Tennessee Valley Authority, Post Office Box 2000, Decatur, Alabama 35609-2000

December 22, 2008

TVA-BFN-TS-463-T

10 CFR 50.90

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop: OWFN P1-35
Washington, D.C. 20555-0001

In the Matter of)
Tennessee Valley Authority)

Docket No. 50-260

BROWNS FERRY NUCLEAR PLANT (BFN)
UNIT 2 TECHNICAL SPECIFICATIONS (TS) CHANGE 463-T
ONE-TIME EXTENSION OF SURVEILLANCE REQUIREMENTS (SRs)

Pursuant to 10 CFR 50.90, the Tennessee Valley Authority (TVA) is submitting a request for a temporary TS change (TS-463-T) to license DPR-52 for BFN Unit 2. The proposed TS change extends certain SR Function Frequencies on a one-time basis.

The frequencies for the affected SR Functions are 24 months and are identified as such in the Unit 2 TSs. Using the maximum TS allowed extension of 25 percent of the surveillance interval, each 24-month SR must be completed within 30 months of its last performance.

The Spring 2009 Unit 2 Cycle 15 (U2C15) Refueling Outage (RFO) was originally scheduled to begin February 28, 2009 and has been rescheduled to begin April 27, 2009. In preplanning for this refueling outage, it was discovered that fifteen SR procedures scheduled for the U2C14 RFO had been performed in an October 2006 mid-cycle outage and would exceed the maximum allowed 30-month frequency prior to April 27, 2009. As a consequence, beginning April 10, 2009, certain SR Functions will exceed their maximum allowed surveillance interval.

These SR procedures are typically performed during RFOs because on-line performance of the affected SRs would increase the likelihood of a reactor scram. Therefore, TVA believes that, in the interest of nuclear safety, these SRs should be extended versus performance on-line.

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The greatest deviation from Mode 1 to the mode of non-applicability, which will allow performance of that surveillance, is 32 days. Therefore, TVA requests, on a one-time basis, an extension to the maximum allowed interval for the affected SRs of up to 30 months plus 37 days should the outage SR schedule be delayed but not later than May 18, 2009. For additional conservatism, all technical evaluations prepared to support this request were performed assuming an extended interval of 45 days.

The enclosure provides a description and evaluations of the proposed change, as well as the existing Unit 2 TS pages marked-up to show the proposed change.

TVA has determined that there are no significant hazards considerations associated with the proposed change and that the TS change qualifies for a categorical exclusion from environmental review pursuant to the provisions of 10 CFR 51.22(c)(9). Additionally, in accordance with 10 CFR 50.91(b)(1), TVA is sending a copy of this letter and enclosure to the Alabama State Department of Public Health.

There are no new or revised commitments contained within this letter. Should a forced or planned outage occur prior to the Spring 2009 refueling outage, TVA BFN will satisfy the SRs in lieu of using the requested SR extensions.

TVA requests approval of this TS change by April 1, 2009, and that the implementation of the revised TS be made within 10 days of NRC approval.

If you have any questions about this TS change, please contact me at (256)729-2636.

I declare under penalty of perjury that the foregoing is true and correct. Executed on December 22, 2008

Sincerely,

F. R. Godwin
Manager of Licensing
and Industry Affairs

Enclosure:
Evaluation of the Proposed Change Including Proposed Technical Specifications Changes (mark-up)

Enclosure
cc (Enclosure):

Ms. Eva Brown, Project Manager
U.S. Nuclear Regulatory Commission
(MS 08G9)
One White Flint, North
11555 Rockville Pike
Rockville, Maryland 20852-2739

Eugene F. Guthrie, Branch Chief
U.S. Nuclear Regulatory Commission
Region II
Sam Nunn Atlanta Federal Center
61 Forsyth Street, SW, Suite 23T85
Atlanta, Georgia 30303-8931

NRC Resident Inspector
Browns Ferry Nuclear Plant
10833 Shaw Road
Athens, Alabama 35611-6970

State Health Officer
Alabama Dept. of Public Health
RSA Tower - Administration
Suite 1552
P.O. Box 303017
Montgomery, AL 36130-3017

ENCLOSURE

EVALUATION OF THE PROPOSED CHANGE

Subject: BROWNS FERRY NUCLEAR PLANT (BFN)
UNIT 2 TECHNICAL SPECIFICATIONS (TS) CHANGE 463-T
ONE-TIME EXTENSION OF SURVEILLANCE REQUIREMENTS (SRs)

