

CONTAINMENT SYSTEMS

3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3.1 The containment isolation valves specified in Table 3.6-1 shall be OPERABLE with isolation times as shown in Table 3.6-1. The ACTION statement of T/S 3/4.6.3 is not applicable to the containment purge supply and exhaust isolation valves, VCR-101 through 106 and VCR-201 through 206, listed in Table 3.6-1. The Limiting Condition for Operation and its associated ACTION statement for these valves is given in Technical Specification 3/4.6.1.7.

APPLICABILITY: MODES 1, 2, 3 and 4.

ACTION:

With one or more of the isolation valve(s) specified in Table 3.6-1 inoperable, either:

- a. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or
- b. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or
- c. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange, or
- d. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.3.1.1 The isolation valves specified in Table 3.6-1 shall be demonstrated OPERABLE:

- a. At least once per 92 days by cycling each OPERABLE power operated or automatic valve testable during plant operation through at least one complete cycle of full travel.
- b. Immediately prior to returning the valve to service after maintenance, repair or replacement work is performed on the

TABLE 3.6-1 (Continued)

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>TESTABLE DURING PLANT OPERATION</u>	<u>ISOLATION TIME IN SECONDS</u>
<u>B. PHASE "B" ISOLATION (Continued)</u>			
44. WCR-961	NESW to Instr. Rm. East Vent	Yes	10
45. WCR-963	NESW from Instr. Rm. West Vent	Yes	10
46. WCR-965	NESW to Instr. Rm. East Vent	Yes	10
47. WCR-967	NESW from Instr. Rm. West Vent	Yes	10
48. WCR-900	NESW to RCP Lower Containment Vent #1	Yes	10
49. WCR-902	NESW from Lower Containment Vent #1	Yes	10
50. WCR-904	NESW to RCP Lower Containment Vent #2	Yes	10
51. WCR-906	NESW from Lower Containment Vent #2	Yes	10
52. WCR-908	NESW to RCP Lower Containment Vent #3	Yes	10
53. WCR-910	NESW from Lower Containment Vent #3	Yes	10
54. WCR-912	NESW to RCP Lower Containment Vent #4	Yes	10
55. WCR-914	NESW from Lower Containment Vent #4	Yes	10
56. WCR-920	NESW to RCP Upper Containment Vent #1	Yes	10
57. WCR-922	NESW from Upper Containment Vent #1	Yes	10
58. WCR-924	NESW to RCP Upper Containment Vent #2	Yes	10
59. WCR-926	NESW from Upper Containment Vent #2	Yes	10
60. WCR-928	NESW to RCP Upper Containment Vent #3	Yes	10
61. WCR-930	NESW from Upper Containment Vent #3	Yes	10
62. WCR-932	NESW to RCP Upper Containment Vent #4	Yes	10
63. WCR-934	NESW from Upper Containment Vent #4	Yes	10
64. WCR-960	NESW to Instrument Room East Vent	Yes	10
65. WCR-962	NESW from Instrument Room East Vent	Yes	10
66. WCR-964	NESW to Instrument Room West Vent	Yes	10
67. WCR-966	NESW from Instrument Room West Vent	Yes	10

C. CONTAINMENT PURGE AND EXHAUST **

1. VCR-101	Instr. Room Purge Air Inlet	Yes	5
2. VCR-102	Instr. Room Purge Air Outlet	Yes	5
3. VCR-103	Lower Comp. Purge Air Inlet	Yes	5
4. VCR-104	Lower Comp. Purge Air Outlet	Yes	5
5. VCR-105	Upper Comp. Purge Air Inlet	Yes	5
6. VCR-106	Upper Comp. Purge Air Outlet	Yes	5
7. VCR-107*	Cont. Press. Relief Fan Isolation	Yes	5
8. VCR-201	Instr. Room Purge Air Inlet	Yes	5
9. VCR-202	Instr. Room Purge Air Outlet	Yes	5
10. VCR-203	Lower Comp. Purge Air Inlet	Yes	5
11. VCR-204	Lower Comp. Purge Air Outlet	Yes	5

TABLE 3.6-1 (Continued)

