S. Operating Cycle - An operating cycle is the interval between the end of one scheduled refueling outage and the end of the next subsequent scheduled refueling outage for the same unit.

T. Primary Containment Integrity - Primary containment integrity shall exist when:

1. All penetrations required to be closed during accident conditions are either:

   a. Capable of being closed by an OPERABLE containment automatic isolation valve system, or

   b. Closed by at least one manual valve, blind flange, or deactivated automatic valve secured to its closed position, except as provided in Table 3.7-1 of Specification 3.7.D.

2. All equipment hatches are closed and sealed.

3. Each containment airlock is OPERABLE.

4. The containment leakage rates are within the limits of Specification 4.7.A.2

5. The sealing mechanism associated with each penetration (e.g. welds, bellows, or o-rings) is OPERABLE.

U. Protective Action - A protective action is an action initiated by the protective system when a limit is reached. A protective action can be at a channel or system level and is essential to the accomplishment of a safety action.

V. Protective Function - A protective function is the monitoring of one or more plant variables or conditions and the associated initiation of intrasystem actions which eventually result in protective action.

W. Rated Thermal Power - Rated thermal power means the reactor is operating, at a steady state power of 2436 megawatts thermal. This is also referred to as 100-percent thermal power.

X. Reactor Mode - The reactor mode is established by the Mode Switch position. The switch positions are REFUEL, SHUTDOWN, START & HOT STANDBY and RUN; thus the four possible reactor modes are: Refuel Mode, Shutdown Mode, Start & Hot Standby Mode, and Run Mode.

Y. Reactor Power Operation - Reactor power operation is an operation with the Mode Switch in the START & HOT STANDBY or RUN position with the reactor critical and above 1 percent of rated thermal power.

1.2 REACTOR COOLANT SYSTEM INTEGRITY

The reactor coolant system integrity is an important barrier in the prevention of uncontrolled release of fission products. It is essential that the integrity of this system be protected by establishing a pressure limit to be observed for all operating conditions and whenever there is irradiated fuel in the reactor vessel.

A. Reactor Vessel Steam Dome Pressure

1. When Irradiated Fuel is in the Reactor

The pressure Safety Limit of 1325 psig as measured by the reactor vessel steam dome pressure indicator is equivalent to 1375 psig at the lowest elevation of the reactor coolant system. The 1375 psig value is derived from the design pressure of the reactor pressure vessel (1250 psig) and coolant system piping (suction piping: 1150 psig; discharge piping: 1350 psig). The pressure Safety Limit was chosen as the lower pressure resulting from the pressure transients permitted by the applicable design codes: ASME Boiler and Pressure Vessel Code, Section III for the pressure vessel and USASI B31.1 Code for the reactor coolant system piping. The ASME Boiler and Pressure Vessel Code permits pressure transients up to 10 percent over design pressure (110% x 1250 = 1375 psig), and the USASI Code permits pressure transients up to 20 percent over the design pressure (120% x 1150 = 1380 psig; 120% x 1350 = 1602 psig).

The pressure relief system (relief/safety valves) has been sized to meet the overpressure protection criteria of the ASME Boiler and Pressure Vessel Code, Section III, Nuclear Vessels.

The details of the overpressure protection analysis showing compliance with the ASME Boiler and Pressure Vessel Code, Section III, Nuclear Vessels is provided in the FSAR, Appendix M, Summary Technical Report of Reactor Vessel Overpressure Protection. To determine the required steamflow capacity, a parametric study was performed assuming the plant was operating at the turbine generator design condition of 105-percent rated steam flow (10.6×10^6 pounds per hour) with a vessel dome pressure of 1020 psig, at a reactor thermal power of 2537 Mw, and the reactor experiences the worst pressurization transient. The analysis of the worst overpressure transient, a 2-second closure of all main steam line isolation valves neglecting the direct scram (valve position scram) results in a maximum vessel pressure (bottom) of less than 1375 psig if a neutron flux scram is assumed. In addition, the same event was analyzed to determine the number of installed valves which would limit pressure to below the code limit. The results of this analysis show that the eleven installed relief/safety valves were adequate even if assuming the backup neutron flux scram.

1.2.B. References

1. ASME Boiler and Pressure Vessel Code Section III.

2. USASI Piping Code, Section B31.1.

3. FSAR Section 4.2, Reactor Vessel and Appurtenances Mechanical Design.

4. FSAR Section 14.3, Analysis of Abnormal Operation Transients.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS

3.6.M MAIN STEAM LINE ISOLATION VALVES*

1. Valves Required to be Operable

During reactor power operation, Start & Hot Standby Mode, and Hot Shutdown Condition, two Main Steam Line Isolation Valves (MSIVs) per main steam line shall be OPERABLE, except as stated in Specification 3.6.M.2.

