5.5 Programs and Manuals

5.5.16 Reactor Coolant System (RCS) Pressure Isolation Valve (PIV) Leakage Program

A program shall be established to verify the leakage from each RCS PIV is within the limits specified below, in accordance with the Event V Order, issued April 20, 1981.

a. Minimum differential test pressure shall not be less than 150 psid.

b. Leakage rate acceptance criteria are:

1. Leakage rates less than or equal to 1.0 gpm are considered acceptable.

2. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered acceptable if the latest measured rate has not exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

3. Leakage rates greater than 1.0 gpm but less than or equal to 5.0 gpm are considered unacceptable if the latest measured rate exceeded the rate determined by the previous test by an amount that reduces the margin between measured leakage rate and the maximum permissible rate of 5.0 gpm by 50% or greater.

4. Leakage rates greater than 5.0 gpm are considered unacceptable.

5.5.17 Pre-Stressed Concrete Containment Tendon Surveillance Program

This program provides controls for monitoring any tendon degradation in pre-stressed concrete containments, including effectiveness of its corrosion protection medium, to ensure containment structural integrity. The program shall include baseline measurements prior to initial operations. The Tendon Surveillance Program, inspection frequencies, and acceptance criteria shall be in accordance with Regulatory Guide 1.35, Revision 3, 1990.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Tendon Surveillance Program inspection frequencies.

BASES

APPLICABLE SAFETY ANALYSES

The containment isolation valve LCO was derived from the assumptions related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during major accidents. As part of the containment boundary, containment isolation valve OPERABILITY supports leak tightness of the containment. Therefore, the safety analyses of any event requiring isolation of containment is applicable to this LCO.

The DBA that results in a release of radioactive material within containment is a LOCA (Ref. 1). In the analyses for this accident, it is assumed that containment isolation valves are either closed or capable of closure to isolate penetrations. This ensures that potential paths to the environment through containment isolation valves (including containment purge valves) are minimized. The safety analyses assume that the purge supply and exhaust valves are closed at event initiation.

No specific containment isolation time was assumed in the LOCA analysis. However, containment isolation is an implicit assumption in maintaining containment leakage within it's design leakage rate, L_a, and containment back pressure relative to RCS blowdown rate.

The purge valves may be unable to close in the environment following a LOCA. Therefore, each of the purge valves is required to remain closed with its control switch locked in the closed position during MODES 1, 2, 3, and 4. The single failure criterion is still applicable to the containment purge valves due to the potential for a failure in the control circuit associated with each valve. However, the purge system valve design precludes a single failure from compromising the containment boundary as long as the system is operated in accordance with the subject LCO.

The containment isolation valves satisfy Criterion 3 of the NRC Policy Statement.

LCO

Containment isolation valves form a part of the containment boundary. The containment isolation valves' safety function is related to minimizing the loss of reactor coolant inventory and establishing the containment boundary during a DBA.

The automatic power operated isolation valves are required to actuate to the closed position on an automatic isolation signal. The containment purge supply and exhaust valves must be maintained closed with their control switches in the locked closed position. The valves covered by this LCO are listed in the FSAR (Ref. 2).

BASES

LCO (continued)

The normally closed isolation valves are considered OPERABLE when manual valves are closed, automatic valves are de-activated and secured in their closed position, blind flanges are in place, and closed systems are intact. Position verification, when necessary in accordance with the required actions and/or surveillance requirements, is still required for these valves. These passive isolation valves/devices are those listed in Reference 2.

This LCO provides assurance that the containment isolation valves and purge valves will perform their designed safety functions to minimize the loss of reactor coolant inventory and establish the containment boundary during accidents.

APPLICABILITY

In MODES 1, 2, 3, and 4, a DBA could cause a release of radioactive material to containment. In MODES 5 and 6, the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the containment isolation valves are not required to be OPERABLE in MODE 5. The requirements for containment isolation valves during MODE 6 are addressed in LCO 3.9.3, "Containment Penetrations."

ACTIONS

The ACTIONS are modified by a Note allowing penetration flow paths, except for containment purge supply and exhaust penetration flow paths, to be unisolated intermittently under administrative controls. These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for containment isolation is indicated. Due to the size of the containment purge line penetrations and the fact that those penetrations exhaust directly from the containment atmosphere to the environment, the penetration flow path containing these valves may not be opened under administrative controls in MODES 1, 2, 3, and 4. A single purge valve in a penetration flow path may be opened to effect repairs to an inoperable valve, as allowed by SR 3.6.3.1.

