INSERT A TO PAGE 3/4 6-27

Primary Containment Gaseous Radioactivity Monitor Isolation Valves		
Inboard:	T50-F450	60
	T50-F451	60
Outboard:	T50-F455	60
	T50-F456	60

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

TABLE NOTATIONS (Continued)

15. Group 15 - Traversing In-Core (TIP) System (Continued)

NOTE: Either of these signals initiate TIP withdrawal which results in automatic closure of the TIP Ball Valves when the TIP probe has entered the shield cask.

16. Group 16 - Nitrogen Inerting System

Reactor Vessel Low Water Level - Level 2
Drywell Pressure - High
Fuel Pool Ventilation Exhaust Radiation - High

17. Group 17 - Recirculation Pump System and Primary Containment Radiation Monitoring System

Reactor Vessel Low Water Level - Level 2
Drywell Pressure - High

18. Group 18 - Primary Containment Pneumatic Supply System

Reactor Vessel Low Water Level - Level 2
Drywell Pressure - High

(b) These valves are hydrostatically leak tested.

(c) RWCU Water Temperature - High automatically closes G33-F004, outboard isolation, and G33-F001, inboard isolation.

(d) Also closes automatically as a result of Torus Room Floor Drain Sump Level - High - High and Drywell Floor Drain Sump Level - High - High.

(e) These valves may be closed remotely from one of the following locations:

1) control room.
2) their respective local panels.

(f) Will automatically reposition as a result of the actuation of the LPCI Loop Selection Logic.

(g) Will automatically close when the corresponding RHR loop flow is greater than 1500 gpm.

(h) Will automatically close when the corresponding core spray loop flow is greater than approximately 775 gpm.

(i) Will automatically close when a) HPCI Turbine Steam Stop Valve E41-F067 closes or b) HPCI Turbine Steam Supply Isolation Valve E41-F001 closes.

(j) Will automatically close as a result of the condition listed in Note (i), above, as well as when HPCI flow is greater than 1200 gpm.

UFSAR PAGE CHANGES

UFSAR SECTION	Page No.	Description of Change
6.2.4.2.2.3.1	77	Added PCRMS to the GDC 56 alternatives - "two isolation valves outside containment".
6.2.4.2.2.3.2	79	Corrected the penetration number to X-48F.
	81	Added PCRMS to the UFSAR section describing "lines connecting to the drywell".
Table 6.2-2	161	Added PCRMS sample suction valves to the table.
	189	Corrected the valve position information for T5000F408A.
	189	Added the PCRMS sample return valves to the table.
Table 6.2-15	228	Added a reference/comment for the PCRMS (suction) at X48.
	233	Added a reference/comment for the PCRMS (return) at X-215.
	235	Added penetration "PCRMS" to depict the multiple roles for the X48 and X215 penetrations "essential" versus "non-essential".
Table 6.2-16	236	Added PCRMS "non-essential" classification.
7.3.2.2.7.1	41	Added PCRMS to the listing of reactor level 2 isolation signals.
7.3.2.2.7.6	43	Corrected the high drywell pressure listing by adding torus water management.
		Added PCRMS to the list of high drywell pressure isolation signals.
Figures 7.6-11 & 11.4-1		Revisions to P&ID 6I721-2679-1 for the PCRM isolation valves.
7.6.1.12.1.3	37	Added information to clarify that PCRMS isolation valves use interruptible air.

Penetration No.	System
	Postaccident suppression pool atmosphere sample

As stated in GDC 56, two isolation valves--one inside and one outside the containment--are required in lines that penetrate the primary containment and connect directly to the containment atmosphere. However, GDC 56 allows for alternatives to these explicit isolation requirements where the acceptable basis for each alternative is defined. The following are alternatives to explicit conformance with GDC 56. Notes in Table 6.2-2 identify the alternative basis to which each penetration is designed.

Add

Two Isolation Valves Outside Containment

The Primary Containment Radiation Monitor System (PCRMS) is associated with Division I of the Primary Containment Atmosphere Monitoring System (PCAMS). The non-essential PCRMS has two isolation valves on the inlet and two isolation valves on the outlet. These isolation valves are a normally open spring-to-close solenoid operated globe valve and air operated ball valve. These inlet and outlet lines are connected to the containment atmosphere via PCAMS piping during normal operation. These valves receive containment isolation signals on the postulated LOCA.