2. Operation with Inoperable Valves

In the event that any MSIV becomes inoperable, operation may continue provided that at least one MSIV is maintained OPERABLE in each affected main steam line that is open and either:

a. The inoperable valve(s) is(are) restored to operable status within 8 hours, or

b. The affected main steam line is isolated within 8 hours by use of a deactivated MSIV in the closed position.

3. Shutdown requirements

If Specification 3.6.M.1 and 3.6.M.2 cannot be met, be in at least the Hot Shutdown Condition within the next 12 hours and in the Cold Shutdown Condition within the following 24 hours.

4.6.M MAIN STEAM LINE ISOLATION VALVES

1. Surveillance of Operable Valves

Surveillance of the MSIVs shall be performed as follows:

a. At least once per operating cycle, the MSIVs shall be tested for simulated automatic initiation and closure time.

b. The isolation time of each MSIV shall be determined to be $\geq$ 2 seconds and $\leq$ 8 seconds when tested pursuant to Specification 4.6.K.

c. At least once per week, the MSIVs shall be exercised one at a time by partial closure and subsequent reopening.

* The MSIVs are Group 1 Isolation Valves (See Note b of Table 3.7-1).

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3/4.6.L. SNUBBERS (Continued)

The service life of a snubber is evaluated via manufacturer input and information through consideration of the snubber service conditions and associated installation and maintenance records (newly installed snubber, seal replaced, spring replaced, in high radiation area, in high temperature area, etc...). The requirement to monitor the snubber service life is included to ensure that the snubbers periodically undergo a performance evaluation in view of their age and operating conditions. These records will provide statistical bases for future consideration of snubber service life. The requirements for the maintenance of records and the snubber service life review are not intended to affect plant operation.

3/4.6.M MAIN STEAM LINE ISOLATION VALVES

Double isolation valves are provided on each of the main steam lines to minimize the potential leakage paths from the containment in case of a line break. Only one valve in each line is required to maintain the integrity of the containment. The surveillance requirements are based on the operating history of this type valve. The maximum closure time has been selected to contain fission products and to ensure the core is not uncovered following line breaks.

References:

(1) Report, H. R. Erickson, Bergen Paterson to K. R. Goller, NRC, October 7, 1974. Subject: Hydraulic Shock Sway Arrestors.

(2) NUREG/CR-3052, "Closeout of IE Bulletin 80-07: BWR Jet Pump Assembly Failure," Published November 1984.

(3) "General Electric BWR Licensing Report: Average Power Range Monitor, Rod Block Monitor, and Technical Specifications Improvement (ARTS) Program for Edwin I. Hatch Nuclear Plant Units 1 and 2," NEDC-30474-P, December 1983.

(4) "Edwin I. Hatch Nuclear Plant Units 1 and 2 Single-Loop Operation," NEDO-24205, August 1979.

LIMITING CONDITIONS FOR OPERATION	SURVEILLANCE REQUIREMENTS
3.7.A.2. Primary Containment Integrity	4.7.A.2. Leak Testing to Verify Primary Containment Integrity
a. Except as stated in Specification 3.7.A.2.b, primary containment integrity is required:	Primary containment integrity shall be demonstrated by the following test procedures:
(1) Prior to withdrawing control rods for the purpose of going critical.	a. Type A Tests - Integrated Leak Rate Test (ILRT)*
(2) Whenever the reactor is critical.	Primary containment integrity is confirmed if the leak rate does not exceed the maximum allowable leak rate, L_a, of 1.2 weight percent of the contained air per 24 hours at the peak test pressure.
(3) Whenever the reactor water temperature is above 212°F and fuel is in the reactor vessel.	(1) Type A tests shall be performed under the program established in Appendix J of 10 CFR Part 50 (Reference 1).

* L_a - Maximum allowable peak pressure test leak rate - 1.2 weight percent per day
L_t - Maximum allowable reduced pressure test leak rate
L_{am} - Measured peak pressure test leak rate - values are subject to change with each ILRT performed
L_{tm} - Measured reduced pressure test leak rate - values are subject to change with each ILRT performed
L_{ac} - Allowable operational leak rate for peak pressure tests - values are subject to change with each ILRT performed
L_{to} - Allowable operational leak rate for reduced pressure tests - values are subject to change with each ILRT performed
(All leakage rates measured in weight percent of contained air per 24 hours)
P_a - Peak test pressure - 59 psig
P_t - Reduced test pressure - 29.5 psig

3.7.A.2. Primary Containment Integrity (Continued)

b. Exceptions to Specification 3.7.A.2.a are allowed to:

(1) Perform low-power physics tests at atmospheric pressure at low-power levels not to exceed 5 MWT, and to

(2) Perform inservice hydrostatic or leak testing with reactor coolant temperature greater than 212°F and all control rods inserted,

at which time primary containment integrity is not required.

c. If these requirements cannot be met, restore primary containment integrity within 1 hour or fulfill the requirements of Specification 3.7.A.8.

