RAIO-1217-57529

December 07, 2017

Docket No. 52-048

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
One White Flint North
11555 Rockville Pike
Rockville, MD 20852-2738

SUBJECT: NuScale Power, LLC Supplemental Response to NRC Request for Additional Information No. 57 (eRAI No. 8865) on the NuScale Design Certification Application

REFERENCES:
1. U.S. Nuclear Regulatory Commission, "Request for Additional Information No. 57 (eRAI No. 8865)," dated June 09, 2017
2. NuScale Power, LLC Response to NRC "Request for Additional Information No. 57 (eRAI No.8865)," dated July 10, 2017

The purpose of this letter is to provide the NuScale Power, LLC (NuScale) supplemental response to the referenced NRC Request for Additional Information (RAI).

The Enclosure to this letter contains NuScale's supplemental response to the following RAI Question from NRC eRAI No. 8865:

- 16-1

This letter and the enclosed response make no new regulatory commitments and no revisions to any existing regulatory commitments.

If you have any questions on this response, please contact Steven Mirsky at 240-833-3001 or at smirsky@nuscalepower.com.

Sincerely,

Zackary W. Rad
Director, Regulatory Affairs
NuScale Power, LLC

Distribution: Gregory Cranston, NRC, OWFN-8G9A
Samuel Lee, NRC, OWFN-8G9A
Anthony Markley, NRC, OWFN-8G9A

Enclosure 1: NuScale Supplemental Response to NRC Request for Additional Information eRAI No. 8865

Enclosure 1:

NuScale Supplemental Response to NRC Request for Additional Information eRAI No. 8865

Response to Request for Additional Information
Docket No. 52-048

eRAI No.: 8865
Date of RAI Issue: 06/09/2017

NRC Question No.: 16-1

NuScale FSAR Tier 2, Section 6.2.4.2.2, "Component Description," describes the actuation system of the containment isolation valves (CIVs) as a gas-hydraulic system:

"Hydraulic actuators are used for both PSCIV and SSCIV designs….Maintaining the hydraulic system pressure supplies the force to keep the valve in the open position. Pre-charged, nitrogen-filled cylinders are mounted on the "closed" side of each actuator. The gases in the cylinders are compressed as part of the valve opening action. Compression of the gas in each cylinder provides the passive stored energy used for valve closure."

Containment isolation is a function relied upon to mitigate a design basis accident. Knowing the pressure in each actuator is a means to determine that the passive stored energy used for valve closure is adequate. RG 1.206 Section 6.2.4, "Containment Isolation System," states that an applicant should discuss the assurance of operability of valves and valve operators. However, the NuScale FSAR does not describe the operator's ability to monitor (e.g., indication and alarm) each containment isolation valve's gas pressure to ensure the valve is operable.

10 CFR 50.36, "Technical Specifications," requires, in part, that a technical specification limiting condition for operation be established (e.g., for a system that is part of the primary success path and which functions or actuates to mitigate a design basis accident) and will include surveillance requirements, in part, to ensure the limiting conditions of operation will be met. The NuScale Technical Specifications describe CIV limiting conditions for operation but do not discuss surveillance requirements related to isolation valve gas pressure.

Therefore, based on the regulation and guidance cited above, the NRC staff requests that the NuScale design certification applicant provide information in the FSAR on the assurance of operability of CIV valves and valve operators, and in the FSAR and Technical Specifications for how the operator can assure that the isolation valve can perform its safety function (e.g., gas-spring is sufficiently charged and available to support valve closure). The information is needed in order for the staff to make a regulatory decision regarding the adequacy of assuring that the CIVs are able to perform their safety functions.

NuScale Response:

NuScale has added surveillance requirements applicable to containment isolation valves whose OPERABILITY is dependent upon accumulator pressure being within limits. For completeness, corresponding surveillance test requirements are added to other LCOs which credit operation of valves of a similar design that depend on accumulator pressure being within limits. The tests being added and the associated function are:

- 3.4.6.1, CVCS Isolation Valves
- 3.5.2.1, Decay Heat Removal System
- 3.6.2.1, Containment Isolation Valves
- 3.7.1.1, Main Steam Isolation Valves
- 3.7.2.1, Feedwater Isolation

The testing frequency will be in accordance with the Surveillance Frequency Control Program described by technical specification 5.5.11. Initial testing frequencies of 12 hours are added to FSAR Table 16.1-1, "Surveillance Frequency Control Program Base Frequencies," for performance of these surveillance tests.