For lines that connect to the suppression pool, an isolation valve located inside the containment would necessitate placement of the valve either under water or in a high-humidity, nonaccessible area. Such placement would subject these valves to an extremely hostile environment, which could compromise their reliability and prevent routine inspection and maintenance. Thus, as an alternative to the explicit requirements of GDC 56 for lines in ESF or ESF-related systems, both isolation valves are located outside, and as close to, the containment wall as practical.

Relief Valves as Isolation Valves

Relief valves are provided in the RHR, core spray, HPCI, RCIC, and combustible gas control (CGC) systems as overpressure-protection devices. These valves are required for the design of Class B systems according to the ASME B&PV Code, Subsection NC-7000. The valves are installed in a manner that ensures their correct operation and reliability. Further, the Code requires that no stop valves or other devices be placed (in relation to a pressure relief device) so that it could impair the overpressure protection offered by the relief valve itself. Relief valves installed in these lines provide this required level of protection, and, if required to operate, would route the diverted fluid to the suppression pool.

Because of the orientation required, each of these relief valves is an isolation valve for the applicable penetration. The piping and valve designs are Quality Group B, Category I, and will withstand temperatures and pressures at least equal to the containment design pressure and temperature. Should the postulated LOCA occur, containment pressure would be felt on the downstream side of the relief valve, and would act in conjunction with the spring pressure setting of the relief valve to further enhance seating.

Remote Manual Isolation Valves

Remote manual valves are used as containment isolation valves in ESF and ESF-related systems. These systems include RHR, core

Penetration No.	System
X-18	Drywell floor drain sump pump discharge
X-19	Drywell equipment drain sump pump discharge
X-20	Demineralized service water to drywell
X-21	Service air to drywell
X-22	Control air and N_2 to drywell
X-23	RBCCW supply
X-24	RBCCW return
X-25	Drywell exhaust
X-26	Drywell N_2 and air inlet
X-27(a,b,c, d,e,f)	Containment atmosphere sample and postaccident drywell atmosphere sample (X-27b only)
X-29B(b,c)	Reactor protection system
X-29Be	Drywell instrumentation
X-31Ba	Drywell on-line pressure control
X-34(A,B)	RBCCW supply and return
X-35G	TIP N_2 purge line
X-36	N_2 to drywell
X-39(A,B)	RHR to containment spray header
X-44	CGC suction
X-47(a,b)	Reactor protection system
X-47(c)	Nitrogen inerting instrumentation
X-47e	Drywell instrumentation
X-48(a,b,c, d,e,f)	Containment atmosphere sample and postaccident drywell atmosphere sample (~~X-48b~~ only)

X-48f Revise

Nuclear-grade materials are used throughout the fabrication of the piping system. They will maintain their integrity should the containment experience its design temperature and pressure transient. Thus, as an alternative to the explicit requirements of GDC 56 for such lines in ESF or ESF-related systems, a single air-operated isolation valve or solenoid-operated isolation valve is used outside the containment to enhance system reliability.

The lines that connect the non-essential Primary Containment Radiation Monitoring System (PCRMS) to Division I of the closed outside containment loop of the Primary Containment Monitoring Systems PCAMS have two isolation valves outside containment for both the inlet and outlet of the PCRMS. The PCRMS utilizes common piping of PCAMS therefore the valves are outside containment and placed as close as practical to the PCAMS piping loop. All other requirements of GDC 56 are met.

Add

The drywell postaccident atmosphere sample lines contain two solenoid-operated globe isolation valves outside the containment. These lines are connected to the normal containment atmosphere sample system lines outside the containment. These valves are closed during normal reactor operation and are opened only during postaccident conditions.

6.2.4.2.2.4 General Design Criterion 57

General Design Criterion 57 in 10 CFR 50 states

> Each line that penetrates primary reactor containment and is neither part of the reactor coolant pressure boundary nor connected directly to the containment atmosphere shall have at least one containment isolation valve which shall be either automatic, or locked closed, or capable of remote manual operation. This valve shall be outside the containment and located as close to the containment as practical. A simple check valve may not be used as the automatic isolation valve.

Criterion 57 Conformance

Penetrations X-204 (A through M) for the drywell-to-torus vacuum breaker nitrogen supply and their associated isolation valves conform to the requirements of GDC 57. A normally closed, air-operated globe valve is located in each line outside the containment.

