

SUBJECT/TITLE	QA CATEGORY/CODE CLASS

(CONTINUED FROM PAGE 1)

THE CONDUITS WILL BE INSTALLED AT THE FIELD JUNCTION BOX AND THE CABLES WILL BE PULLED THROUGH THE J.B. TO 3CES*IPNL22.
FOR GROUNDING DETAILS REFER TO PAGE 6.

REFER TO PAGES 8 & 9 FOR EMD JUSTIFICATION THAT SEISMIC QUALIFICATION IS NOT ADVERSELT AFFECTED. BAD 6;13-24

RACK 3CES*IPNLI22, PURCHASED UNDER SPECIFICATION 2472.710-392, IS LOCATED ON EL 4'6" OF THE CONTROL BLDG. IT WAS SEISMICALLY QUALIFIED BY GENERIC TESTING DOCUMENTED IN FOXBORO REPORT NO. QOAAA20, PARTS 1 & 2. THE REQUIRED RESPONSE SPECTRUM TO WHICH THE EQUIPMENT WAS QUALIFIED FAR EXCEEDS THAT OF THE CONTROL BUILDING, EL 4'6". BELOW IS A COMPARISON OF THE GENERIC TEST TO THE CONTROL BLDG. "G" VALUES. THE GENERIC TEST "G" VALUES ARE TAKEN FROM FIGURES 1 & 2 (PGS. 38 & 41, RESPECTIVELY, OF PART 1 OF THE ABOVE MENTIONED REPORT). CONTROL BLDG. "G" VALUES ARE FROM THE APPROPRIATE MILLS 3 RRS. ALL ACCELERATIONS ARE FOR 1% DAMPING.

	½SSE				SSE			
	PEAK ACC. 2.5 TO 15 Hz		ZPA >30 Hz		PEAK ACC. 2.5 TO 15 Hz		ZPA >30 Hz	
	HOR.	VERT.	HOR	VERT	HOR.	VERT.	HOR.	VERT.
GENERIC TESTING	9.3	9.3	1.0	1.0	15.5	15.5	1.6	1.6
CONTROL BLDG EL 4'6"	0.55	0.40	0.10	0.10	1.00	0.70	0.25	0.15
RATIO OF A_{TEST}/A_{CB}	16.9	23.2	10.0	10.0	15.5	22.1	6.4	10.7

THE SMALLEST RATIO OF ACCELERATION USED IN GENERIC TESTING TO CONTROL BUILDING ACCELERATION IS 6.4. CLEARLY, THIS RACK IS "OVERTESTED" FOR ITS APPLICATION AT 4'6" OF THE CONTROL BUILDING.

THE JUNCTION BOX BEING ADDED TO THE TOP OF THE PANEL WEIGHS A MAXIMUM OF 152# (REF. CALC. 12179/SEO-C10.25). ASSUMING THE RACK IS FULLY LOADED (THIS IS A WORST CASE CONDITION), IT HAS A WEIGHT OF 1046# (PG.7 OF REPORT QOAAA20, PART 1). THE RATIO OF MASS AFTER THE ADDITION TO BEFORE THE ADDITION OF THE JUNCTION BOX IS (1046+152)/1046 = 1.15.

THE FUNDAMENTAL LAW OF PHYSICS, $F = ma$, APPLIES. THE MASS HAS INCREASED SINCE THE TEST BY A FACTOR OF 1.15, HOWEVER, THE ACCELERATION HAS DECREASED BY A FACTOR OF 6.4 MINIMUM. THE TWO OFFSET EACH OTHER AND STRUCTURAL INTEGRITY IS ASSURED.

FURTHERMORE, THE INCREASE IN WEIGHT HAS NO SIGNIFICANT EFFECT ON THE RESPONSE OF THE RACK. THE FUNDAMENTAL FREQUENCY CAN BE

APPROXIMATED BY $f = \frac{1}{2\pi}\sqrt{\frac{k}{m}}$. SINCE k IS A CONSTANT (THE STIFFNESS OF THE RACK), FREQUENCY IS A FUNCTION OF THE MASS. THAT IS, $\frac{f_1}{f_2} = \sqrt{\frac{m_2}{m_1}}$ WHERE

m_2 = THE MASS OF THE SYSTEM AFTER THE ADDITION OF THE JUNCTION BOX AND m_1 = THE MASS OF THE SYSTEM BEFORE THE ADDITION. THE RATIO OF FREQUENCY BEFORE TO AFTER = $\sqrt{\frac{(1046 + 152)}{1046}}$ = 1.07. THE FUNDAMENTAL FREQUENCY WILL DROP ABOUT 7% WHEN THE JUNCTION BOX IS ADDED. THIS SLIGHT SHIFT IN RESPONSE MAY BE ACCOUNTED FOR BY CONSIDERING THE BROAD FREQUENCY RANGE ENVELOPED BY THE TRS (TEST RESPONSE SPECTRUM), AS OPPOSED TO THE RRS.

IN CONCLUSION, THE ADDITION OF THE JUNCTION BOX AND CONDUIT HAS NO ADVERSE EFFECTS ON THE SEISMIC QUALIFICATION OF RACK 3CES*IPNL122.