4.7.A.2.a.(1) Type A Test-Integrated Leak Rate Test (Continued)

(a) Prior to initial unit operation the ILRT shall be performed first at the test pressure, P_t, of 29.5 psig and then at the peak pressure, P_a, of 59 psig to obtain the measured leak rates, L_{tm} and L_{am}, respectively.

(b) Subsequent leak rate tests shall be performed without preliminary leak detection repairs of the primary containment structure (other than for the correction of structural deterioration) immediately prior to or during the test, at a pressure of approximately 29.5 psig.

(2) Leak repairs to testable components, if necessary to permit integrated leak rate testing, shall be preceded by local leak rate measurements where possible.

The leak rate difference prior to and after repair when corrected to P_t shall be added to the final integrated leak rate result.

(3) Closure of the containment isolation valves for the purpose of the test shall be accomplished by the means provided for normal operation of the valves.

(4) The test duration shall be for a minimum of six (6) hours and for a period sufficient to establish and verify that the leak rate is at or below allowable standards. (Reference 2).

4.7.D.1. Surveillance of Operable Valves (Continued)

b. At least once per operating cycle the reactor coolant system instrument line excess flow check valves shall be tested for proper operation.

c. At least once per quarter, all normally open power-operated isolation valves (except for the main steam line power-operated isolation valves) shall be fully closed and reopened.

3.7.D.2. Operation with Inoperable Valves

In the event any isolation valve specified in Table 3.7-1 becomes inoperable, operation may continue provided that at least one isolation valve is maintained OPERABLE in each affected penetration that is open, and either:

a. The inoperable valve(s) is (are) restored to OPERABLE status within 4 hours, or

b. Each affected penetration is isolated within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or

c. Each affected penetration is isolated within 4 hours by use of at least one closed manual valve or blind flange.

3. Shutdown Requirements

If Specification 3.7.D.1. and 3.7.D.2. cannot be met, an orderly shutdown shall be initiated and the reactor shall be placed in the Cold Shutdown Condition within 24 hours.

TABLE 3.7-1

PRIMARY CONTAINMENT ISOLATION VALVES WHICH
RECEIVE A PRIMARY CONTAINMENT ISOLATION SIGNAL

Isolation Group (b)	Valve Identification (d)(e)	Number of Power Operated Valves Inside	Outside	Maximum Operating Time (sec)	Normal Position (a)	Action on Initiating Signal (a)
1	Main steam line drain (B21-F016, B21-F019)	1	1	15	C	SC
1	Reactor water sample line (B31-F019, B31-F020)	1	1	5	O	GC
2(f)	Drywell purge inlet (T48-F307, T48-F308)		2	5	C	SC
2(f)	Drywell main exhaust (T48-F319, T48-F320)		2	5	C	SC
2	Drywell exhaust valve bypass to standby gas treatment (T48-F341, T48-F340)		2	5	C	SC
2	Drywell nitrogen make-up line (normal operation) (T48-F118A)		1	5	C	SC
2(f)	Suppression chamber purge inlet (T48-F309, T48-F324)		2	5	C	SC
2(f)	Suppression chamber main exhaust (T48-F318, T48-F326)		2	5	C	SC

TABLE 3.7-1 (Cont'd)

PRIMARY CONTAINMENT ISOLATION VALVES WHICH
RECEIVE A PRIMARY CONTAINMENT ISOLATION SIGNAL

Isolation Group (b)	Valve Identification (d)(e)	Number of Power Operated Valves Inside	Number of Power Operated Valves Outside	Maximum Operating Time (sec)	Normal Position (a)	Action on Initiating Signal (a)
2	H_2-O_2 Analyzer A Torus Sample Line (P33-F006, P33-F014)	0	2	5	C	SC
2	H_2-O_2 Analyzer A Drywell Sample Line (P33-F002, P33-F010)	0	2	5	O	GC
2	H_2-O_2 Analyzer A Return Line (P33-F004, P33-F012)	0	2	5	O	GC
2	H_2-O_2 Analyzer B Torus Sample Line (P33-F007, P33-F015)	0	2	5	O	GC
2	H_2-O_2 Analyzer B Drywell Sample Line (P33-F003, P33-F011)	0	2	5	C	SC
2	H_2-O_2 Analyzer B Return Line (P33-F005, P33-F013)	0	2	5	O	GC
2	Fission Products Monitor Sample Line (D11-F051, D11-F053)	0	2	5	O	GC
2	Fission Products Monitor Return Line (D11-F050, D11-F052)	0	2	5	O	GC