6.2.4.2.3 Containment Isolation Dependability

Fermi 2 meets the NRC requirements developed for reliable containment isolation as follows:

- The containment isolation design complies with the recommendation of SRP 6.2.4 in that there is diversity in the parameters sensed for the initiation of containment isolation. Safety-grade signals are provided for the detection of abnormal conditions in the reactor coolant system and containment; these are low reactor vessel water level and high drywell pressure

  Several lines are not isolated on the high-drywell-pressure signal in order to retain system availability for small breaks or leaks. Justification for these cases is given under Comments in Table 6.2-15

TABLE 6.2-2 SUMMARY OF PRIMARY CONTAINMENT PENETRATIONS AND ASSOCIATED ISOLATION VALVES (Cont'd

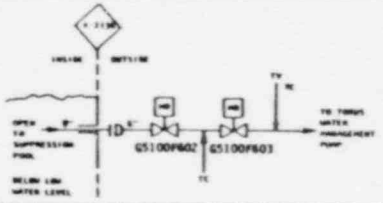
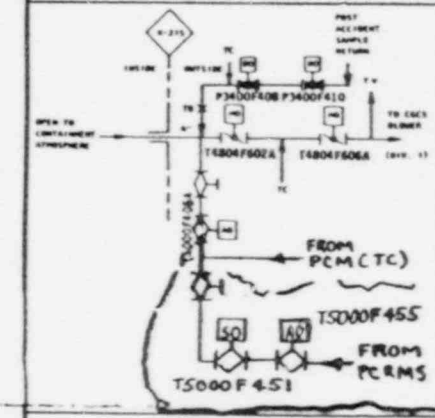
PENETRATION DATA					ISOLATION VALVE DATA																		
														Valve Position									
Penetration Detail	P&ID Number	Design Criteria	Bypass Leakage Path	System Title	Valve Number	Valve Type	Actuator Type	Primary Actuation Mode	Secondary Actuation Mode	Containment Isolation Signal(s)	Accident Isolation Signal(s)	Closure Time (sec)	Normal	Shutdown	Post-LOCA (Accident)	Power Failure	ILRT	Engineered Safety Feature	Quality Group	Type C Test	Leak Detection	Remarks
	6M721-4100	56	Yes	Torus Water Management Suction	G5100F602 (VB-3831)	GAT	MO	A	RM	B,K	M	60	O	C	C	AIS	C	No	B	Yes	No	Notes 4, 10, and 26
					G5100F603 (VB-3833)	GAT	MO	A	RM	B,K	M	60	O	C	C	AIS	C	No	B	Yes	No	Notes 10 and 26
X-214	–	–	–	Vacuum Breaker Line, High-Pressure Coolant Injection/ Reactor Core Isolation Cooling	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	See Penetration Detail X-212
	6M721-2087	56	No	Combustible Gas Control System Suction and Gaseous Sample Returns	T4804F602A (V4-2147)	BFY	MO	RM	M	–	–	–	C	C	O	AIS	O	Yes	B	Yes	Yes	Notes 7, 10, and 11
																						Revise
	6I721-2679-1	56	No		T5000F408A (V5-2158)	BAL	AO	RM	M	–	–	–	O	O	O	C	O	–	B	Yes	Yes	Notes 12 and 13
	6M721-2087	56	No		T4804F606A (V4-2156)	BFY	MO	RM	M	–	–	–	C	C	O	AIS	O	Yes	B	Yes	Yes	Notes 7 and 10
	6I721-2400-10	56	No		P3400F408 (V13-7369)	GLB	SO	RM	–	–	–	–	C	C	C	C	C	No	B	Yes	Yes	Note 10
		56	No		P3400F410 (V13-7379)	GLB	SO	RM	–	–	–	–	C	C	C	C	C	No	B	Yes	Yes	Note 10
	–	–	–		–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	
	6I721-2679-1	56	No		T5000F451 (VS-3084)	GLB	SO	A	–	B,K	B,K	60	O	O	C	C	C	NO	B	YES	YES	Note 12
	6I721-2679-1	56	No		T5000F455 (VS-2239)	BAL	AO	A	M	B,K	B,K	60	O	O	C	C	C	No	B	YES	YES	Note 12 Add
X-216A	–	–	–	Spare	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Type A Test
X-216B	–	–	–	Spare	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Type A Test
X-217	–	–	–	Spare	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	–	Type A Test