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>TESTABLE DURING PLANT OPERATION</u>	<u>ISOLATION TIME IN SECONDS</u>
<u>C. CONTAINMENT PURGE EXHAUST (Continued) **</u>			
12. VCR-205	Upper Comp. Purge Air Inlet	Yes	5
13. VCR-206	Upper Comp. Purge Air Outlet	Yes	5
14. VCR-207*	Cont. Press Relief Fan Isolation	Yes	5
<u>D. MANUAL ISOLATION VALVES⁽¹⁾</u>			
1. ICM-111	RHR to RC Cold Legs	Yes	NA
2. ICM-129	RHR Inlet to Pumps	No	NA
3. ICM-250	Boron Injection Inlet	Yes	NA
4. ICM-251	Boron Injection Inlet	Yes	NA
5. ICM-260	Safety Injection Inlet	Yes	NA
6. ICM-265	Safety Injection Inlet	Yes	NA
7. ICM-305	RHR Suction from Sump	Yes	NA
8. ICM-306	RHR Suction from Sump	Yes	NA
9. ICM-311	RHR to RC Hot Legs	Yes	NA
10. ICM-321	RHR to RC Hot Legs	Yes	NA
11. NPX 151 VI	Dead Weight Tester	Yes	NA
12. PA 145	Containment Service Air	No	NA
13. SF-151	Refueling Water Supply	Yes	NA
14. SF-153	Refueling Water Supply	Yes	NA
15. SF-159	Refueling Cavity Drain to Purification System	Yes	NA
16. SF-160	Refueling Cavity Drain to Purification System	Yes	NA
17. SI-171	Safety Injection Test Line	Yes	NA
18. SI-172	Accumulator Test Line	Yes	NA

TABLE 3.6-1 (Continued)

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>TESTABLE DURING PLANT OPERATION</u>	<u>ISOLATION TIME IN SECONDS</u>
<u>D. MANUAL ISOLATION VALVES (1) (Continued)</u>			
19. CCR-440	CCW from Main Steam Penetration	Yes	NA
20. CCR-441	CCW from Main Steam Penetration	Yes	NA
21. MCM-221	Main Steam to Auxiliary Feed Pump	No	NA
22. MCM-231	Main Steam to Auxiliary Feed Pump	No	NA
23. CCM-430	CCW to East Pressure Equalization Fan	Yes	NA
24. CCM-431	CCW from East Pressure Equalization Fan	Yes	NA
25. CCM-432	CCW to West Pressure Equalization Fan	Yes	NA
26. CCM-433	CCW from West Pressure Equalization Fan	Yes	NA
27. SM-8*	Upper Containment Sample	Yes	NA
28. SM-10*	Upper Containment Sample	Yes	NA
29. SM-4*	Instrument Room Sample	Yes	NA
30. SM-6*	Instrument Room Sample	Yes	NA

NA - Manual Valve-Isolation time not applicable.

(1) - Includes motor operated valves which do not isolate automatically.

* - May be opened on an intermittent basis under administrative control.

** - Containment purge supply and exhaust isolation valves (VCR-101 through 106 and VCR-201 through 206) may be opened under Technical Specification 3/4.6.1.7.

CONTAINMENT SYSTEMS

CONTAINMENT VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

- 3.6.1.7 The containment purge supply and exhaust isolation valves shall be closed except when operation of the containment purge system is required for safety related reasons. No more than one purge supply path and one purge exhaust path shall be open at a time.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With one containment purge supply and/or one exhaust isolation valve inoperable, isolate the affected penetration by use of at least one automatic valve secured in the closed position, and, within 72 hours, either:
 - 1) Restore the inoperable valve to OPERABLE status, or,
 - 2) Deactivate the automatic valve secured in the closed position.
- b. Operation may then continue until performance of the next required valve test provided that the automatic valve secured in the closed position is verified to be deactivated in the closed position at least once per 31 days.
- c. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- d. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

- 4.6.1.7.1 The surveillance requirements of Technical Specification 3/4.6.3.1 apply.