TABLE 3.7-1 (Cont'd)

PRIMARY CONTAINMENT ISOLATION VALVES WHICH
RECEIVE A PRIMARY CONTAINMENT ISOLATION SIGNAL

Isolation Group (b)	Valve Identification (d)(e)	Number of Power Operated Valves Inside	Number of Power Operated Valves Outside	Maximum Operating Time (sec)	Normal Position (a)	Action on Initiating Signal (a)
2	Suppression chamber exhaust valve bypass to standby gas treatment (T48-F339, T48-F338)		2	5	C	SC
2	Suppression chamber nitrogen make-up line (normal operation) (T48-F118B)		1	5	C	SC
2	Drywell and suppression chamber nitrogen supply line (inerting) (T48-F103)		1	5	C	SC
2	Drywell and suppression chamber nitrogen make-up line (normal operation) (T48-F104)		1	5	C	SC
2	Drywell equipment drain sump discharge (G11-F019, G11-F020)		2	15	O	GC
2	Drywell floor drain sump discharge (G11-F003, G11-F004)		2	15	O	GC
2	TIP Guide Tube (C51-J004)		1 each line	NA	C	SC
(c)	Drywell pneumatic system (P70-F002, P70-F003)		2	5	O	GC

TABLE 3.7-1 (Cont'd)

PRIMARY CONTAINMENT ISOLATION VALVES WHICH
RECEIVE A PRIMARY CONTAINMENT ISOLATION SIGNAL

Isolation Group (b)	Valve Identification (d)(e)	Number of Power Operated Valves Inside	Number of Power Operated Valves Outside	Maximum Operating Time (sec)	Normal Position (a)	Action on Initiating Signal (a)
6	RHR reactor shutdown cooling suction (supply) (E11-F008, E11-F009)	1	1	24	C	SC
6	RHR reactor head spray (E11-F022, E11-F023)	1	1	20/12	C	SC
3	HPCI - turbine steam (E41-F002, E41-F003)	1	1	50	O	GC
4	RCIC - turbine steam (E51-F007, E51-F008)	1	1	20	O	GC
5	Reactor water cleanup from recirculation loop (G31-F001, G31-F004)	1	1	30	O	GC
2	Post-accident sampling system supply (B21-F111, B21-F112)		2	5	C	SC
2	Post-accident sampling system return (E41-F122, E41-F121)		2	5	C	SC
2	Core spray test line to suppression pool (E21-F015A,B)		1 each line	50	C	SC

TABLE 3.7-1 (Cont'd)

PRIMARY CONTAINMENT ISOLATION VALVES WHICH
RECEIVE A PRIMARY CONTAINMENT ISOLATION SIGNAL

Isolation Group (b)	Valve Identification (d)(e)	Number of Power Operated Valves Inside	Number of Power Operated Valves Outside	Maximum Operating Time (sec)	Normal Position (a)	Action on Initiating Signal (a)
2	HPCI turbine exhaust vacuum breaker (E41-F111, E41-F104)		2	16	O	GC
2	RCIC turbine exhaust vacuum breaker (E51-F105, E51-F104)		2	16	O	GC
2	Torus drainage and purification suction (G51-F011, G51-F012)		2	12	C	SC
2	RHR drywell spray (E11-F016A,B)		1 each line	11	C	SC
2	RHR test line to the suppression pool (E11-F024A,B; E11-F028A,B)		2 each line	110/26	C	SC
2	RHR to torus spray header (E11-F027A,B; E11-F028A,B)		2 each line	10/26	C	SC
2	RHR heat exchanger to the suppression pool (E11-F011A,B; E11-F026A,B)		2 each line	22	C	SC

TABLE 3.7-1 (Cont'd)

PRIMARY CONTAINMENT ISOLATION VALVES WHICH
RECEIVE A PRIMARY CONTAINMENT ISOLATION SIGNAL

Isolation Group (b)	Valve Identification (d)(e)	Number of Power Operated Valves Inside	Number of Power Operated Valves Outside	Maximum Operating Time (sec)	Normal Position (a)	Action on Initiating Signal (a)
2	RHR discharge to radwaste (E11-F049, E11-F040)		2	20/32	C	SC
2	Torus ventilation exhaust (T48-F332A,B; T48-F333A,B)	2	2	5	C	SC
2	Drywell ventilation exhaust (T48-F334A,B; T48-F335A,B)	2	2	5	C	SC
3	HPCI pump minimum flow (E41-F012)		1	11	C	SC
3	HPCI pump suction (E41-F042)		1	84	C	SC
4	RCIC pump minimum flow (E51-F019)		1	11	C	SC
4	RCIC pump suction (E51-F031)		1	33	C	SC

Table 3.7-1

Primary Containment Isolation Valves Which
Receive a Primary Containment Isolation Valve Signal

These notes refer to the lower case letters in parentheses on the previous page.