TABLE 6.2-2 SUMMARY OF PRIMARY CONTAINMENT PENETRATIONS AND ASSOCIATED ISOLATION VALVES (Cont'd)

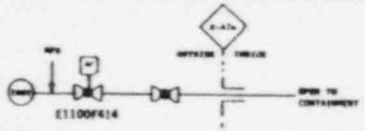
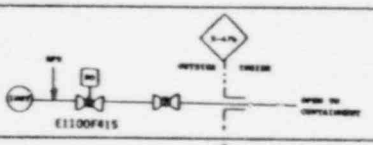
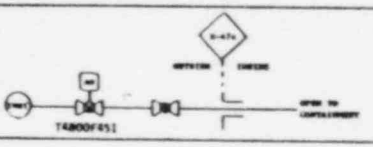
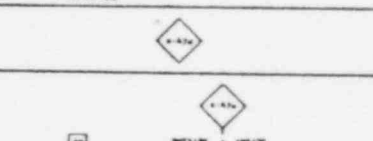
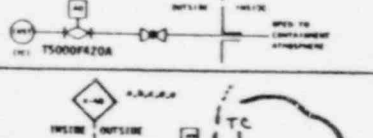
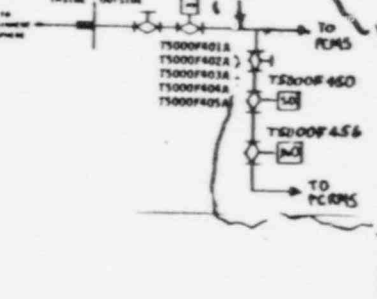
PENETRATION DATA					ISOLATION VALVE DATA																			
														Valve Position										
Penetration Detail	P&ID Number	Design Criteria	Bypass Leakage Path	System Title	Valve Number	Valve Type	Actuator Type	Primary Actuation Mode	Secondary Actuation Mode	Containment Isolation Signal(s)	Accident Isolation Signal(s)	Closure Time (sec)	Normal	Shutdown	Post-LOCA (Accident)	Power Failure	ILRT	Engineered Safety Feature	Quality Group	Type C Test	Leak Detection	Remarks
	6M721-2084	56	No	Reactor Protection System	E1100F414 (V5-2548)	GLB	SO	RM	–	–	–		O		O	AIS	O		B	Yes		Notes 2, 12, and 15
	6M721-2084	56	No	Reactor Protection System	E1100F415 (V5-2549)	GLB	SO	RM	–	–	–		O	O	O	AIS	O		B	Yes		Notes 2, 12, and 15
	6M721-3445	56	No	Nitrogen Inerting Instrumentation	T4800F451 (V4-2163)	GLB	AO	RM					O	C	C	C	C	No	B	Yes		Notes 2, 12, and 15
	6M721-2090	56	No	Reactor Pressure Vessel Level	B21F507 (V13-2318)	EFC	SA	HF	–	–	HF	–	O	O	O	–	O	–	A	No	Yes	Notes 15 and 19 See Penetration Detail X-28A
	6M721-2084 6I721-2679-1	56	No	Drywell Pressure	T5000F420A (V5-2230)	BAL	AO	RM	M	–	–	–	O	O	O	O	O	–	A	Yes	Yes	Notes 2, 12, 13, and 15
	6I721-2679-1	56	No	Containment Atmosphere Samples	T5000F401A (V5-2151) T5000F402A (V5-2152) T5000F403A (V5-2153) T5000F404A (V5-2154) T5000F405A (V5-2155)	BAL	AO	RM	M	–	–	–	O	O	O	C	O	–	B	Yes	Yes	See Penetration Detail X-27
					T5000F450 (V5-3083)	GLB	SO	A	–	B,K	B,K	60	O	O	C	C	C	No	B	YES	YES	
					T5000F456 (V5-2235)	BAL	AO	A	M	B,K	B,K	60	O	O	C	C	C	No	B	YES	YES	Add

TABLE 6.2-15 ESSENTIAL/NONESSENTIAL LINES (Cont'd)