VOTED AUG 10 1984 SEG

NA5210 65

STONE AND WEBSTER ENGINEERING CORPORATION
ENGINEERING & DESIGN COORDINATION REPORT

PAGE 1 OF 6

E & DCR NO. F-S-35353

PROJECT/CLIENT: MILLSTONE-III / NUSCO 2170

JOB ORDER NO.: 12179

P.O. NO. (S&W): 2400.000-350

REASON CODE (S): V

EQUIP. I.D. NO.(S)/SYS. CODE (S): N/A / HVR

AREA/BLDG. 2/AB

REFERENCE DOCUMENTS: EE-48A, EE-48B, E350

SUPPLIER (OR SUBSUPPLIER) NAME: S&W

DESCRIPTION SUMMARY: MOUNTING DETAILS - 3HVR PNL'S

REMARKS: SUPERSEDES E&DCR FS-33316 ✓ mc

PROBLEM DESCRIPTION

1.) THE FIELD REQUESTS TO SUPERSEDE E&DCR F-S-33316 FOR REVISED MOUNTING DETAILS FOR 3HVR* PNL-FLT 1A/B, 2A/B. REVISED DETAILS ARE REQUIRED TO FACILITATE CONDUIT ENTRY ON THE TOP OF THE PNL.
- PLEASE ADVISE

SEE PAGE-2 FOR ORIGINAL PROBLEM DESCRIPTION

AW840731 0029

SINHA

INITIATOR	AREA/DEPT DIV	TEL. EXT.	DATE	DATE NEEDED BY	APPROVED	ENGR. RESP.
M.C. MILLER	SEG	6160	7-31-84	8-3-84	RJP For HKS	SST

PROBLEM SOLUTION

1. & 2.) SEE PAGES 3-6 FOR MOUNTING DETAILS.
STRUCTURAL INTEGRITY OF THE MOUNTING DETAILS IS ADEQUATE. REF. CALC. 12179/SEO-BE-52.1832. PM.C.ott (8-1-84)

ADEQUACY OF SEISMIC QUALIFICATION IS MAINTAINED (Ref. 12179-NM(S)-664-CBK)
P. Sylvia 8/7/84

THIS E&DCR SUPERSEDES E&DCR FS-33316

AFFECTED DOCUMENT NUMBERS	TYPE	STATUS
EE-48A	D	N
EE-48B	D	N
M065	S	N

RELATED ACTIVITIES: N/A

QA CAT: I

CLIENT APP: REQ'D ☐ NR ☒

REF / DATE

		DATE
ANSWERED BY	D.W. Timm / PM.C.ott	8/7/84 / 8-1-84
RESP. LEAD ENGR.	RJ Patel / W. Ximinez / J.F. Brinkerhoff	8-7-84
MATERIALS ENGR.	B.J. Johnson	8-7-84
EQUIP. SPEC.	G. Timm / J. Walsh TELECON	8/7/84
QSD OR EA	N/A WO 8/9/84	
PROJ. ENGR.	JAP Chillan	8/9/84

SUB ITEM	WORK RESP	SUB ITEM	WORK RESP
01		02	

EQ RELEASE NO. (1): AC 3314A

EQ RELEASE NO. (2): AC 3314C

WBS NO.:

WORK COMPLETION: NWR ☐ DATE

INSP. REPORT NO/SIG: DATE

FINAL WORK TRACKING CLOSURE: DATE

STATUS
C - WILL BE INCORPORATED
N - WILL NOT BE INCORPORATED
I - NO CHANGE

DESCRIPTION (01)

REMARKS (01)

DESCRIPTION (02)

REMARKS (02)

AN210-84

STONE AND WEBSTER ENGINEERING CORPORATION
ENGINEERING & DESIGN COORDINATION REPORT 41537

PAGE 1 OF 5

E&DCR NO. F-S-35314

PROJECT/CLIENT: MILLSTONE - III / NUSCO

JOB ORDER NO.: 12179

P.O. NO (S.T.W.)	REASON CODE (S)	EQUIP. I.D. NO. (S)/SYS CODE (S)	AREA/BLDG
2400 000 -350	G	N/A HVR	2/AB

REFERENCE DOCUMENTS: EE-48A, EE-48B, E350

SUPPLIER(OR SUBSUPPLIER)NAME: S&W

DESCRIPTION SUMMARY: MOUNTING DETAILS

REMARKS: ~~SUPERSEDES E/DCR FS-29831~~ W.C.# 6-5-84

PROBLEM DESCRIPTION

2) THE FIELD REQUEST TO SUPERSEDE E/DCR FS-29831, FOR REVISED MOUNTING DETAILS FOR THE FOLLOWING EQUIPMENT IN THE AUX BLDG.