NOTES:

a. Key: O = Open SC = Stays closed
C = Closed GC = Goes closed

b. Isolation Groupings are as follows:*

GROUP 1: The valves in Group 1 are actuated by any one of the following conditions:

1. Reactor vessel water level Low Low Low (Level 1)
2. Main steam line radiation high
3. Main steam line flow high
4. Main steam line tunnel temperature high
5. Main steam line pressure low
6. Condenser vacuum low
7. Turbine building temperature at the steam lines high

GROUP 2: The valves in Group 2 are actuated by any one of the following conditions:

1. Reactor vessel water level low (Level 3)
2. Drywell pressure high

GROUP 3: Isolation valves in the high pressure coolant injection (HPCI) system are actuated by any one of the following conditions:

1. HPCI steam line flow high
2. High temperature in the vicinity of the HPCI steam line
3. HPCI steam supply pressure low
4. HPCI turbine exhaust diaphragm pressure
5. Torus room differential temperature high

GROUP 4: Primary Containment Isolation Valves in the reactor core isolation cooling (RCIC) system are actuated by any one of the following conditions:

1. RCIC steam line flow high
2. High temperature in the vicinity of the RCIC steam line
3. RCIC steam line pressure low
4. RCIC turbine exhaust diaphragm pressure high
5. Torus room differential temperature high

* The MSIVs described in Specification 3/4.6.M are Group 1 Isolation Valves.

Table 3.7-1
(Concluded)

Primary Containment Isolation Valves Which
Receive a Primary Containment Isolation Valve Signal

GROUP 5: The valves in Group 5 are actuated by any one of the following conditions:

1. Reactor vessel water level Low Low (Level 2)
2. Reactor water cleanup equipment room temperature high
3. Reactor water cleanup equipment room ventilation differential temperature high
4. Reactor water cleanup system differential flow high
5. Actuation of Standby Liquid Control System - closes outside valve only
6. High temperature following nonregenerative heat exchanger - closes outside valve only

GROUP 6: The valves in Group 6 are actuated by any one of the following conditions:

1. Reactor vessel water level low (Level 1)
2. Reactor vessel steam dome pressure low (Permissive

c. Requires a Group 2 signal or a Reactor Building ventilation high radiation isolation signal.

d. For redundant lines, only one set of valves is listed. Other sets are identical except for valve numbers, which are included. Valve numbers are listed in order from within primary containment outward for each line.

e. Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

3/4.4.7 MAIN STEAM LINE ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.4.7 Two Main Steam Line Isolation Valves (MSIVs) per main steam line shall be OPERABLE with closing times ≥ 2 seconds and ≤ 8 seconds.*

APPLICABILITY: CONDITIONS 1, 2 and 3.

ACTION:

With one or more MSIVs inoperable, operation may continue and the provisions of Specification 3.0.4 are not applicable provided that at least one MSIV is maintained OPERABLE in each affected main steam line that is open and either:

1. The inoperable valve(s) is restored to OPERABLE status within 8 hours, or

2. The affected main steam line is isolated within 8 hours by use of a deactivated MSIV in the closed position.

Otherwise, be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.4.7.1 Each of the above required MSIVs shall be demonstrated OPERABLE by verifying full closure with closing times ≥ 2 seconds and ≤ 8 seconds when tested pursuant to Specification 4.0.5.

4.4.7.2 Each MSIV shall be demonstrated OPERABLE during COLD SHUTDOWN or REFUELING at lease once per 18 months by verifying that on a containment isolation test signal each automatic isolation valve actuates to its isolation position.

4.4.7.3 Each MSIV shall be demonstrated OPERABLE prior to returning the valve to service after maintenance, repair, or replacement work is performed on the valve or its associated actuator, control, or power circuit by cycling the valve through at least one complete cycle of full travel and verification of specified isolation time.

* The MSIVs are Group 1 Isolation Valves (See Table 3.6.3-1).