Affected Surveillance Requirements: SR 3.3.1.1.13, SR 3.3.2.2.3, SR 3.3.4.2.3, SR 3.3.5.1.5, SR 3.3.5.2.3, SR 3.3.6.1.5, SR 3.3.6.2.3, SR 3.3.7.1.5, and SR 3.10.1

1. SUMMARY DESCRIPTION
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5. ENVIRONMENTAL CONSIDERATION
6. REFERENCES

ATTACHMENTS:

1. Technical Specifications (and/or Operating License) Page Markups

   Note: Markups add a footnote to each Frequency of an affected SR Function except for SR 3.10.1. Though affected, SR 3.10.1 does not require a change because its existing specified frequency is according to the applicable SRs.

1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, the Tennessee Valley Authority (TVA) is submitting a request for a temporary TS change (TS-463-T) to license DPR-52 for BFN Unit 2. The proposed TS change extends certain SR Function Frequencies on a one-time basis.

The frequencies for the affected SR Functions are 24 months and are identified as such in the Unit 2 TSs. Using the maximum TS allowed extension of 25 percent of the surveillance interval, each 24-month SR must be completed within 30 months of its last performance.

The Spring 2009 Unit 2 Cycle 15 (U2C15) Refueling Outage (RFO) was originally scheduled to begin February 28, 2009 and has been rescheduled to begin April 27, 2009. In preplanning for this refueling outage, it was discovered that fifteen SR procedures scheduled for the U2C14 RFO had been performed in an October 2006 mid-cycle outage and would exceed the maximum allowed 30-month frequency prior to April 27, 2009. As a consequence, beginning April 10, 2009, certain SR Functions will exceed their maximum allowed surveillance interval.

The greatest deviation from Mode 1 to the mode of non-applicability, which will allow performance of that surveillance, is 32 days. Therefore, TVA requests, on a one-time basis, an extension to the maximum allowed interval for the affected SRs of up to 30 months plus 37 days should the outage SR schedule be delayed but not later than May 18, 2009. For additional conservatism, all technical evaluations prepared to support this request were performed assuming an extended interval of 45 days.

2.0 DETAILED DESCRIPTION

On a one-time basis, the proposed amendment extends by 37 days the frequency of affected SR Functions to account for the effects of a rescheduled Spring 2009 Unit 2 Cycle 15 refueling outage from February 28, 2009 to April 27, 2009.

These SR procedures are typically performed during RFOs because on-line performance of the affected SRs would increase the likelihood of a reactor scram. Therefore, TVA believes that, in the interest of nuclear safety, these SRs should be extended versus performance on-line.

There are fifteen SR procedures that could not be performed within the 24-month Frequency + 25% (six months). Performance of these SR procedures affects the completion of eighteen SR Functions of nine different SRs. These SRs and functions and other pertinent information are shown in Table 1.

Of these nine SRs, eight will require approval of an extension. For this frequency period and situation, the completion of SR 3.10.1.1, perform the applicable SRs for the required Mode 3 Limiting Conditions for Operation (LCOs), is dependent on the completion of SR 3.3.1.1.13. Therefore, an extension to SR 3.10.1 is presumed to be included with the extension to SR 3.3.1.1.13.

Of the eight SRs requiring extension, all are for instrument Channel Calibrations only. SR Channel Functional Test procedures are used to demonstrate that the required SR sensing and trip system functions of the channels, downstream of the sensing transducer, are satisfied.

All of these Channel Calibration SRs have a required 24-month frequency of performance. The Channel Calibration adjusts the channel analog trip unit (ATU) loop for correct response to known pressure(s) at the sensing transducer. Additionally, adjustment as necessary is made to trip settings of associated master and slave trip units with verification that all expected functions of the associated trip output relays occur.

The associated SRs for Channel Functional Tests all have a required 92-day frequency of performance. The Channel Functional Test uses a calibration module to insert a test signal to the ATU input current loop in place of the sensing transducer. The test signal is adjusted to determine the trip settings of associated master and slave trip units with verification that all expected functions of the associated trip output relays occur. Thus, the required function of the sensing and trip system downstream of the sensing transducer is verified at no greater than a 92-day interval.