3HVR * PNL - FLT 1A/1B
3HVR * PNL - FLT 2A/2B
3HVR * PNL - FLT 3A/3B

AN840605 0047

S&WA

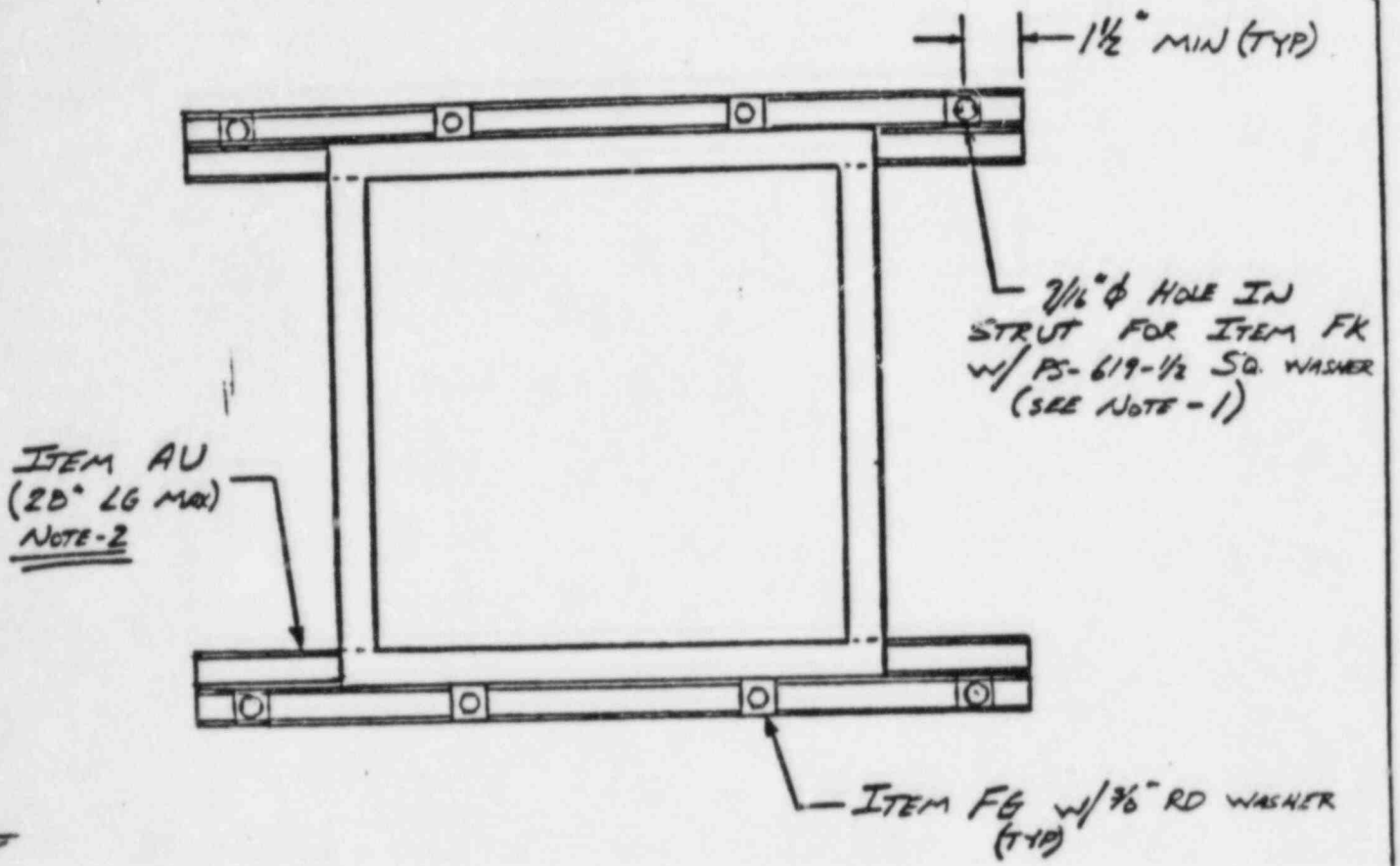
INITIATOR	AREA/DEPT DIV.	TEL. EXT.	DATE	DATE NEEDED	APPROVED	ENGR. RESP
M. C. MILLER	SEL	2114	5-6-84			

E&DCR F-S-35353

PAGE 2 OF 6

JUN 21 1984

E¦ DCR F-S-35353



3HVR* PNL-FLT-11/8 (CONTROL UNIT) MOUNTED ON CONCRETE WALL (LOCATED ON WALL ABOVE EL. 66'6")

N.T.S.