Impact on DCA:

The Technical Specifications have been revised as described in the response above and as shown in the markup provided in this response.

RAI 16-30, RAI 16-1S1

Table 16.1-1: Surveillance Frequency Control Program Base Frequencies

Surveillance Requirement	Base Frequency	Basis
3.1.1.1	24 hours	The Frequency of 24 hours is based on the generally slow change in required boron concentration and the low probability of an accident occurring without the required shutdown margin (SDM). This allows time for the operator to collect the required data, which includes performing a boron concentration analysis, and complete the calculation.
3.1.2.1	31 effective full-power days (EFPDs)	The required subsequent Frequency of 31 EFPDs, following the initial 60 EFPDs after exceeding 5% rated thermal power (RTP), is acceptable based on the slow rate of core changes due to fuel depletion and the presence of other indicators (e.g. axial offset (AO)) monitored by the core monitoring system for prompt indication of an anomaly.
3.1.4.1	12 hours	Verification that individual control rod assembly (CRA) positions are within alignment limits at a 12 hour Frequency provides a history that allows the operator to detect a CRA that is beginning to deviate from its expected position. The specified Frequency takes into account other CRA position information that is continuously available to the operator in the control room, so that during actual rod motion, deviations can immediately be detected.
3.1.4.2	92 days	The 92 day Frequency takes into consideration other information available to the operator in the control room and SR 3.1.4.1, which is performed more frequently and adds to the determination of OPERABILITY of the CRAs.
3.1.5.1	12 hours	Since the shutdown CRAs are not moved during routine operation, except as part of planned surveillances, verification of shutdown CRA position at a Frequency of 12 hours is adequate to ensure that the shutdown CRAs are within their insertion limits. Also, the Frequency takes into account other information available in the control room for the purpose of monitoring the status of shutdown rods.
3.1.6.1	12 hours	Verification of the regulating group insertion limits at a Frequency of 12 hours is sufficient to detect CRA that may be approaching the insertion limits since, normally, very little rod motion is expected to occur in 12 hours.
3.1.8.1	30 minutes	Verification that the THERMAL POWER is ≤ 5% RTP will ensure that the unit is not operating in a condition that could invalidate the safety analyses. Verification of the THERMAL POWER at a Frequency of 30 minutes during the performance of the PHYSICS TESTS will ensure that the initial conditions of the safety analyses are not violated.
3.1.8.2	24 hours	The Frequency of 24 hours is based on the generally slow change in required boron concentration and on the low probability of an accident occurring without the required SDM.
3.1.9.1	31 days	A 31 day Frequency is considered reasonable in view of other administrative controls that will ensure a misconfiguration of the chemical and volume control system (CVCS) makeup pump demineralized water flow path is unlikely. Also, the Frequency takes into account other information available in the control room for the purpose of monitoring the status of CVCS makeup pump demineralized water flow path configuration.
3.1.9.2	24 months	The 24 month frequency is based on the potential for unplanned plant transients if the Surveillances were performed with the unit at power. The 24 month frequency is also acceptable based on consideration of the design reliability of the equipment. The actuation logic is tested as part of Engineered Safety Features Actuation System (ESFAS) Actuation and Logic testing, and valve performance is monitored as part of the Inservice Testing Program.