TABLE 1						
Surveillance Requirement	Description	TS Table (if applicable)	TS Table Function	SR Procedure	SR Procedure Due Date Plus 25%	SR Mode Applicability
SR 3.3.1.1.13	Reactor Vessel Water Level - Low, Level 3; Channel Calibration	Table 3.3.1.1-1	4	2-SR-3.3.1.1.13(4A)	4/10/2009	1, 2
				2-SR-3.3.1.1.13(4B)	4/15/2009	
				2-SR-3.3.1.1.13(4C)	4/10/2009	
SR 3.3.2.2.3	Feedwater and Main Turbine High Water Level; Channel Calibration			2-SR-3.3.5.2.3(RCIC A)	4/11/2009	Thermal Power ≥25%
				2-SR-3.3.5.2.3(RCIC C)	4/11/2009	
SR 3.3.4.2.3	Reactor Vessel Water Level - Low Low, Level 2; Channel Calibration		a	2-SR-3.3.5.1.5(RWL A)	4/12/2009	1
				2-SR-3.3.5.1.5(RWL C)	4/12/2009	
SR 3.3.4.2.3	Reactor Steam Dome Pressure - High; Channel Calibration		b	2-SR-3.3.4.2.3(A)	4/11/2009	1
				2-SR-3.3.4.2.3(B)	4/11/2009	
				2-SR-3.3.4.2.3(C)	4/17/2009	
				2-SR-3.3.4.2.3(D)	4/17/2009	
SR 3.3.5.1.5	Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration	Table 3.3.5.1-1	1.a	2-SR-3.3.5.1.5(RWL A)	4/12/2009	1, 2, 3, 4[(a)], 5[(a)]
				2-SR-3.3.5.1.5(RWL C)	4/12/2009	
SR 3.3.5.1.5	Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration	Table 3.3.5.1-1	2.a	2-SR-3.3.5.1.5(RWL A)	4/12/2009	1, 2, 3, 4[(a)], 5[(a)]
				2-SR-3.3.5.1.5(RWL C)	4/12/2009	
SR 3.3.5.1.5	Reactor Vessel Water Level - Low Low Level 2; Channel Calibration	Table 3.3.5.1-1	3.a	2-SR-3.3.5.1.5(RWL A)	4/12/2009	1, 2[(b)], 3[(b)]
				2-SR-3.3.5.1.5(RWL C)	4/12/2009	

TABLE 1						
Surveillance Requirement	Description	TS Table (if applicable)	TS Table Function	SR Procedure	SR Procedure Due Date Plus 25%	SR Mode Applicability
SR 3.3.5.1.5	Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration	Table 3.3.5.1-1	4.a	2-SR-3.3.5.1.5(RWL A)	4/12/2009	1, 2[b], 3[b]
SR 3.3.5.1.5	Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration	Table 3.3.5.1-1	5.a	2-SR-3.3.5.1.5(RWL C)	4/12/2009	1, 2[b], 3[b]
SR 3.3.5.2.3	Reactor Vessel Water Level - Low Low, Level 2; Channel Calibration	Table 3.3.5.2-1	1	2-SR-3.3.5.1.5(RWL A)	4/12/2009	1, 2[b], 3[b]
				2-SR-3.3.5.1.5(RWL C)	4/12/2009	
SR 3.3.5.2.3	Reactor Vessel Water Level - High, Level 8; Channel Calibration	Table 3.3.5.2-1	2	2-SR-3.3.5.2.3(RCIC A)	4/11/2009	1, 2[b], 3[b]
				2-SR-3.3.5.2.3(RCIC C)	4/11/2009	
SR 3.3.6.1.5	Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration	Table 3.3.6.1-1	1.a	2-SR-3.3.6.1.5(1A/A1)	4/10/2009	1, 2, 3
				2-SR-3.3.6.1.5(1A/A2)	4/10/2009	
				2-SR-3.3.6.1.5(1A/B1)	4/16/2009	
				2-SR-3.3.6.1.5(1A/B2)	4/16/2009	
SR 3.3.6.1.5	Reactor Vessel Water Level - Low Level 3; Channel Calibration	Table 3.3.6.1-1	2.a	2-SR-3.3.1.1.13(4A)	4/10/2009	1, 2, 3
				2-SR-3.3.1.1.13(4B)	4/15/2009	
				2-SR-3.3.1.1.13(4C)	4/10/2009	
SR 3.3.6.1.5	Reactor Vessel Water Level - Low Level 3; Channel Calibration	Table 3.3.6.1-1	5.h	2-SR-3.3.1.1.13(4A)	4/10/2009	1, 2, 3
				2-SR-3.3.1.1.13(4B)	4/15/2009	
				2-SR-3.3.1.1.13(4C)	4/10/2009	
SR 3.3.6.1.5	Reactor Vessel Water Level - Low Level 3; Channel Calibration	Table 3.3.6.1-1	6.b	2-SR-3.3.1.1.13(4A)	4/10/2009	3, 4, 5
				2-SR-3.3.1.1.13(4B)	4/15/2009	
				2-SR-3.3.1.1.13(4C)	4/10/2009	