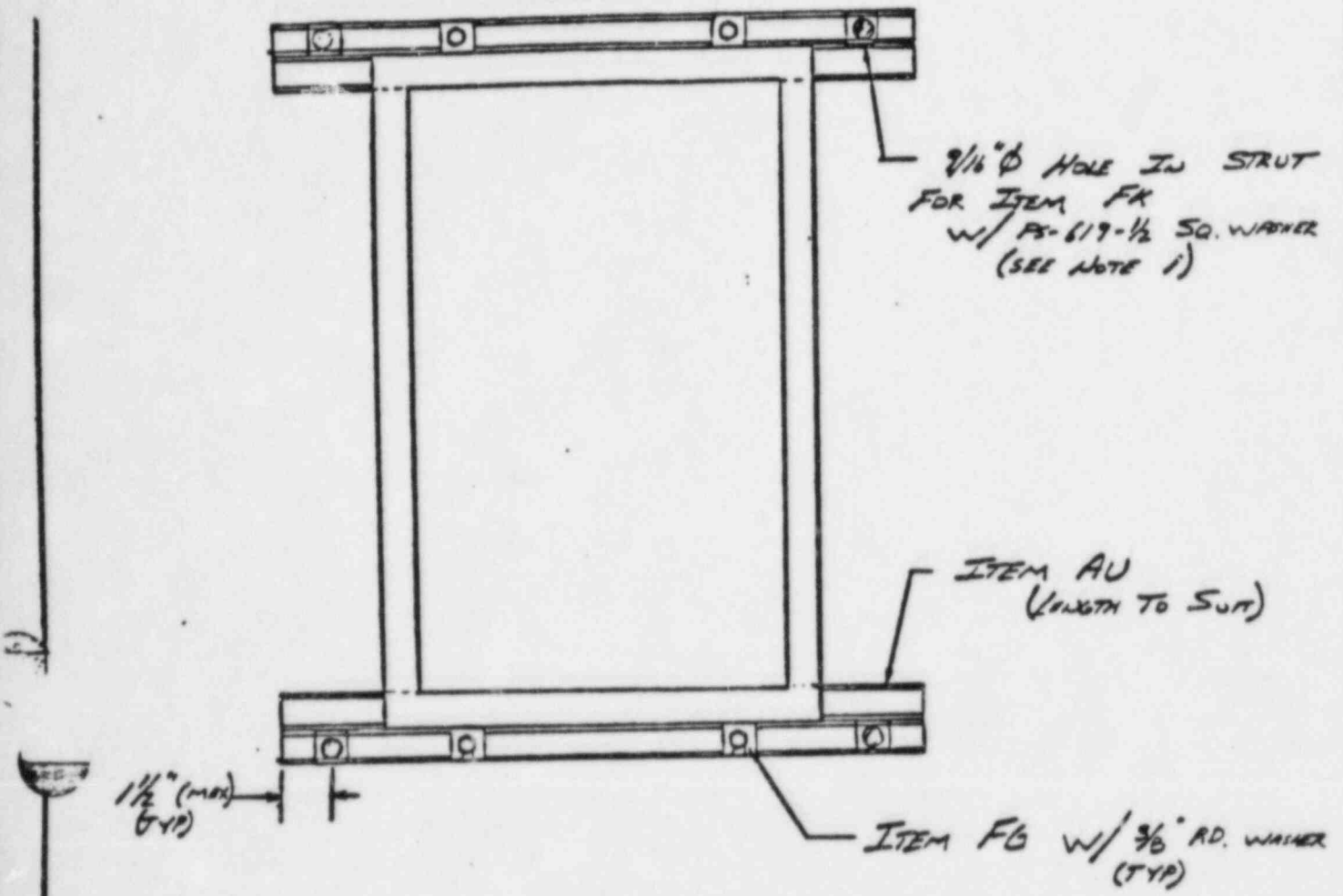
NOTES:

1.) THE ½"ϕ HILTI BOLT MAY BE LOCATED IN EITHER CHANNEL OF THE PS-202 STRUT.

2.) THE STRUT MAY BE ROTATED 90° TO SUIT FIELD CONDITIONS.

3.) LOCATION & ELEVATION OF PNL ON CONCRETE WALL BY FIELD.

(FIRE DETECTION PANEL) JSW.T. 01/20/89



3 HR * PNL-FIT-3A/B
MOUNTED ON CONCRETE WALL
N.T.S.

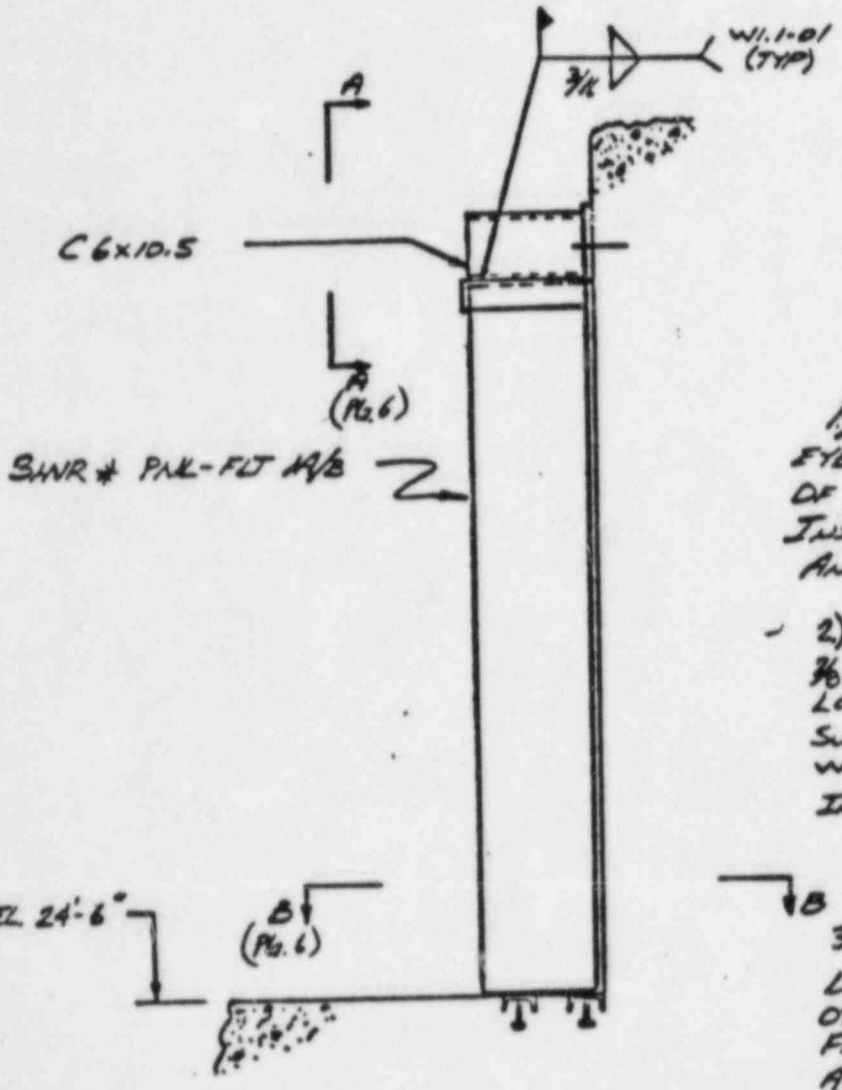
(LOCATED ON WALL ABOVE EL 24'-6")

NOTES:

1) THE ½" Ø HILTI BOLTS MAY BE LOCATED IN EITHER CHANNEL OF THE PS-202 STRUT.