Table 16.1-1: Surveillance Frequency Control Program Base Frequencies (Continued)

Surveillance Requirement	Base Frequency	Basis
3.4.1.2	12 hours	Since Required Action A.1 allows a Completion Time of 2 hours to restore parameters that are not within limits, the 12 hour Surveillance Frequency for reactor coolant system (RCS) cold temperature is sufficient to ensure the temperature can be restored to a normal operation, steady state condition following load changes and other expected transient operations. The 12 hour interval has been shown by industry operating practice to be sufficient to regularly assess for potential degradation and to verify operation is within safety analysis assumptions.
3.4.2.1	12 hours	The SR to verify all RCS temperatures every 12 hours takes into account indications and alarms that are continuously available to the operator in the control room and is consistent with other routine Surveillances which are typically performed once per shift. In addition, operators are trained to be sensitive to RCS temperature during approach to criticality and will ensure that the minimum temperature for criticality is met as criticality is approached.
3.4.3.1	30 minutes	This Frequency of 30 minutes is considered reasonable in view of the control room indication available to monitor RCS status. Also, since temperature rate of change limits are specified in hourly increments, 30 minutes permits assessment and correction for minor deviations within a reasonable time.
3.4.5.1	72 hours	The 72 hour Frequency is a reasonable interval to trend LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents.
3.4.5.2	72 hours	The Surveillance Frequency of 72 hours is a reasonable interval to trend primary to secondary LEAKAGE and recognizes the importance of early leakage detection in the prevention of accidents.
3.4.6.1	12 hours	The frequency of 12 hours is based on the similarity of the test to a CHANNEL CHECK as performed throughout existing large plant designs. The test verifies the accumulator pressure and thereby assures the OPERABILITY of the valves, as well as the status of the automatically monitored pressure alarms.
3.4.6.3	24 months	The frequency of 24 months is based on the need to perform this surveillance during periods in which the plant is shutdown for refueling to prevent any upsets of plant operation.
3.4.7.1	12 hours	The Frequency of 12 hours is based on industry operating experience. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.
3.4.7.2	12 hours	The Frequency of 12 hours is based on industry operating experience that demonstrates channel failure of pressure monitors is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels.
3.4.7.3	12 hours	The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.
3.4.7.4	92 days	The Frequency of 92 days considers instrument reliability, and industry operating experience has shown that it is proper for detecting degradation.
3.4.7.5	92 days	The Frequency of 92 days considers instrument reliability, and industry operating experience has shown that it is proper for detecting degradation.
3.4.7.6	24 months	The Frequency of 24 months considers instrument reliability, and industry operating experience that has proven that this Frequency is acceptable.
3.4.7.7	24 months	The Frequency of 24 months is based on the assumption of a 30 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.
3.4.7.8	24 months	The Frequency of 24 months considers instrument reliability, and industry operating experience that has proven that this Frequency is acceptable.

Table 16.1-1: Surveillance Frequency Control Program Base Frequencies (Continued)