TABLE 1						
Surveillance Requirement	Description	TS Table (if applicable)	TS Table Function	SR Procedure	SR Procedure Due Date Plus 25%	SR Mode Applicability
SR 3.3.6.2.3	Reactor Vessel Water Level - Low Level 3; Channel Calibration	Table 3.3.6.2-1	1	2-SR-3.3.1.1.13(4A)	4/10/2009	1, 2, 3, (c)
				2-SR-3.3.1.1.13(4B)	4/15/2009	
				2-SR-3.3.1.1.13(4C)	4/10/2009	
SR 3.3.7.1.5	Reactor Vessel Water Level - Low Level 3; Channel Calibration	Table 3.3.7.1-1	1	2-SR-3.3.1.1.13(4A)	4/10/2009	1, 2, 3, (c)
				2-SR-3.3.1.1.13(4B)	4/15/2009	
				2-SR-3.3.1.1.13(4C)	4/10/2009	
SR 3.10.1.1	Perform the applicable SRs for the required Mode 3 LCOs			2-SR-3.3.1.1.13(4A)	4/10/2009	4 with avg. reactor coolant temp>212F
				2-SR-3.3.1.1.13(4B)	4/15/2009	
				2-SR-3.3.1.1.13(4C)	4/10/2009	

Table 1 Notes:

(a) When associated subsystem(s) are required to be Operable.
(b) With reactor steam done pressure > 150 psig.
(c) During operations with a potential for draining the reactor vessel.

3.0 TECHNICAL EVALUATION

Background

To determine if extending these surveillance test intervals by up to 45 days (or 1.5 months) would be acceptable, a review was performed of the past surveillances, the corrective action program, work orders, and operating experience, as applicable. This review looked for failed surveillance procedure performances and significant performance issues (i.e., instrument found out of tolerance and cannot be returned to within tolerance and/or instrument failures). The results of the review are provided for each of the surveillances in this section. Additionally, an evaluation was performed to analyze the effect of drift on the instrument surveillance interval extensions.

The evaluations used to provide justification for instrument calibration interval extensions from 24 to 31.5 months are based on BFN Instrument Loop Uncertainty Calculations. These calculations provide an analysis of instrument loop uncertainties as described in TVA Instrumentation & Controls Branch Technical Instruction, EEB-TI-28, Setpoint Calculations in accordance with ISA Standard ANSI/ISA 67.04.01-2000, "Setpoints for Nuclear Safety-Related Instrumentation Used in Nuclear Power Plants."

Using the methodology of EEB-TI-28, uncertainty evaluations were performed using a 31.5-month drift period. These evaluations use 30-month plant-specific drift data multiplied by a factor of 31.5/30 months, or 1.05%, and a 31.5-month instrument uncertainty calculation was performed with this new 31.5-month drift value.

During the TS change evaluation from 18 to 24 months (Reference 6), the real life calibration data for the presently installed instruments were collected and statistically analyzed for real life drift (RLD) in the calculation ED-Q0999-980070, 24 Month Drift Study. The data collected included the repeatability of the instruments, the temperature effects, the drift, and the calibration test instrument errors. The analysis showed that many of these instruments did not have an error increasing with time. In addition, a multiplying factor was used so that the RLD can be universally used for all similar instruments from the same vendor that may be used in the future. Additional analyses for the Gould transmitter and Rosemount trip units were performed as part of this evaluation and found that time-related drift was very minimal. Therefore, taking a linear extrapolation of the drift is conservative for this temporary TS change.