A second Note has been added to provide clarification that, for this LCO, separate Condition entry is allowed for each penetration flow path. This is acceptable, since the Required Actions for each Condition provide appropriate compensatory actions for each inoperable containment isolation valve. Complying with the Required Actions may allow for continued operation, and subsequent inoperable containment isolation valves are governed by subsequent Condition entry and application of associated Required Actions.

BASES

ACTIONS (continued) C.1 and C.2

With one or more penetration flow paths with one containment isolation valve inoperable, the inoperable valve flow path must be restored to OPERABLE status or the affected penetration flow path must be isolated. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. A check valve may not be used to isolate the affected penetration flow path. Required Action C.1 must be completed within the 72 hour Completion Time. The specified time period is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of maintaining containment integrity during MODES 1, 2, 3, and 4. In the event the affected penetration flow path is isolated in accordance with Required Action C.1, the affected penetration flow path must be verified to be isolated on a periodic basis. This periodic verification is necessary to assure leak tightness of containment and that containment penetrations requiring isolation following an accident are isolated. This SR does not apply to valves that are locked, sealed, or otherwise secured in the closed position, since these were verified to be in the correct position upon locking, sealing, or securing.

Condition C is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with only one containment isolation valve and a closed system. The closed system must meet the requirements of Ref 2. This Note is necessary since this Condition is written to specifically address those penetration flow paths which utilize closed systems as one of the two containment barrier.

Required Action C.2 is modified by two Notes. Note 1 applies to valves and blind flanges located in high radiation areas and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is small.

Table M – More Restrictive Changes
ITS Section 3.4 – Reactor Coolant System (RCS)

DOC No.	Description of Change	ITS Requirement	CTS Requirement
3.4.1 M1	Increases the conditions over which the CTS requirements for pressurizer pressure, RCS coolant average temperature, and RCS flow rate must be maintained to ensure DNBR criteria will be met in the event of an unplanned loss of forced coolant flow or other DNB limited transient.	3.4.1	15.3.1.G
3.4.1 M2	Not used.	N/A	N/A
3.4.1 M3	Not used.	N/A	N/A
3.4.1 M4	Adopts STS requirements to verify pressurizer pressure and RCS average temperature within limits every 12 hours, and verify measured RCS total flow rate within limits every 18 months.	SR 3.4.1.1, SR 3.4.1.2, SR 3.4.1.3	N/A
3.4.2 M1	Imposes a more restrictive requirement than the CTS for the minimum temperature at which the reactor can be taken critical.	3.4.2	15.3.1.F.4
3.4.2 M2	Adopts STS Required Action to shutdown the unit to below the Mode of Applicability within 30 minutes for T_{avg} in one or more RCS loops not within minimum temperature for criticality limits. Also adopts STS requirement to verify the RCS loop average temperature to be at or above the minimum temperature for criticality every 12 hours.	3.4.2 Required Action A.1, 3.4.2 ACTION A, SR 3.4.2.1	N/A
3.4.3 M1	Adopts STS Required Actions to immediately correct operation outside of the P/T limits with RCS temperature ≤ 200 °F, and requires an evaluation to determine if RCS operation can continue. Also adopts STS requirement to verify that operation is within the limits of the PTLR every 30 minutes when RCS pressure and temperature conditions are undergoing planned changes.	3.4.3 ACTION C, 3.4.3 Required Action C.1, 3.4.3 Required Action C.2, SR 3.4.3.1, SR 3.4.3.1 Note	N/A
3.4.4 M1	Adopts STS requirement to verify that each RCS loop is in operation every 12 hours.	SR 3.4.4.1	N/A
3.4.5 M1	Increases the RCP loop requirements in MODE 3 from one RCP in operation and one operable steam generator, to two RCS loops operable and one RCS loop in operation, to ensure redundant capability for decay heat removal.	3.4.5	15.3.1.A.1.b, 15.3.1.A.2.a
3.4.5 M2	Adopts STS Note to limit the time both RCPs can be deenergized for testing, because unlimited operation with no RCPs operating could permit boron stratification.	3.4.5 Note	15.3.1.A.1.b.1