Surveillance Requirement	Base Frequency	Basis
3.4.8.1	14 days	The 14 day Frequency is adequate to trend changes in the noble gas specific activity level and based on the low probability of an accident occurring during this time period.
3.4.8.2	14 days	The 14 day Frequency is adequate to trend changes in the iodine activity level and based on the low probability of an accident occurring during this time period.
3.5.1.1	24 months	The 24 month Frequency is based on the need to perform these Surveillances under the conditions that apply during a unit outage and the potential for unplanned plant transients if the Surveillances were performed with the reactor at power. The 24 month Frequency is also acceptable based on consideration of the design reliability of the equipment.
3.5.1.3	24 months	The 24 month Frequency is based on the need to perform these Surveillances under the conditions that apply during a unit outage and the potential for unplanned plant transients if the Surveillances were performed with the reactor at power. The 24 month Frequency is also acceptable based on consideration of the design reliability of the equipment.
3.5.2.1	12 hours	The frequency of 12 hours is based on the similarity of the test to a CHANNEL CHECK as performed throughout existing large plant designs. The test verifies the accumulator pressure and thereby assures the OPERABILITY of the valves, as well as the status of the automatically monitored pressure alarms.
3.5.2.2	24 hours	The 24 hour Frequency is based on the expected low rate of gas accumulation and the availability of control room indication and alarm of decay heat removal system (DHRS) level in the control room.
3.5.2.3	24 months	The 24 month Frequency is based on the need to perform these Surveillances under the conditions that apply during a unit outage and the potential for unplanned plant transients if the Surveillances were performed with the reactor at power. The 24 month Frequency is also acceptable based on consideration of the design reliability of the equipment.
3.5.3.1	24 hours	Since the ultimate heat sink (UHS) level is normally maintained at a stable level, and is monitored by main control indication and alarm, a 24 hour Frequency is appropriate. This frequency also takes into consideration the high ratio of UHS volume change to UHS level change due to the UHS geometry.
3.5.3.2	24 hours	The Frequency of 24 hours is sufficient to identify a temperature change that would approach either the upper or lower limit of UHS bulk average temperature assumed in the safety analyses. Since the UHS bulk average temperature is normally stable, and is monitored by main control indication and alarm, a 24 hour Frequency is appropriate. This frequency also takes into consideration the large heat capacity of the UHS in comparison to the magnitude of possible heat addition or removal mechanisms.
3.5.3.3	31 days	Since the UHS volume of borated water is large compared to potential dilution sources, the 31 day Frequency is acceptable. In addition, the relatively frequent surveillance of the UHS water volume provides assurance that the UHS boron concentration is not changed significantly.
3.6.2.1	12 hours	The frequency of 12 hours is based on the similarity of the test to a CHANNEL CHECK as performed throughout existing large plant designs. The test verifies the accumulator pressure and thereby assures the OPERABILITY of the valves, as well as the status of the automatically monitored pressure alarms.
3.6.2.2	31 days	Since verification of valve position for containment isolation valves outside containment is relatively easy, the 31 day Frequency is based on engineering judgment and was chosen to provide added assurance of the correct positions.

Table 16.1-1: Surveillance Frequency Control Program Base Frequencies (Continued)

Surveillance Requirement	**Base Frequency**	**Basis**
3.6.2.4	24 months	The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a unit outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Industry operating experience has shown that these components usually pass this Surveillance when performed at the 24 month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint.
3.7.1.1	12 hours	The frequency of 12 hours is based on the similarity of the test to a CHANNEL CHECK as performed throughout existing large plant designs. The test verifies the accumulator pressure and thereby assures the OPERABILITY of the valves, as well as the status of the automatically monitored pressure alarms.
3.7.2.1	12 hours	The frequency of 12 hours is based on the similarity of the test to a CHANNEL CHECK as performed throughout existing large plant designs. The test verifies the accumulator pressure and thereby assures the OPERABILITY of the valves, as well as the status of the automatically monitored pressure alarms.
3.8.1.1	12 hours	The Frequency of 12 hours is consistent with the CHANNEL CHECK Frequency specified for similar neutron detector instruments in LCO 3.3.1.
3.8.1.2	24 months	Industry operating experience has shown that similar components usually pass this Surveillance when performed at the 24 month Frequency.

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.4.6.1	Verify required valves accumulator pressures are within limits.	In accordance with the Surveillance Frequency Control Program.
SR 3.4.6.21	-----------------------------------NOTE------------------------------ Not required to be met for valves that are closed or open under administrative controls. -- Verify the isolation time of each automatic power operated CVCS valve is within limits.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.4.6.32	Verify each automatic CVCS valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal except for valves that are open under administrative controls.	In accordance with the Surveillance Frequency Control Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.2.1	Verify required valves accumulator pressures are within limits.	In accordance with the Surveillance Frequency Control Program.
SR 3.5.2.21	Verify DHRS loops are filled.	In accordance with the Surveillance Frequency Control Program
SR 3.5.2.3	Verify that each DHRS actuation valve actuates to the open position on an actual or simulated actuation signal.	In accordance with the Surveillance Control Program
SR 3.5.2.42	Verify the open actuation time of each DHRS actuation valve is within limits.	In accordance with the INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.6.2.1	Verify required valves accumulator pressures are within limits.	In accordance with the Surveillance Frequency Control Program.
SR 3.6.2.21	-------------------------------NOTE----------------------------- Valves and blind flanges in high radiation areas may be verified by use of administrative means. -- Verify each containment isolation manual valve and blind flange that is located outside containment and not locked, sealed, or otherwise secured and is required to be closed during accident conditions is closed, except for containment isolation valves that are open under administrative controls.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.32	Verify the isolation time of each automatic power operated containment isolation valve is within limits. except for valves that are open under administrative controls.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.6.2.43	Verify each automatic containment isolation valve that is not locked, sealed, or otherwise secured in position, actuates to the isolation position on an actual or simulated actuation signal except for valves that are open under administrative controls.	In accordance with the Surveillance Frequency Control Program
SR 3.6.2.54	Verify the combined leakage rate for all containment bypass leakage paths is ≤ 0.6 L_a when pressurized to ≥ 960951 psig.	In accordance with the Containment Leakage Rate Testing Program