The total loop uncertainty of the setpoint calculations (31.5 month) was then reviewed to determine the available margin. This review concluded that positive margin exists for all these instrument channels. An acceptable 31.5 month uncertainty calculation bounds the maximum surveillance test interval that this request would allow, if approved.

A general discussion of BFN setpoint methodology follows: For the affected instruments, the methodology used to determine the nominal trip setpoint, the predefined as-found tolerance, the as-left tolerance band, and a listing of the setpoint design output documentation is specified in Chapter 7 of the Updated Final Safety Analysis Report (UFSAR). Nominal trip setpoints are specified in the setpoint calculations. The nominal setpoints are selected to ensure that the setpoints do not exceed the Allowable Value (AV) between Channel Calibrations. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its AV, is acceptable. A channel is inoperable if its actual trip setpoint is not within its required AV. Trip setpoints are those predetermined values of output at which an action should take place. The setpoints are compared to the actual process parameter (e.g., reactor vessel water level), and when the measured output value of the process parameter exceeds the setpoint, the associated device (e.g., trip unit) changes state. The analytic limits are derived from the limiting values of the process parameters obtained from the safety analysis. The AVs are derived from the analytic limits, corrected for calibration, process, and some of the instrument errors. The trip setpoints are then determined, accounting for the remaining instrument errors (e.g., drift). The trip setpoints derived in this manner provide adequate protection because instrumentation uncertainties, process effects, calibration tolerances, instrument drift, and severe environment errors (for channels that must function in harsh environments as defined by 10 CFR 50.49) are accounted for.

The limiting safety system setting for these instrument functions is defined as the AVs, which, in conjunction with the LCOs, establish the threshold for protective system action to prevent exceeding acceptable limits, including Safety Limits during Design Basis Accidents.

The acceptable as-found band is based on a statistical combination of possible measurable uncertainties (i.e., setting tolerance, drift, temperature effects, and measurement and test equipment). During instrument calibrations, if the as-found setpoint is found to be conservative with respect to the AV, but outside its acceptable as-found band (tolerance range), as defined by its associated SR procedure, then there shall be an initial determination to ensure confidence that the channel can perform as required before returning the channel to service in accordance with the surveillance. The technician performing the surveillance will evaluate the instrument's ability to maintain a stable setpoint within the as-left tolerance. The technician's evaluation will be reviewed by on shift personnel during the approval of the surveillance data prior to returning the channel back to service at the completion of the surveillance. This shall constitute the initial determination of operability. If a channel is found to exceed the channel's AV or cannot be reset within the acceptable as-left tolerance, the channel shall be declared inoperable. Also, after the surveillance is completed, the channel's as-found condition will be documented in the Corrective Action Program (CAP). As part of the activities of the CAP, additional evaluations and potential corrective actions will be performed as necessary to ensure that any as-found setting, which is conservative to the AV, but outside the acceptable as-found band is evaluated for long-term reliability trends.

Engineering Work Request EWR08EEB999122, BFN Unit 2 - One-Time Extension of Surveillance Requirements - November 2008 documents the calculations that were reviewed and marked up to support the requested extension. The total measurable inaccuracies of the loop including drift for period of 31.5 months are conservatively calculated by linear extrapolation from 30 months.

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It also shows that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event. The calculated acceptable as-found (AAF) and acceptable as-left (AAL) values are tabulated in Table 3.

A discussion of each affected SR and Function being extended is provided on the following pages. A brief outline for each evaluation is typically as follows:

Description of Current Requirement - includes a TS operability requirements discussion and a discussion of the measured parameter, the number of channels, and the [trip] logic for the function (automatic action (e.g., trip)/manual action (e.g., go to Hot S/D).

Bases for Current Requirement - includes the purpose of the SR function, its setpoint bases, Mode applicability, Frequency bases, any applicable safety analyses, and any pertinent UFSAR bases accident scenario(s) discussion.

Bases for the Proposed Change in Surveillance Interval - includes the identification of the associated instrument loop, the analytical evaluation, which addresses the TS change request methodology, a summary of loop accuracy, revised Pogo stick(s), as applicable, and a conclusion, and the surveillance evaluation.