Containment Penetration Number	System/Line	Valve Number	Classification	Containment Isolation Signals[a]	Comments
X-43	RWCU/reactor water (cleanup from recirculation piping) (Cont'd)				Therefore, isolation on high drywell pressure is not needed.
X-44	CGCS/combustible gas control system suction	V4-2143 V4-2153	Essential Essential	None None	
X-47a	PCMS/drywell instrumentation	V5-2548	Essential	None	
X-47b	PCMS/drywell instrumentation	V5-2549	Essential	None	
X-47e	PCMS/drywell pressure	V5-2230	Essential	None	
X-48a	PCMS/containment atmosphere sample	V5-2151	Essential	None	
X-48b	PCMS/containment atmosphere sample	V5-2152	Essential	None	
X-48c	PCMS/containment atmosphere sample	V5-2153	Essential	None	
X-48d	PCMS/containment atmosphere sample	V5-2154	Essential	None	
X-48e	PCMS/containment atmosphere sample	V5-2155	Essential	None	
X-48f	PASS/containment drywell atmosphere sample	V13-7365 V13-7373	Nonessential	Normally closed	Administrative control utilized.
X-49a	Reactor recirculation/ recirculation pump seal purge	V8-3767 V8-3710	Nonessential Nonessential	B,K B,K	High-pressure line with check valves inside and outside containment, and an orifice in the line to prevent backflow.
X-51a	Reactor recirculation/ recirculation pump seal purge	V8-3768 V8-3590	Nonessential Nonessential	B,K B,K	

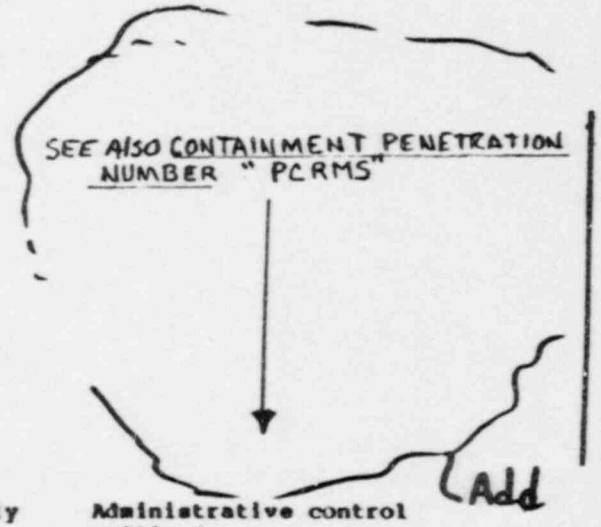


TABLE 6.2-15 ESSENTIAL/NONESSENTIAL LINES (Cont'd)

Containment Penetration Number	System/Line	Valve Number	Classification	Containment Isolation Signals[a]	Comments
X-211A	RHR/RHR suppression pool spray	V8-2158 V8-2156	Essential Essential	A,K A,K	
X-211B	RHR/RHR suppression pool spray	V8-2155 V8-2157	Essential Essential	A,K A,K	
X-212	RCIC turbine exhaust line	V11-2002	Essential	RF	
X-213A	TWMS suction	V8-3832 V8-3834	Nonessential Nonessential	B,K B,K	
X-213B	TWMS discharge	V8-3831 V8-3833	Nonessential Nonessential	B,K B,K	
X-214	HPCI vacuum breaker line	V11-2013 V11-2019	Essential Essential	K & X (4) K & X (4)	
X-214	RCIC vacuum breaker line	V11-2020 V11-2026	Essential Essential	K & Y (5) K & Y (5)	
X-215	PCMS return Division I	V5-2158	Essential	None	SEE ALSO CONTAINMENT PENETRATION "PCRMS" — Add
X-215	CGCS/combustible gas control system suction	V4-2142 V4-2156	Essential Essential	None None	
X-215	PASS/containment gaseous sample return	V13-7369 V13-7379	Nonessential Nonessential	Normally closed	Administrative control utilized.
X-218	CGCS/combustible gas control system return	V4-2140 V4-2148	Essential Essential	None None	
X-218		V22-2122 V4-2139 V4-2149 V22-2121	Essential Essential Essential Essential	None None None None	
X-219	CGCS/combustible gas control system suction	V4-2141 V4-2155	Essential Essential	None None	
X-219	PCMS return Division II	V5-2166	Essential	None	
X-220	HPCI turbine exhaust line	V11-2006	Essential	RF	
X-221	HPCI turbine exhaust drain	V11-2008	Essential	RF	
X-222	RCIC vacuum pump discharge	V8-2235	Essential	RF	

TABLE 6.2-15 ESSENTIAL/NONESSENTIAL LINES (Cont'd)