2) LOCATION & ELEVATION OF PNL ON CONCRETE WALL BY FIELD.

3) THE STRUT MAY BE ROTATED 90° TO SUIT FIELD CONDITIONS.



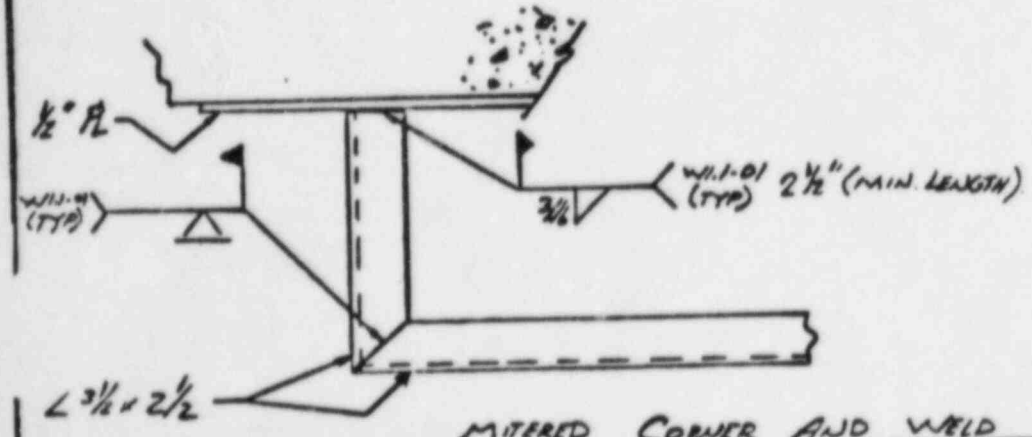
MOUNTING DETAILS FOR 3HVR# PNL-FLT-1A/B, 2A/B
(N.T.S.)

NOTES:

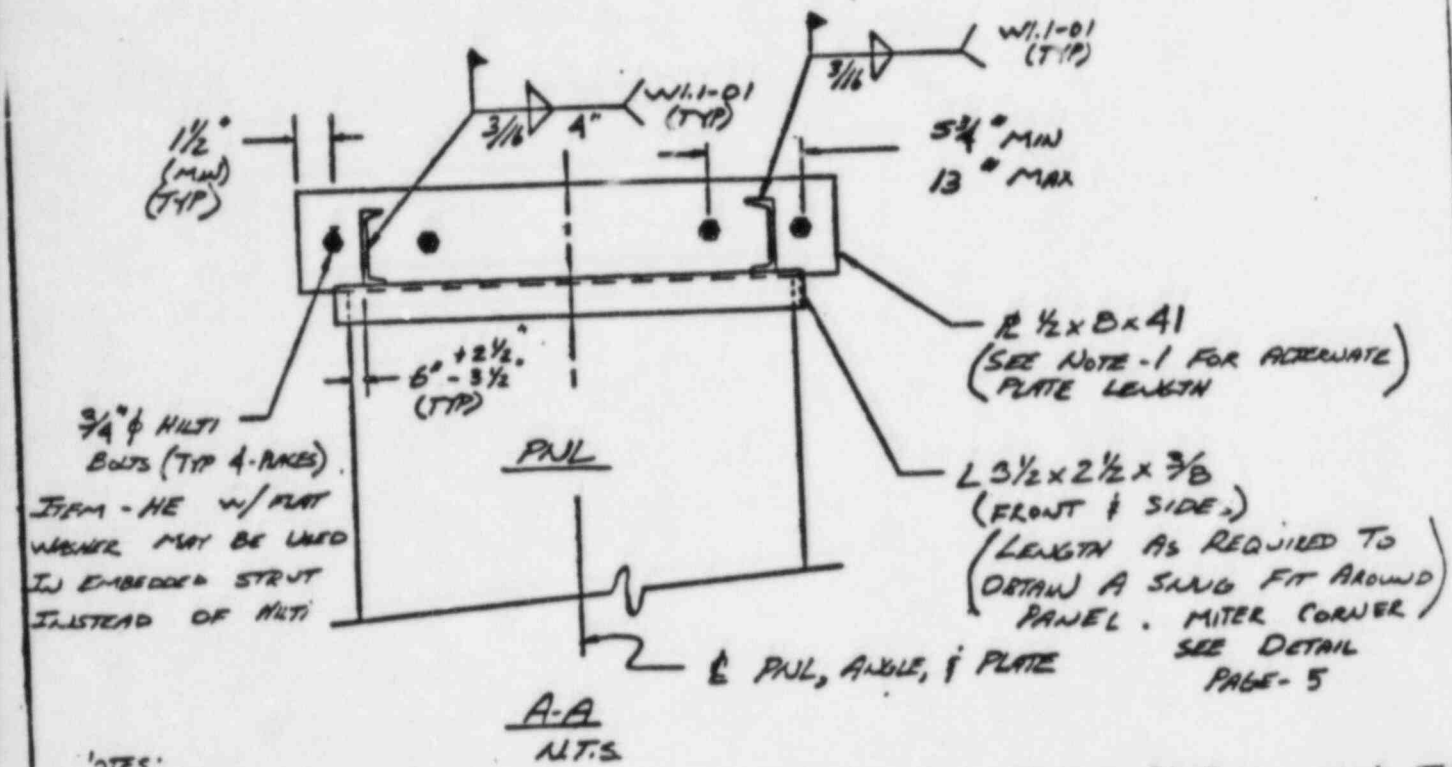
1) REMOVE THE LIFING EYE BOLTS AT THE TOP OF THE PANELS FOR THE INSTALATION OF THE ANGLE FRAME.