SR 3.3.1.1.13, Table 3.3.1.1-1, Function 4- Reactor Vessel Water Level - Low, Level 3; Channel Calibration

Description of Current Requirement

BFN TS Table 3.3.1-1, "Reactor Protection System (RPS) Instrumentation," Function 4, Reactor Vessel Water Level - Low, Level 3 (Level Indicating Switches (LISs) LIS-3-203A, -203B, -203C, and -203D) lists applicable modes or other specified conditions, required channels per trip system, conditions referenced from required actions, surveillance requirements and allowable value, as applicable.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

Four channels of Reactor Vessel Water Level - Low, Level 3 Function, with two channels in each trip system arranged in a one-out-of-two logic, are required to be Operable to ensure that no single instrument failure will preclude a scram from this Function on a valid signal.

Surveillance SR 3.3.1.1.13 requires a channel calibration performance every 24 months. A Channel Calibration is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. Channel Calibration leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. For the Average Power Range Monitor (APRM) Simulated Thermal Power - High Function, SR 3.3.1.1.13 also includes calibrating the associated recirculation loop flow channel. For Main Steam Isolation Valve (MSIV) - Closure, Scram Discharge Volume (SDV) Water Level - High (Float Switch), and Turbine Stop Valve (TSV) - Closure Functions, SR 3.3.1.1.13 includes physical inspection and actuation of the switches.

A Note to SR 3.3.1.1.13 states that neutron detectors are excluded from Channel Calibration because they are passive devices, with minimal drift, and because of the difficulty of simulating a meaningful signal. Changes in neutron detector sensitivity are compensated for by performing the 7 day calorimetric calibration and the 1000 MWD/T LPRM calibration against the Transversing In Core Probes.

Bases for Current Requirement

Low Reactor Pressure Vessel (RPV) water level indicates the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, a reactor scram is initiated at Level 3 to substantially reduce the heat generated in the fuel from fission. The Reactor Vessel Water Level - Low, Level 3 Function is assumed in the analysis of the recirculation line break (Section 6.5 of the UFSAR). The reactor scram reduces the amount of energy required to be absorbed and, along with the actions of the Emergency Core Cooling Systems (ECCS), ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46.

The Reactor Vessel Water Level - Low, Level 3 AV is selected to ensure that (a) during normal operation the steam dryer skirt is not uncovered (this protects available recirculation pump net positive suction head from significant carry under), and (b) for transients involving loss of all normal feedwater flow, initiation of the low pressure ECCS subsystems at Reactor Vessel Water - Low Low Low, Level 1 will not be required.

The only modes specified in Table 3.3.1.1-1 are Modes 1 (which encompasses ≥ 30% RTP) and 2, and Mode 5 with any control rod withdrawn from a core cell containing one or more fuel assemblies. No RPS Function is required in Modes 3 and 4 since all control rods are fully inserted and the Reactor Mode Switch Shutdown Position control rod withdrawal block (LCO 3.3.2.1) does not allow any control rod to be withdrawn. In Mode 5, control rods withdrawn from a core cell containing no fuel assemblies do not affect the reactivity of the core and, therefore, are not required to have the capability to scram. Provided all other control rods remain inserted, no RPS function is required. In this condition, the required shutdown margin (SDM) (LCO 3.1.1) and refuel position one-rod-out interlock (LCO 3.9.2) ensure that no event requiring RPS will occur.

Function 4, Reactor Vessel Water Level - Low, Level 3, is required in Modes 1 and 2 where considerable energy exists in the Reactor Coolant System (RCS) resulting in the limiting transients and accidents. ECCS initiations at Reactor Vessel Water Level - Low Low, Level 2 and Low Low Low, Level 1 provide sufficient protection for level transients in all other Modes.

The Frequency of SR 3.3.1.1.13 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

The actions of the RPS are assumed in the safety analyses of UFSAR Section 7.2 and Chapter 14. The RPS initiates a reactor scram when monitored parameter values exceed the AVs, specified by the setpoint methodology and listed in Table 3.3.1.1-1 to preserve the integrity of the fuel cladding, the reactor coolant pressure boundary (RCPB), and the containment by minimizing the energy that must be absorbed following a Loss of Coolant Accident (LOCA).

<u>Bases for the Proposed Change in Surveillance Interval</u>

There is one instrument loop associated with satisfying these SR Functions. For SR 3.3.1.1.13, the 203 loop was evaluated for the subject frequency extension.