Containment Penetration Number	System/Line	Valve Number	Classification	Containment Isolation Signals[a]	Comments
X-227B	Core spray pump suction thermal relief	V22-2019	Essential	None	
X-227B	Core spray pump discharge header relief	V22-2016 V22-2120	Essential Essential	None None	
X-227B	Core spray pump test	V8-2033	Nonessential	A,K	
X-227B	Core spray minimum flow	V8-2031	Essential	None	
X-230	PASS/suppression pool atmosphere sample	V13-7367 V13-7377	Nonessential Nonessential	Normally closed	Administrative control utilized.
X-230	PCMS suction Division I	V5-2157	Essential	None	
X-231	PCMS suction Division II	V5-2165	Essential	None	
X-231	PASS/suppression pool atmosphere sample	V13-7366 V13-7376	Nonessential Nonessential	Normally closed	Administrative control utilized.
PCMS	Primary Containment Radation Monitor	V5-3083 V5-2235 V5-3084 V5-2239	Nonessential Nonessential Nonessential Nonessential	B,K B,K B,K B,K	Sample suction X-48 Sample suction X-48 Sample return X-215 Sample return X-215

Add

[a]The following codes are used to abbreviate isolation signals:

Signal	Description
A	Reactor Vessel Low-Level 1
B	Reactor Vessel Low-Level 2
C	Reactor Vessel Low-Level 3
D	Main Steam Line High Radiation
E	Main Steam Line High Flow
F	Main Steam Line Tunnel High Temperature
G	Main Steam Line Low Pressure
H	Torus Pressure > Secondary Containment Pressure
J	Low Condenser Vacuum
K	High Drywell Pressure
L	High Reactor Vessel Pressure
M	Suction Piping Break 1. High Torus Room Sump Level and 2. Moisture-Sensitive Tape
N	High Sump Level or High Sump Temperature
P	Turbine Building High Temperature
R	Reactor Building Exhaust Radiation High
W	RWCU System Suction Line 1. RWCU Space High Temperature 2. RWCU Space High Differential Temperature 3. RWCU Inlet Line High Flow 4. Initiation of Standby Liquid Control
X	HPCI System Steam Lines 1. HPCI Space High Temperature 2. High Steam Flow 3. High Turbine Exhaust Pressure 4. HPCI Steam Line Low Pressure
Y	RCIC System Steam Lines 1. RCIC Space High Temperature 2. High Turbine Exhaust Pressure 3. High Steam Flow 4. RCIC Steam Line Low Pressure
Z	Closes Through Electrical Interlocks with Other System Valves or Pump Motors
LC	Locked Closed
RF	Reverse Flow
RM	Remote Manual

[b]PASS is postaccident sampling system.

TABLE 6.2-16 ESSENTIAL/NONESSENTIAL SYSTEMS

System	Classification	Comments
Main steam	Nonessential	Not required for shutdown.
MSIV leakage control	Essential	Not needed for a safe shutdown of the reactor. However, the system is required following a LOCA to provide long-term leaktightness of main steam isolation valves.
Feedwater	Nonessential	Not required for shutdown. Portion that is Class 1 is essential.
Reactor core isolation cooling	Essential	Necessary for core cooldown following isolation from the turbine condenser and feedwater makeup.
Reactor water cleanup	Nonessential	Not required during and immediately following an accident.
High pressure coolant injection	Essential	Safety system.
Core spray	Essential	Safety system.
Standby liquid control	Essential	Should be available as backup to CRD system.
Drywell floor/ equipment drains	Nonessential	Not necessary for core cooldown.
Torus water management	Nonessential	Not required for reactor shutdown cooling.
Primary containment monitoring system	Essential	Required for postaccident monitoring of containment atmosphere hydrogen concentration.
Primary Containment Radiation Monitoring System	Nonessential	Not required during or immediately following an accident. Add
Residual heat removal		
Heat exchangers	Essential	Main heat sink during isolation.

c. RHR shutdown cooling
d. Traversing in-core probe (TIP) system withdrawal.