2) TAP THE EXISTING HOLES TO 3/8"ϕ, AND PROVIDE A 3/8"ϕ BOLT W/ LOCK WASHER. BOLT LENGTH TO SUIT SO BOLT WILL BE FLUSH WITH THE TOP OF THE PNL. INSERT BOLT FROM BOTTOM.

3) SINCE PNLS WILL BE LOCATED ADJACENT TO EACH OTHER, THE LT. GREEN FINISH COAT MAY BE APPLIED BEFORE FINAL INSTALLATION. ONLY PAINT THE TWO ADJACENT SURFACES. PRIOR TO INSTALLATION, REF. SPECS. 065 & C956



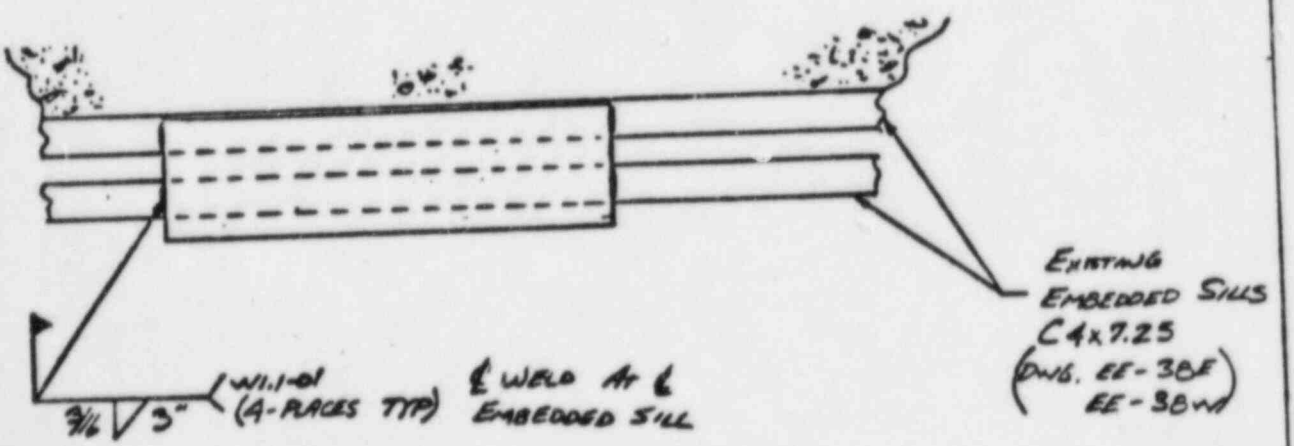
MITERED CORNER AND WELD DETAIL



A-A
N.T.S.

NOTES:

THE ½"R MAY BE CONTINUOUS BETWEEN THE TWO PANELS (90" LONG MAX), IF THEY ARE LOCATED ADJACENT TO EACH OTHER. THE BOLTING PATTERN SHOWN IS TYPICAL FOR EACH PNL. MIN HILTI BOLT SPACING SHALL BE MAINTAINED.



B-B
(N.T.S.)

(ADJACENT PANEL NOT SHOWN FOR CLARITY. SPACING BETWEEN PNLS BY FIELD.)

NOTE:

IF SPACING BETWEEN PNLS DOES NOT PERMIT WELDING AS SHOWN, THE FIELD MAY PLUG WELD ℄ PANEL TO THE SILL OR W1.1-01. PLUG WELD EXISTING MOUNTING HOLE OR DRILL A NEW HOLE LOCATED OVER THE ℄ OF THE SILL. PLUG WELD A MAX. OF 2 HOLES PER PANEL.

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.1-3 Piping Loads Transmitted to Pump and Valve Bodies (SER Section 3.10.1)

The applicant needs to clarify how the conservative restrictions placed on allowable piping loads transmitted to the pump and valve bodies for NSSS supplied items have been demonstrated not to cause detrimental deflections of the active components. The applicant should also clarify how this issue is resolved for BOP equipment.

Response (2/85)

Pump and valve operability programs are described in FSAR Sections 3.9B.3.2 and 3.9N.3.2.

For both BOP and NSSS pumps, the methodology for assuring mechanical operability is the same. This is described with justification in FSAR Section 3.9B.3.2.1.

FSAR Sections 3.9B.3.2.2 and 3.9N.3.2.2 describe in detail methods of assuring valve operator operability. As indicated in FSAR Section 3.9B.3.1.2, fluid boundary component design, including valve bodies, is assured to be within elastic limits.