CONTAINMENT SYSTEMS

BASES

3/4.6.1.7 CONTAINMENT PURGE AND EXHAUST ISOLATION VALVES

This specification ensures that the containment purge supply and exhaust isolation valves are closed for the majority of the time during normal operation. It allows for containment purging for safety related reasons. Safety-related reasons are meant to be the need to improve containment working conditions to perform surveillance and/or maintenance on a safety-related system or piece of equipment. Examples of improved working conditions include reducing temperature, humidity and airborne activity to permit efficient performance or to significantly reduce occupational radiation exposures. It is intended that purging and venting times will be as short as possible. Allowing purge operations in Modes 1, 2, 3, and 4 is more beneficial than a cooldown to Mode 5 from the standpoint of (a) imposing unnecessary thermal stress cycles on the reactor coolant system and its components and (b) reducing the potential for causing unnecessary challenges to the reactor trip and safeguards systems. The containment purge system is designed in accordance with the requirements of NRC Branch Technical Position CSB 6-4, Rev. 1. This includes, but is not limited to, an analysis of the impact of purging on ECCS performance, an evaluation of the radiological consequences of a design basis accident while purging, and limiting purge operation to using no more than one supply path and one exhaust path at a time. The purge isolation valves have been demonstrated capable of closing against the dynamic forces associated with a loss-of-coolant accident and are assured of receiving a Containment Ventilation Isolation signal. Reset switches have been protected against inadvertent use in a manner which facilitates the administrative controls governing their use. The use of the pressure relief (vent) line is allowed for containment pressure control. The purge and vent isolation valves do not use resilient seating/sealing material and are not subject to the type of environmental degradation common to resilient materials.

CONTAINMENT SYSTEMS

3/4.6.3 CONTAINMENT ISOLATION VALVES

LIMITING CONDITION FOR OPERATION

3.6.3.1 The containment isolation valves specified in Table 3.6-1 shall be OPERABLE with isolation times as shown in Table 3.6-1. The ACTION statement of Technical Specification 3/4.6.3 is not applicable to the containment purge and exhaust isolation valves, VCR-101 through 106 and VCR-201 through 206, listed in Table 3.6-1. The Limiting Condition for Operation and its associated ACTION statement for these valves is given in Technical Specification 3/4.6.1.7.

APPLICABILITY: Modes 1, 2, 3 and 4.

ACTION:

With one or more of the isolation valves(s) specified in Table 3.6-1 inoperable, maintain at least one isolation valve OPERABLE in each affected penetration that is open and either:

- a. Restore the inoperable valve(s) to OPERABLE status within 4 hours, or
- b. Isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the isolation position, or
- c. Isolate each affected penetration within 4 hours by use of at least one closed manual valve or blind flange; or
- d. Be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

SURVEILLANCE REQUIREMENTS

4.6.3.1.1 The isolation valves specified in Table 3.6-1 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 performance of a cycling test and verification of isolation time.

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>ISOLATION TIME IN SECOND</u>
<u>B. PHASE "B" ISOLATION (Continued)</u>		
56. WCR-920	NESW to RCP Upper Containment Vent #1	≤10
57. WCR-922	NESW from Upper Containment Vent #1	≤10
58. WCR-924	NESW to RCP Upper Containment Vent #2	≤10
59. WCR-926	NESW from Upper Containment Vent #2	≤10
60. WCR-928	NESW to RCP Upper Containment Vent #3	≤10
61. WCR-930	NESW from Upper Containment Vent #3	≤10
62. WCR-932	NESW to RCP Upper Containment Vent #4	≤10
63. WCR-934	NESW from Upper Containment Vent #4	≤10
64. WCR-960	NESW to Instrument Room East Vent	≤10
65. WCR-962	NESW from Instrument Room East Vent	≤10
66. WCR-964	NESW to Instrument Room West Vent	≤10
67. WCR-966	NESW from Instrument Room West Vent	≤10
<u>C. CONTAINMENT PURGE AND EXHAUST **</u>		
1. VCR-101	Instr. Room Purge Air Inlet	≤5
2. VCR-102	Instr. Room Purge Air Outlet	≤5
3. VCR-103	Lower Comp. Purge Air Inlet	≤5
4. VCR-104	Lower Comp. Purge Air Outlet	≤5
5. VCR-105	Upper Comp. Purge Air Inlet	≤5