The second level (L2) isolates the majority of the nuclear pressure boundary lines and the primary and secondary containment paths. This is also the level that starts the HPCI and RCIC systems, and it has been selected to be lower than the level change resulting from a void collapse following a scram from full power. Specifically, isolation of the following lines is initiated on Level 2 (Table 6.2-2, signal B):

a. Reactor sample lines

b. Reactor water cleanup

c. Drywell air and nitrogen inlet

d. Suppression chamber exhaust

e. Suppression chamber air and nitrogen inlet

f. Drywell exhaust

g. Drywell pressure control

h. Suppression chamber pressure control

i. Purge to standby gas treatment

j. Control center heating, ventilation, and air conditioning (HVAC)

k. Reactor building ventilation

l. Recirculation pump seal purge

m. Torus water management.

n. Primary containment radiation monitoring. } Add

The final isolation level is Level 1 (L1), which is approximately 14 in. above the top of the active fuel. This level setting provides automatic isolation for the following lines, which penetrate the primary containment, if they are open (Table 6.2-2, signal A):

a. RHR containment spray
b. RHR test line
c. Core spray test line
d. Suppression chamber spray
e. Main steam
f. Main steam line drains.

turbine bypass valves open fully. This action causes rapid depressurization of the nuclear system. From part-load operating conditions, the rate of decrease of nuclear system saturation temperature could exceed the allowable rate of change of vessel temperature. A rapid depressurization of the RPV while the reactor is near full power could result in undesirable differential pressure across the channels around some fuel bundles of sufficient magnitude to cause mechanical deformation of channel walls. Such depressurizations, without preventive action, could require thorough vessel analysis or core inspection prior to returning the reactor to power operation. To avoid the time-consuming requirements following a rapid depressurization, the steam pressure at the turbine inlet is monitored. On falling below a preselected value with the reactor in the RUN mode, isolation of all four main steam lines and the main steam drain line is initiated.

The low-steam-pressure isolation setting was selected far enough below normal turbine inlet pressures so that spurious isolation is avoided, yet high enough to provide timely detection of a pressure regulator malfunction. Although this isolation function is not required to satisfy any of the safety design bases for this system, this discussion is included here to make the listing of isolation functions complete.

7.3.2.2.7.6 Primary Containment (Drywell) High Pressure

High pressure in the drywell could indicate a breach of the nuclear system process barrier inside the drywell. The automatic closure of various Class B valves prevents the release of significant amounts of radioactive material from the primary containment. On detection of a high drywell pressure, the following pipelines are isolated:

a. Drywell equipment drain discharge
b. Drywell floor drain discharge
c. TIP tubes
d. Drywell air and nitrogen inlet
e. Suppression chamber exhaust valves
f. Suppression chamber air and nitrogen inlet
g Drywell exhaust
h. Drywell pressure control
i. Suppression chamber pressure control
j. Purge to standby gas treatment
k. Control center HVAC recirculation mode
l. Reactor building ventilation system isolation.
m. Torus water management.
n. Primary containment radiation monitoring.

Add

The primary containment high pressure isolation setting was selected to be as low as possible without inducing spurious isolation trips.