TABLE 3.6.3-1

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER	VALVE GROUP[a]	ISOLATION TIME (Seconds)
A. Automatic Isolation Valves[b]		
1. (Deleted)		
2. Main Steam Drain Isolation Valves		
2B21-F016	1	15
2B21-F019	1	15
3. Reactor Water Sample Line Isolation Valves		
2B31-F019	1	5
2B31-F020	1	5
4. Drywell Equipment Drain Sump Discharge Isolation Valves		
2G11-F019	2	20
2G11-F020	2	20
5. Drywell Floor Drain Sump Discharge Isolation Valves		
2G11-F003	2	20
2G11-F004	2	20

[a] See Specification 3.3.2, Table 3.3.2-1, for isolation signals that operate each valve group. The MSIVs described in Specification 3/4.4.7 are Group 1 Isolation Valves.

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the vaives are required to be closed.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER	VALVE GROUP[a]	ISOLATION TIME (Seconds)
A. Automatic Isolation Valves (Continued)[b]		
6. Containment Spray Isolation Valves		
2E11-F016 A and B	*	10
2E11-F028 A and B	*	24
7. RHR Heat Exchanger Drain Isolation Valves		
2E11-F011 A and B	*	20
2E11-F026 A and B	*	20
8. Drywell-to-Torus Differential Pressure System Isolation Valves		
2T48-F209	12	5
2T48-F210	12	5
2T48-F211	12	5
2T48-F212	12	5
9. HPCI Steam Line Isolation Valves		
2E41-F002	3	50
2E41-F003	3	50

[a] See Specification 3.3.2, Table 3.3.2-1, for isolation signals that operate each valve group

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

*Closed upon actuation of the LPCI mode of RHR via a high drywell pressure signal (see item 2.a of Table 3.3.3-1) or a Low Low Low (Level 1) signal from 2B21-N691A,B,C,D (see item 2.b of Table 3.3.3-1).

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER	VALVE GROUP[a]	ISOLATION TIME (Seconds)
A. Automatic Isolation Valves (Continued)[b]		
10. HPCI Pump Minimum Flow Line Isolation Valve		
2E41-F012	(c)	10
11. RCIC Steam Line Isolation Valves		
2E51-F007	4	20
2E51-F008	4	20
12. RCIC Pump Minimum Flow Line Isolation Vaive		
2E51-F019	(d)	5
13. Reactor Water Cleanup System Isolation Valves		
2G31-F001	5	30
2G31-F004	5	30

[a] See Specification 3.3.2, Table 3.3.2-1, for isolation signals that operate each valve group.
[b] Primary Containment Automatic isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.
[c] The minimum flow valve closes when HPCI flow is established or when the HPCI turbine stop valve and/or steam inlet valve indicates closed. These HPCI turbine valves automatically close when the HPCI system is shutdown.
[d] The minimum flow valve closes when RCIC flow is established or when the RCIC turbine steam inlet valve indicates closed. The RCIC turbine steam inlet valve automatically closes when the RCIC system is shutdown.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER	VALVE GROUP[a]	ISOLATION TIME (Seconds)
A. Automatic Isolation Valves (Continued)[b]		
14. Drywell Vent and Purge System Isolation Valves		
2T48-F307	6	5
2T48-F308	6	5
2T48-F103	6	5
2T48-F104	6	5
2T48-F118A	6	5
2T48-F118B	6	5
2T48-F324	6	5
2T48-F319	6	5
2T48-F320	6	5
2T48-F340	6	10
2T48-F341	6	10
2T48-F334 A	6	3
2T48-F334 B	6	3
2T48-F335 A	6	3
2T48-F335 B	6	3
15. Drywell Pneumatic System Isolation Valves		
2P70-F002	6	5
2P70-F003	6	5
16. Fission Products Monitoring System Isolation Valves		
2D11-F050	6	5
2D11-F051	6	5
2D11-F052	6	5
2D11-F053	6	5

[a] See Specification 3.3.2, Table 3.3.2.1, for isolation signals that operate each valve group.

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER	VALVE GROUP[a]	ISOLATION TIME (Seconds)
A. Automatic Isolation Valves (Continued)[b]		
17. Torus Cleanup Vacuum Drag Isolation Valves		
2G51-F011	7	15
2G51-F012	7	15
18. HPCI Turbine Exhaust Vacuum Breaker Isolation Valves		
2E41-F111	8	15
2E41-F104	8	15
19. RCIC Turbine Exhaust Vacuum Breaker Isolation Valves		
2E51-F104	9	15
2E51-F105	9	15
20. H_2O_2 Sampling System Isolation Valves		
2P33-F004	10	5
2P33-F012	10	5
2P33-F002	10	5
2P33-F010	10	5
2P33-F006	10	5
2P33-F007	10	5
2P33-F014	10	5
2P33-F015	10	5
2P33-F003	10	5
2P33-F011	10	5
2P33-F005	10	5
2P33-F013	10	5

[a] See Specification 3.3.2, Table 3.3.2.1, for isolation signals that operate each valve group.