TABLE 3.6-1 (Continued)
CONTAINMENT ISOLATION VALVES

<u>VALVE NUMBER</u>	<u>FUNCTION</u>	<u>ISOLATION TIME IN SECONDS</u>
C. <u>CONTAINMENT PURGE AND EXHAUST (Continued) **</u>		
6. VCR-106	Upper Comp. Purge Air Outlet	≤ 5
7. VCR-107*	Cont. Press. Relief Fan Isolation	≤ 5
8. VCR-201	Instr. Room Purge Air Inlet	≤ 5
9. VCR-202	Instr. Room Purge Air Outlet	≤ 5
10. VCR-203	Lower Comp. Purge Air Inlet	≤ 5
11. VCR-204	Lower Comp. Purge Air Outlet	≤ 5
12. VCR-205	Upper Comp. Purge Air Outlet	≤ 5
13. VCR-206	Upper Comp. Purge Air Outlet	≤ 5
14. VCR-207*	Cont. Press Relief Fan Isolation	≤ 5
D. <u>MANUAL ISOLATION VALVES</u> (1)		
1. 1CM-111#	RHR to RC Cold Legs	NA
2. 1CM-129	RHR Inlet to Pumps	NA

TABLE 3.6-1 (Continued)

CONTAINMENT ISOLATION VALVES

TABLE NOTATION

- * May be opened on an intermittent basis under administrative control.
- # Not subject to Type "B" or "C" Leak Tests.
- NA Check valves, blind flanges on normally closed valves which do not receive containment isolation signals; isolation time not applicable.
- (1) Includes motor operated valves which do not isolate automatically.
- ** Containment purge supply and exhaust isolation valves (VCR-101 through 106 and VCR-201 through 206) may be opened under Technical Specification 3/4.6.1.7.

CONTAINMENT SYSTEMS

CONTAINMENT VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

3.6.1.7 The containment purge supply and exhaust isolation valves shall be closed except when operation of the containment purge system is required for safety related reasons. No more than one purge supply path and one purge exhaust path shall be open at a time.

APPLICABILITY: MODES 1, 2, 3, and 4.

ACTION:

- a. With one containment purge supply and/or one exhaust isolation valve inoperable, isolate the affected penetration by use of at least one automatic valve secured in the closed position, and, within 72 hours, either:
 - 1) Restore the inoperable valve to OPERABLE status, or,
 - 2) Deactivate the automatic valve secured in the closed position.
- b. Operation may then continue until performance of the next required valve test provided that the automatic valve secured in the closed position is verified to be deactivated in the closed position at least once per 31 days.
- c. Otherwise, be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.
- d. The provisions of Specification 3.0.4 are not applicable.

SURVEILLANCE REQUIREMENTS

4.6.1.7.1 The surveillance requirements of Technical Specification 3/4.6.3.1 apply.

CONTAINMENT SYSTEMS

BASES

3/4.6.1.7 CONTAINMENT PURGE AND EXHAUST ISOLATION VALVES

This specification ensures that the containment purge supply and exhaust isolation valves are closed for the majority of the time during normal operation. It allows for containment purging for safety related reasons. Safety-related reasons are meant to be the need to improve containment working conditions to perform surveillance and/or maintenance on a safety-related system or piece of equipment. Examples of improved working conditions include reducing temperature, humidity and airborne activity to permit efficient performance or to significantly reduce occupational radiation exposures. It is intended that purging and venting times will be as short as possible. Allowing purge operations in Modes 1, 2, 3, and 4 is more beneficial than a cooldown to Mode 5 from the standpoint of (a) imposing unnecessary thermal stress cycles on the reactor coolant system and its components and (b) reducing the potential for causing unnecessary challenges to the reactor trip and safeguards systems. The containment purge system is designed in accordance with the requirements of NRC Branch Technical Position CSB 6-4, Rev. 1. This includes, but is not limited to, an analysis of the impact of purging on ECCS performance, an evaluation of the radiological consequences of a design basis accident while purging, and limiting purge operation to using no more than one supply path and one exhaust path at a time. The purge isolation valves have been demonstrated capable of closing against the dynamic forces associated with a loss-of-coolant accident and are assured of receiving a Containment Ventilation Isolation signal. Reset switches have been protected against inadvertent use in a manner which facilitates the administrative controls governing their use. The use of the pressure relief (vent) line is allowed for containment pressure control. The purge and vent isolation valves do not use resilient seating/sealing material and are not subject to the type of environmental degradation common to resilient materials.