CHANGES TO
UFSAR 7.6-11 & 11.4-1

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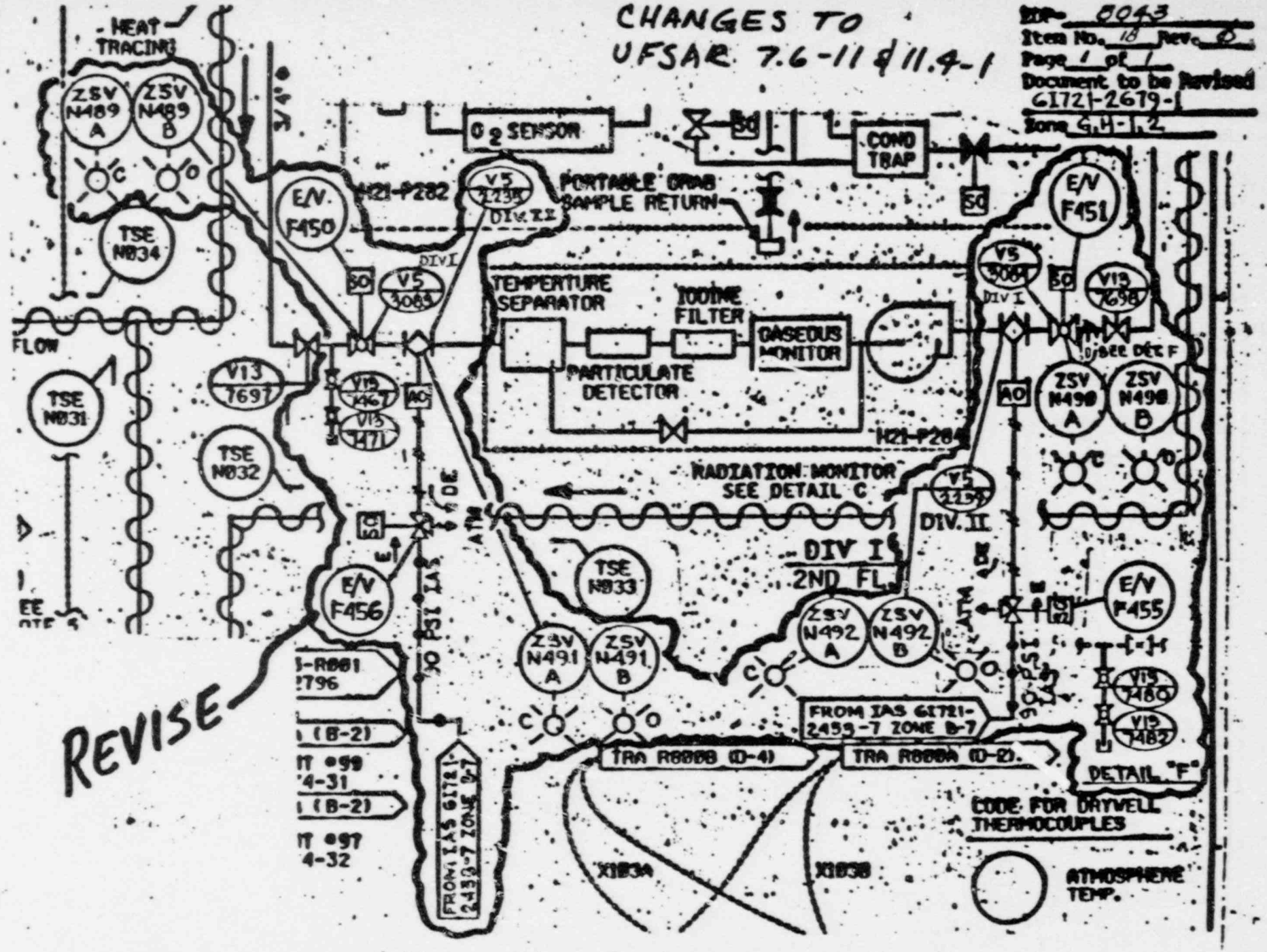

REVISE

Prepared by: _____ /BBN Date: _____

Checked By: _____ Date: _____

The total time lag from intake of primary atmosphere sample loop manifold to the monitoring instrument sampling point is designed to be less than 5 minutes. Within the primary containment radiation monitor are particulate and halogen filters to collect integrated samples for subsequent analysis.

Associated with each beta scintillation detector is a logarithmic count rate circuit, power supply unit, and meter readout. A recorder is provided in the main control room for display of radiation level. A flowmeter is provided in the sample line, with local display of flow rate, and means for actuation of the alarm and annunciator associated with the primary containment radiation monitor on loss of sample flow.

7.6.1.12.1.2 Classification

The primary containment hydrogen/oxygen monitor subsystem is seismically and environmentally qualified to meet IEEE 344-1975 and 323-1974. The radiation monitor has not been qualified environmentally or seismically.

7.6.1.12.1.3 Supporting Systems

Electrical Power

The electrical power required for operation of the primary containment radiation and hydrogen/oxygen monitor subsystems is supplied from the 480-V ESF motor control centers (MCCs) and the 120-V ac instrument bus as described in Subsection 8.3.1.

Pneumatic Power

The pneumatic power required for operation of valves in the sample lines will be supplied by an uninterruptible air system for The Primary Containment Monitoring System Isolation valves and interuptible Air for the Primary Containment Radiation monitoring System Isolation valve as described in Subsection 9.3.1. Revise

7.6.1.12.1.4 Equipment Design

Initiating Circuits

Control of the primary containment radiation and hydrogen/oxygen monitor subsystems for normal operation, test, and calibration is manual. The hydrogen/oxygen monitor subsystem is normally operated continuously from plant startup to shutdown.

Logic

The primary containment radiation monitor subsystem incorporates trip logic circuits for alarm and annunciator operation. A low mode alarm trip is provided to indicate instrument failure on loss of normal background reading, and a high mode trip to indicate a radiation level exceeding a predetermined normal background level. The hydrogen/oxygen monitor has alarms as defined in Table 7.6-2.