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER	VALVE GROUP[a]	ISOLATION TIME (Seconds)
A. Automatic Isolation Valves (Continued)[b]		
21. Core Spray System Flow Test Line Isolation Valves		
2E21-F015 A	*	50
2E21-F015 B	*	50
22. Suppression Pool Vent and Purge System Isolation Valves		
2T48-F338	10	5
2T48-F339	10	5
2T48-F318	10	5
2T48-F326	10	5
2T48-F332 A	10	3
2T48-F332 B	10	3
2T48-F333 A	10	3
2T48-F333 B	10	3
23. RHR Shutdown Cooling Suction Isolation Valves		
2E11-F008	11	24

[a] See Specification 3.3.2, Table 3.3.2-1, for isolation signals that operate each valve group.
[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.
*Closes upon actuation of Core Spray via a high drywell pressure signal (see item 1.b of Table 3.3.3-1) or a Low Low Low (Level 1) signal from 2B21-N691A,B,C,D (see item 1.a of Table 3.3.3-1).

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER	VALVE GROUP(*)	ISOLATION TIME (Seconds)
A. Automatic Isolation Valves (Continued)(b)		
24. Traversing Incore Probe Isolation Valve Ball Valve	*	NA
25. Vacuum Relief Isolation Valves		
2T48-F309	6	5
2T48-F324	6	5
26. HPCI Pump Suction Isolation Valve		
2E41-F042	3	84

(*)See Specification 3.3.2, Table 3.3.2-1, for isolation signals that operate each valve group.
(b)Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.
*Closes upon withdrawal of TIP. TIP automatic withdrawal is actuated by either low reactor vessel water level or high drywell pressure.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER

B. MANUAL ISOLATION VALVES[b][*]

1. Main steam isolation valves
   2E32-F001B, F, K, P

2. RHR return to recirculation loop isolation valves
   2E11-F015A, B

3. LOCA H_2 recombiner isolation valves
   2T49-F002 A, B
   2T49-F004 A, B

4. Core spray isolation valves
   2E21-F005A, B

5. Service air isolation valves
   2P51-F651
   2P51-F513

6. RBCCW supply and return isolation valves
   2P42-F051
   2P42-F052

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

[*] Includes power operated valves which do not isolate automatically.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER
B. MANUAL ISOLATION VALVES[b][*] (Continued)
7. Drywell pressure instrumentation line isolation valves
2E11-F041A, B, C, D
2T48-F363A, B
8. ILRT verification flow isolation valves
2T23-F004
2T23-F005
9. Traversing incore probe isolation valve
Shear valve (explosive)
10. N_2 makeup inlet isolation valves
2T48-F321
2T48-F322
2T48-F325
2T48-F327
11. Demineralized water isolation valves
2P21-F032
2P21-F034
12. Chilled water supply and return isolation valves
2P64-F045
2P64-F047
13. Chemical pump discharge isolation valves
2G11-F852
2G11-F853

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

[*] Includes power operated valves which do not isolate automatically.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER

B. MANUAL ISOLATION VALVES[b][*] (Continued)

14. Nitrogen inlet isolation valves
    2T48-F113
    2T48-F114

15. RCIC pump suction isolation valves
    2E51-F003
    2E51-F031

16. RHR pump suction isolation valves
    2E11-F004A, B, C, D

17. Vacuum relief isolation valves
    2T48-F310
    2T48-F311

18. Vacuum relief instrumentation line isolation valve
    2T48-F364A, B

19. Torus water level instrumentation line isolation valves
    2T48-361 A, B
    2T48-362 A, B

20. HPCI pump suction isolation valve
    2E41-F051

21. Core spray pump suction isolation valves
    2E21-F001 A, B

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

[*] Includes power operated valves which do not isolate automatically.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER

B. MANUAL ISOLATION VALVES[b][*] (Continued)

22. FPM sample isolation valves
    2D11-F058
    2D11-F065

23. Torus purification suction isolation valves
    2G51-F002

24. RHR relief valve discharge isolation valve
    2E11-F103 A, B

25. Nitrogen makeup isolation valves
    2T48-F115
    2T48-F116

26. Core spray test line isolation valves
    2E11-F007 A, B

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

[*] Includes power operated valves which do not isolate automatically.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER
C. OTHER ISOLATION VALVES[b]
1. Primary feedwater isolation valves
2B21-F010 A, B
2B21-F077 A[f], B[f]
2. Drywell pneumatic return isolation valve
2P70-F004
2P70-F005
2P70-F066
2P70-F067
3. Recirculation line flow instrumentation line isolation valves[g]
2B31-F009 A, B, C, D
2B31-F010 A, B, C, D
2B31-F011 A, B, C, D
2B31-F012 A, B, C, D
4. Recirculation pump seal purge isolation valves
2B31-F013 A, B
2B31-F017 A, B
5. Recirculation line pressure instrumentation line isolation valves[g]
2B31-F057 A, B
6. Recirculation pump discharge pressure instrumentation line isolation valves[g]
2B31-F040 A, D

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

[f] Air assist check valve.

[g] Excess flow check valve.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER
C. OTHER ISOLATION VALVES (Continued)[b]
7. Recirculation pump suction pressure instrumentation line isolation valves[g] 2B31-F040 B, C
8. Recirculation pump seal pressure instrumentation line isolation valves[g] 2B31-F003 A, B 2B31-F004 A, B
9. Main steam line flow instrumentation line isolation valves[g] 2B21-F070 A, B, C, D 2B21-F071 A, B, C, D 2B21-F072 A, B, C, D 2B21-F073 A, B, C, D
10. RCIC steam line pressure instrumentation line isolation valves[g] 2E51-F044 A, B, C, D
11. TIP N_2 purge isolation valves 2C51-F3017 2C51-F3012
12. Pressure above and below core plate instrumentation line isolation valves[g] 2E21-F018 C 2B21-F055 2B21-F057 2B21-F061

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

[g] Excess flow check valve.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER
C. OTHER ISOLATION VALVES (Continued)[b]
13. Jet pump instrumentation line isolation valves[9]
2B21-F051 A, B, C, D
2B21-F053 A, B, C, D
2B21-F059 A, B, C, D, E, F, G, H, L, M, N, P, R, S, T, U
14. HPCI steam line pressure instrumentation line isolation valves[9]
2E41-F024 A, B, C, D
15. Core spray pressure instrumentation line isolation valves[9]
2E21-F018 A, B
16. Standby liquid control isolation valves
2C41-F006
2C41-F007
17. RPV level instrumentation line isolation valves[9]
2B21-F041
2B21-F043 A, B
2B21-F045 A, B
2B21-F047 A, B
2B21-F049 A, B
18. Vacuum relief isolation valves[n]
2T48-F328 A, B

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

[9] Excess flow check valve.

[n] Air operated check valve.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER
C. OTHER ISOLATION VALVES (Continued)[b]
19. RHR pump suction relief valves[1] 2E11-F030 A, B, C, D
20. RHR test line isolation valves 2E51-F021 2E11-F025 A, B[1] 2E11-F029[1] 2E41-F046 2E11-F097[1]
21. RCIC turbine exhaust isolation valves 2E51-F001 2E51-F040
22. RCIC turbine vacuum pump discharge isolation valves 2E51-F002 2E51-F028
23. HPCI turbine exhaust isolation valves 2E41-F021 2E41-F049

[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

[1] Pressure relief valve.

TABLE 3.6.3-1 (Continued)

PRIMARY CONTAINMENT ISOLATION VALVES

VALVE FUNCTION AND NUMBER

C. OTHER ISOLATION VALVES (Continued)[b]

24. HPCI exhaust drain isolation valves
    2E41-F022
    2E41-F040

25. RHR relief valve discharge isolation valves
    2E11-F055 A, B[1]
    RV[2]
    RV[2]
    2T49-F009 A, B

26. Core spray test line isolation valves
    2E21-F036 A, B
    2E21-F044 A, B

27. Control air to vacuum breakers isolation valve
    2T48-F342 A,B,C,D,E,F,G,H,I,J,K,L

28. Torus to drywell vaccum breaker air cylinder
    2T48-F323 A,B,C,D,E,F,G,H,I,J,K,L

29. Suppression pool purification system suction line blind flange
    2G51-D001

30. Suppression pool vent and purge system supply line blind flange
    2T48-D006

31. RHR head spray isolation valve
    2E11-F023[x]

0040q

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[b] Primary Containment Automatic Isolation valves may be opened (utilizing the manual override switches) under administrative control on an intermittent basis during accident or transient conditions (not necessarily limited to those in the FSAR) to mitigate the consequences of the accident or transient. Locked closed valves may not be opened during accident or transient conditions when the valves are required to be closed.

[1] Pressure relief valve.

[2] Thermal relief valve.

[x] Deactivated and locked in the closed (isolation) position.