Category I valves are designed to ASME III design rules which specify that the valve section modulus and metal area through a plane normal to the flow path be a minimum of 110% of the corresponding properties of the attached piping. Typically, valves have much greater margin than that specified by code. This ensures that the valve body is very stiff in relation to the attached piping. Therefore, the piping reactions at the valve body are transmitted through the valve with insignificant deflections due to the flexibility of the piping geometry. These deflections are limited due to the conservative ASME design criteria applied to the piping analysis. Therefore, valve operability is assured by maintaining conservative code rules.

In response to MEB question 210.35, safety-related relief valves were reviewed and shown to be operable when subjected to the calculated end loads. Relief valves were chosen for review due to their active design function of closing under one directional blowdown forces. Other types of valves must only operate under cyclic loading and are not susceptible to binding due to the nature of the loading applied. Any potential binding would occur at the extremes of the cyclic loading while allowing the valve to stroke in a chattering manner. However, even this condition is precluded by the stiffness argument presented above.

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.1-4 Aging and Sequential Testing (SER Section 3.10.1)

Although the applicant has committed to follow the requirements and recommendations of IEEE 344-1975 and Regulatory Guide 1.100, the methods for handling aging and sequential testing in the seismic qualification of both electrical and mechanical equipment should be clarified. In addition, the applicant should commit to establish a maintenance and surveillance program to maintain equipment in a qualified status throughout the life of the plant.

Response (2/85)

The methods used in handling aging and sequential testing in the seismic qualification for both electrical and mechanical equipment are addressed in EEQ and MEQ programs.

Both types of equipment (electrical and mechanical) are included in a maintenance and surveillance program called Plant Maintenance Management System (PMMS). The object of the program (PMMS) is to maintain the equipment in accordance to the manufacturer's requirements and qualification requirements as addressed in the qualification reports. This program ensures that the appropriate refurbishment is performed during the design and/or qualified life of the equipment.

For Class 1E electric equipment, the vendor is required to evaluate the equipment for the effects of mild environment and identify any subcomponent which would degrade in such an environment. If the vendor identifies such a component, an effort is made to modify the equipment by substituting the limited life component with a full-life qualified component. Alternatively, a qualified design life will be established for the component and input into the PMMS program which requires maintenance at established intervals in order to maintain the equipment in a qualified status.

Millstone Unit 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.1-5 Westinghouse Generically Qualified Equipment (SER Section 3.10.1)

Status (2/85)

Closed. (Refer to SER Section 3.10.1, page 3-49.)

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.1-6 Qualification Using Single Axis and/or Frequency Test (SER Section 3.10.1)

Status 2/85

Closed. (Refer to SER Section 3.10.1, page 3-49.)

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.1-7 Master Equipment List (SER Section 3.10.1)

There should be a list of types of equipment that clearly shows the method used for qualification. The list also should address which standards are met, particularly those sited in SRP Section 3.10.

Response (2/85)

The master equipment list for the Seismic Qualification Review Team (SQRT) audit was provided in a letter from W. G. Counsil to B. J. Youngblood dated October 16, 1984.

Status (2/85)

Closed.

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.2-1 Design Criteria for Pump and Valve Internal Parts (SER Section 3.10.2)

The applicant did not provide the design criteria for pump and valve internal parts, such as valve discs and pump shafts. A review of qualification documents is necessary to determine whether the pump and valve internals are adequately qualified.

Response (2/85)

As indicated in FSAR Section 3.9B.3.2.1 pump shaft qualification is deflection sensitive. Pump design and qualification assure maintenance of rotor/casing clearance under all loadings. If deflection is not governing, shaft stress is limited at the manufacturer's discretion, to good design practice considering other design parameters such as design life and fatigue limits. In no case, however, does this exceed yield strength. Valve discs are qualified by hydrostatic test. (See MEB Q210.38.)

A review of the pumps and valves indicates that the Millstone 3 design utilizes components which are standard throughout the industry, manufactured by well established vendors, and have a proven history of performance. The only exception to this is the Main Steam Isolation Valves (MSIV) which are described in FSAR Section 10.3.3. As described in the FSAR, the operational characteristics of the valves are somewhat unique; however, the materials and fabrication processes utilized are industry standard. The qualification performed on the valve is extensive, both analytically and experimentally.

Each MSIV is equipped with an integral operator, confined within the pressure boundary of the valve. The operator is not considered an "extended structure" due to the compactness of the valve assembly. The valve and operator assembly is demonstrated to be rigid ($f_n > 33$hz) and is therefore statically analyzed to specific piping accelerations utilizing the design rules of ASME III Subsection NC. The valve controls (solenoid valves mounted on the valve body and control module mounted in the main control board) were qualified by test using appropriate RRS.

Valve operability for fluid dynamic loading is demonstrated by analysis. The validity of the analytical techniques were verified by correlation to test results for a similar valve subjected to blowdown forces which simulated a main steam line rupture downstream of the valve.

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.2-2 Equipment to be Tested in Operational Condition (SER Section 3.10.2)

SRP 3.10, Paragraph II.1.a(2) indicates that equipment should be tested in the operational condition, that is, normal plant loadings should be superimposed on seismic and dynamic loads, including thermal, flow induced loads and degraded flow conditions. The FSAR should clearly indicate how this requirement is met.

Response (2/85)

Pumps are qualified per FSAR Section 3.9B.3.2.1 considering all loading conditions. Qualification analysis includes pump operating and seismic loads plus system loads from attached piping which includes thermal and flow induced loads.