Table M – More Restrictive Changes
ITS Section 5.0 – Administrative Controls

DOC No.	Description of Change	ITS Requirement	CTS Requirement
5.1 M1	Specific time frames and methods of complying with CTS requirements for delegation of Plant Manager responsibilities have not been retained. The ITS will require delegation in writing regardless of plant Manager absence time frames involved or contact availability.	5.1.1	15.6.1.1
5.1 M2	The CTS description of the Control Room Command function is expanded in the ITS to specify in greater detail who has the Control Room Command function during absence of the Shift Supervisor, and qualification requirements based on the operational condition of the unit.	5.1.2	15.6.1.2
5.1 M3	Addition of the STS requirement that "The Plant Manager or his designee shall approve, prior to implementation, each proposed test, experiment or modification to systems or equipment that affect nuclear safety." This requirement does not appear in the CTS.	5.1.1	15.6.1.1
5.2 M1	Addition of the "individuals who train the operating staff" to the CTS listed functions that shall have independence from operating pressures.	5.2.1.d	15.6.2.1.d
5.3 M1	Adds the requirement "as supplemented by Regulatory Guide 1.8, Revision 1, September 1975" to the CTS requirement that the facility staff shall meet or exceed the minimum qualifications of ANSI N18.1-1971.	5.3.1	15.6.3.1
5.3 M2	Not used	N/A	N/A
5.4 M1	The ITSs adopt the STS requirement to have procedures established for "the programs specified in Specification 5.5," which did not explicitly exist in the CTS.	5.4.1.j	15.6.8.1
5.5 M1	The CTS description of Post Accident Sampling System program requirements is revised by the ITS to add radioactive gases and particulates to the scope of containment atmosphere and in plant gaseous effluent samples.	5.5.3	15.6.8.4.A
5.5 M2	The CTS has been revised by the addition of a requirement to establish, implement and maintain a program for Primary Coolant Sources Outside Containment.	5.5.2	Table 15.4.1-2 Item 22
5.5 M3	The CTS requirement to perform pressure drop testing of the combined HEPA filters and charcoal adsorber banks at the design flow rate has been modified under ITS to more specifically require testing at 4950 cfm +/- 10%.	5.5.10.d	15.4.11.1
5.5 M4	CTS has been modified by the addition of a requirement in the Radiological Effluent Program to provide limitations under ITS on the functional capability and use of the appropriate portions of the liquid and gaseous effluent treatment system.	5.5.4.f	15.7.8.3.b.5)

Table R – Relocated Specifications and Removed Details
ITS Section 3.8 – Electrical Power Systems

Doc No.	CTS Requirement	Description of Relocated Requirements	Location	Change Control Process	Change Type
3.8.1 LA1	15.3.7.A.1.a	The CTS requirement for at least two 345 KV transmission lines, and actions in the event of a loss of one or more 345 KV lines.	FSAR	10 CFR 50.59	1
3.8.1 LA2	N/A	Not used.	N/A	N/A	N/A
3.8.1 LA3	15.4.6.A.3	The CTS requirement that " proper operation of Emergency Lighting, including the automatic transfer switch for DC lights, will be demonstrated."	TRM	10 CFR 50.59	3
3.8.1 LA4	15.4.6.A.4	The CTS requirement that each diesel generator be inspected following the manufacturer's recommendations.	TRM	10 CFR 50.59	3
3.8.2 NONE	NONE	NONE	NONE	NONE	NONE
3.8.3 LA1	Table 15.4.1-2 Item 17	The CTS test frequency and criteria for stored diesel fuel oil, which is "in accordance with the applicable ASTM standards."	TRM	10 CFR 50.59	3
3.8.4 LA1	15.4.6.B.4.b	CTS criteria related to specific limits that define battery degradation.	Bases	Bases Control Program described in ITS 5.5.13.	3
3.8.5 NONE	NONE	NONE	NONE	NONE	NONE
3.8.6 LA1	N/A	Not used.	N/A	N/A	N/A
3.8.7 NONE	NONE	NONE	NONE	NONE	NONE
3.8.8 NONE	NONE	NONE	NONE	NONE	NONE
3.8.9 LA1	15.3.7.A.1.d	Details in the CTS related to the B03 and B04 480 V bus cross-tie breaker configuration.	Bases	Bases Control Program described in ITS 5.5.13.	3

CHANGE TYPES

1. Details of System Design and System Description including Design Limits
2. Description of System or Plant Operation
3. Procedural Details for Meeting TS Requirement and Relocated Reporting Requirements
4. Relocated Redundant Requirements