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.1.1	Verify required valves accumulator pressures are within limits.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.1.2~~1~~	Verify isolation time of each MSIV and MSIV bypass valve is within limits on an actual or simulated actuation signal.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.1.3~~2~~	Verify each MSIV and MSIV bypass valve leakage is within limits.	In accordance with the INSERVICE TESTING PROGRAM

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.7.2.1	Verify required FWIV accumulator pressures are within limits.	In accordance with the Surveillance Frequency Control Program.
SR 3.7.2.21	Verify the closure time of each FWIV and FWRV is within limits on an actual or simulated actuation signal.	In accordance with the INSERVICE TESTING PROGRAM
SR 3.7.2.32	Verify each FWIV and FWRV leakage is within limits.	In accordance with the INSERVICE TESTING PROGRAM

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.6.1

This SR verifies adequate pressure in the accumulators required for CVCS isolation valve OPERABILITY. The Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.4.6.21

Verifying that the isolation time of each automatic power operated CVCS isolation valve is within limits is required to demonstrate OPERABILITY. The isolation time test ensures that the valve will isolate in a time period less than or equal to that assumed in the safety analysis.

A Note is provided that indicates that the SR is not required to be met when valves are closed or open under administrative controls. This is acceptable because of the slowly occurring nature of the design basis events the CVCS isolation function mitigates. Frequency of this SR is in accordance with the INSERVICE TESTING PROGRAM.

SR 3.4.6.32

This Surveillance demonstrates that each automatic CVCS isolation valve actuates to the isolated position on an actual or simulated actuation signal. This Surveillance is not required for valves that are locked sealed, or otherwise secured in the isolated position under administrative controls. The actuation logic is tested as part of Engineered Safety Features Actuation System Actuation and Logic testing., and valve performance is monitored as part of the Surveillance Frequency Control Program An exception to the SR is provided for valves that are opened under administrative controls. This is acceptable because of the slowly occurring nature of the design basis events the CVCS isolation function mitigates.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

REFERENCES

1. FSAR Chapter 15, “Transient and Accident Analysis.”

BASES

SURVEILLANCE REQUIREMENTS

SR 3.5.2.1

This SR verifies adequate pressure in the accumulators required for DHRS actuation valve OPERABILITY. The Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.5.2.21

Verification that the DHRS including the heat exchanger is filled ensures that there is sufficient inventory in the loop to fulfill its design function, and that non-condensable gases have not accumulated in the system. Each train of the DHRS has four level sensors - two located on the DHRS piping below each of the two actuation valves that would indicate a reduced water level in the DHRS loop. Any level switch indicating a reduced water level is sufficient to determine the DHRS loop is not filled.The DHRS is filled with feedwater during startup, and during normal plant operation it is maintained filled by feedwater pressure. Feedwater flow through the DHRS loop does not occur because the DHRS actuation valves are closed.

Dissolved gas concentrations are maintained very low in feedwater during startup and operations by secondary water chemistry requirements. Therefore, significant levels of noncondensable gases are not expected to accumulate in the DHRS piping. However, maintaining the required DHRS inventory using the level sensors protects against buildup of noncondensable gases which could adversely affect DHRS operation. Monitoring the level switches ensures the system remains filled and non-condensable gas accumulation has not occurred.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.5.2.3

Verification that the DHRS actuation valves are OPERABLE by stroking the valves open ensures that each train of DHRS will function as designed when these valves are actuated. The DHRS actuation valves safety function is to open as described in the safety analysis.