Degraded flow conditions per SRP 3.10 Section II.1.a(2) are considered inapplicable by maintenance of system cleanliness. Trash racks and a series of screens with increasing fineness are provided for the containment sumps in accordance with Regulatory Guide 1.82. The service water pumps employ traveling screens to remove debris from the pump intake area. These devices are considered to provide a level of system cleanlines sufficient to ensure pump operability.

Safety-related motors are designed with the capability of accelerating the driven equipment to its rated speed when starting with minimum specified motor voltage applied at the motor terminals. Except where otherwise justified, the minimum starting voltage for safety-related motors is 70 percent of rated voltage. Motor safe locked rotor time at rated locked rotor current is equal to, or greater than, the maximum accelerating time at minimum specified starting voltage. Starting currents for each motor are specified to be as low as possible without unduly sacrificing other desirable feature such as high efficiency, power factor and torque characteristics.

Each emergency 4.16 kV bus is furnished with two undervoltage detection schemes:

(1) Loss of voltage scheme with two out-of-four logic is provided to detect voltage drop below acceptable level. After sufficient time delay to coordinate with overcurrent fault protection, this scheme will start the diesel generator, trip motors through the sequencer and load the emergency generator as required.

(2) Degraded voltage scheme with two out-of-four logic is provided to detect prolonged voltage drop to the level which could be detrimental to operation of the emergency equipment if allowed to continue. Under accident conditions when the emergency generator is ready to accept load, the scheme will trip motors through the sequencer and load the emergency generator as required. Under

normal conditions this scheme will start the emergency generator and, when it is ready to accept load, will trip motors through the sequencer and load the emergency generator as required.

Valves are qualified per FSAR Section 3.9B.3.2.2. Active safety-related valves are installed in ASME III piping systems designed for all loading conditions, including fluid dynamic events. These systems are designed to maintain valve accelerations under all dynamic events (seismic and fluid transient) within qualified levels. (Refer to SER 7.1-3.)

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.2-3 Pump and Valve Operability Review Team (PVORT) Audit (SER Section 3.10.2)

For those components where qualification and/or operability assurance was provided by analysis alone, some question remains as to the confidence level ensured by this methodology. The necessity for additional component testing is being considered and cannot be established without an inspection at the plant site.

Response (2/85)

The NRC-PVORT audit has been scheduled in the week of March 4, 1985.

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.2-4 Master Equipment List (SER Section 3.10.2)

There should be a list of types of equipment that clearly shows the methods used for qualification. This list should also address which standards are met, in particular those sited in SRP Section 3.10.

Response (2/85)

The master equipment list for the Pump and Valve Operability Review Team (PVORT) audit was provided in a letter from W. G. Counsil to B. J. Youngblood dated October 16, 1984.

Status (2/85)

Closed.

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.2-5 Aging (SER Section 3.10.2)

Clarification of how aging was incorporated in the qualification process should be contained in the FSAR. In addition, the applicant should commit to establish a maintenance and surveillance program to maintain equipment in a qualified status throughout the life of the plant.

Response (2/85)

Clarification of how aging is incorporated in the qualification process is presently in the FSAR Section 3.11B.2.2 Page 3.11-5 - Aging. In addition, Section 3.11 "Environmental Design of Mechanical and Electrical Equipment" discusses the qualification aspect of all Class 1E equipment. Please note that Equipment Qualification Document (EQD) booklets are set-up by specification which address all aspects of qualification (i.e., aging, margin, submergence, irradiation, seismic, LOCA/HELB, etc.).

The equipment (electrical and mechanical) are included in a maintenance and surveillance program called Plant Maintenance and Management System (PMMS). The object of the program (PMMS) is to maintain the equipment in accordance with the manufacturer's requirements and qualification requirements as addressed in the qualification reports. This program ensures that the appropriate refurbishment is performed during the design and/or qualified life of the equipment.

For Class 1E electrical equipment, the vendor is required to evaluate the equipment for the effects of mild environment and identify any subcomponent which would degrade in such an environment. If the vendor identifies such a component, an effort is made to modify the equipment by substituting the limited life component with a full-life qualified component. Alternatively, a qualified design life will be established for the component and input into the PMMS program which requires maintenance at established intervals in order to maintain the equipment in a qualified status.

Millstone Unit No. 3
SER OPEN ITEMS
EQUIPMENT QUALIFICATION BRANCH

SER 7.2-6 Independent Qualification Versus Assembly Qualification (SER Section 3.10.2)

Further justification of the independent qualification of pumps, valves, prime movers, and actuators versus their assembly qualification is also required.

Response (2/85)

The Staff was concerned whether pumps and valves were qualified as an assembly including their motor and actuator. Pumps are qualified by detailed stress analysis as a total assembly including both pump, motor, and gear box where applicable. Valves are similarly qualified as an assembly including both valve operator and valve body.

The qualification documentation for a pump or valve fully qualifies the entire assembly to the requisite environmental and seismic conditions. This documentation may include separate analytical or test results for a pump, motor, coupling, and gear box since individual organizations may have qualified the components separately. Valve assemblies are typically addressed in the same fashion since the valve and operator are often supplied by separate vendors. However, the qualification documentation for the complete assembly addresses the interrelation and dynamic interaction of the individual components via analysis and/or test to achieve a fully qualified assembly.