The Surveillance Frequency is controlled under the Surveillance Frequency Control Program

BASES

SURVEILLANCE REQUIREMENTS

SR 3.6.2.1

This SR verifies adequate pressure in the accumulators required for containment isolation valve OPERABILITY. The Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.6.2.21

This SR requires verification that each manual containment isolation valve and blind flange located outside containment, and not locked, sealed, or otherwise secured in position, and required to be closed during accident conditions, is closed. The SR helps to ensure that post accident leakage of fission products outside the containment boundary is within design limits. This SR does not require any testing or device manipulation. Rather, it involves verification that those containment isolation devices outside containment and capable of being mispositioned are in the correct position.

BASES

SURVEILLANCE REQUREMENTS

SR 3.7.1.1

This SR verifies adequate pressure in the accumulators required for MSIV and main steam line bypass isolation valve OPERABILITY. The Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.7.1.2~~1~~

~~This SR verifies MSIV and MSIV Bypass Valve closure times are within limits on an actual or simulated actuation signal. The isolation time is assumed in the accident analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. The MSIVs and MSIV Bypass Valves are not tested at power since even a partial stroke exercise increases the risk of a valve closure when the unit is generating power. Because the isolation valves are not tested at power, they are exempt from the ASME OM Code (Ref. 6) requirements during operation in MODE 1.~~

~~The Frequency is in accordance with the INSERVICE TESTING PROGRAM.~~

~~This test is conducted with the unit in MODE 5. The valves cannot be fully stroked during plant operation because closing a secondary MSIV causes SG pressure and level transients and, most likely, a turbine trip and reactor trip.~~
This SR verifies the safety related and non-safety related MSIV and MSIV Bypass Valve closure times are within limits on an actual or simulated actuation signal. The isolation time is assumed in the accident and containment analyses. The MSIVs and MSIV Bypass Valves are not tested at power to reduce the likelihood of an unplanned transient due to valve closure when the unit is generating power. As the MSIVs are not tested at power, they are exempt from the ASME OM Code (Ref. 6) requirements during operation in MODES 1 and 2.

The Frequency is in accordance with the INSERVICE TESTING PROGRAM.

This test is typically conducted during shutdown conditions or with the unit at reduced operating temperatures and pressures before their OPERABILITY is required by the Applicability of this LCO.

BASES

ACTIONS (continued)

and deactivated automatic valve, closed manual valve, or blind flange. An inoperable FWIV/FWRV may be utilized to isolate the line only if its leak tightness has not been compromised. This action returns the system to a condition in which at least one valve in the affected flow path is performing the required safety function. The 8 hour Completion Time is a reasonable amount of time to complete the actions required to close the FWIV, or FWRV, which includes performing a controlled unitplant shutdown without challenging plant systems.

D.1, and D.2

If the FWIVs and FWRVs cannot be restored to OPERABLE status, or closed, or isolated within the associated Completion Time, the unit must be placed in a MODE in which the LCO does not apply. To achieve this status, the unitplant must be placed in at least MODE 2 within 6 hours, in MODE 3 and PASSIVELY COOLED within 36 hours. The allowed Completion Times are reasonable, to reach the required unit conditions from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.7.2.1

This SR verifies adequate pressure in the accumulators required for CVCS isolation valve OPERABILITY. The Frequency is controlled under the Surveillance Frequency Control Program.

SR 3.7.2.21

This SR verifies that the closure time of each FWIV and FWRV is within limits, on an actual or simulated actuation signal. The FWIV and FWRV isolation times are assumed in the accident and containment analyses. This Surveillance is normally performed upon returning the unit to operation following a refueling outage. These valves are tested when the unitplant is in a shutdown condition, since even a part stroke exercise increases the risk of a valve closure when the unit is generating power. Because the isolation valves are not tested when the unitplant is in a shutdown condition, they are exempt from ASME OM Code (Ref. 5) requirements during operation in MODE 1.

The Frequency is in accordance with the INSERVICE TESTING PROGRAM.