Associated Instrument Loop: BFN-2-L-003-0203A, -0203B, -0203C, and -0203D

Analytical Evaluation

TVA Setpoint Scaling Calculation ED-Q2003-940060 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0203A, -0203B, -0203C and -0203D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. These instruments initiate auto scram, Reactor Water Cleanup (RWCU) System isolation, primary containment isolation, and annunciation signals on low RPV level 3.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation. The calculations were originally analyzed for 30 months of drift (24 months plus 25%). The new analysis determines the new drift data based on 30 months plus 1.05% or 31.5 months of drift, taken as a linear extrapolation of the drift data. This is a sufficient time frame to account for the approximately 45 additional days of requested relief.

These instruments use the Rosemount range code 4 transmitters, which have a measurable accuracy of ± 0.44% of upper range limit (URL) for a 30 month calibration interval. This includes repeatability, drift, and normal temperature effects. The URL of this transmitter is 150 inches-water column (INWC). The drift (RLD) for this transmitter is calculated for 31.5 months as:

RLD = ± 0.44% * 150 * 31.5/30 = ± 0.69 INWC.

This drift value is increased by 5% (± 0.66 INWC to ± 0.69 INWC), when the calibration period is increased from 30 months to 31.5 months.

In the same way, the drift value for the ATU is calculated. The bounding measurable accuracy of the Rosemount trip unit is ± 0.20% of span for a period of 30 months of calibration interval. This accuracy includes the repeatability, drift, and normal temperature effects. The range is 4 to 20 milliamp (MA) giving a span of 16 MA. The drift for the ATU is calculated for 31.5 months as:

RLD = ± 0.20 % * 16 * 31.5/30 = ± 0.034 MA.

Therefore, this drift value is increased by 5% (± 0.032 MA to ± 0.034 MA) over an increase in calibration period of 30 months to 31.5 months.

This effect of increase in drift value is applied in the above referenced calculation and the resulting inaccuracy of each component and instrument loop, where VIN is vessel inches, is as follows.

Summary of Loop Accuracy

	Present value	Revised value
Measurable Accuracy Anf	± 1.00 VIN	± 1.04 VIN
Normal Accuracy An	± 2.56 VIN	± 2.56 VIN
Accident Accuracy Aa (negative)	± 7.3 VIN	± 7.31 VIN
Seismic Accuracy As	± 2.77 VIN	± 2.77 VIN
Margin	4.7 VIN	4.69 VIN

The revised Pogo stick is as follows:

Setpoint SP	= 530 VIN Decreasing
Measurable Accuracy Anf	= 528.96 VIN
Tech Spec AV	= 528 VIN
Un-measurable An	= 527.44 VIN
Accident Aa	= 522.694 VIN
Seismic As	= 527.23 VIN
Analytical Limit AL	= 518 VIN

Analytical Evaluation Conclusion

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It is shown that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

For the 203B loop, one SR performance data showed that the acceptable as found value exceeded its TS limit by 0.2 inches, but the loop would have been within its Analytical Limit even if there was an accident of any kind at that time. The loop was recalibrated satisfactorily. Another SR run shows that the loop value exceeded the acceptable as found value, but it was within the TS limit. The conduit seal was found damaged and the seal was replaced after the SR performance. The following SR performance was satisfactory.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

SR 3.3.2.2.3 - Feedwater and Main Turbine High Water Level; Channel Calibration

Description of Current Requirement

BFN TS Surveillance SR 3.3.2.2.3 requires a channel calibration performance every 24 months and specifies the allowable value.

Reactor Vessel Water Level - High signals are provided by level sensors that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level in the reactor vessel (variable leg).

Two channels of Reactor Vessel Water Level - High instrumentation per trip system are provided as input to a two-out-of-two initiation logic that trips the three feedwater pump turbines and the main turbine. There are two trip systems, either of which will initiate a trip. The channels include electronic equipment, Level Switch (LS)-3-208A, -208B, -208C, and -208D (e.g., trip units) that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs a main feedwater and turbine trip signal to the trip logic.

The LCO requires two channels of the Reactor Vessel Water Level - High instrumentation per trip system to be Operable to ensure that no single instrument failure will prevent the feedwater pump turbines and main turbine trip on a valid Reactor Vessel Water Level - High signal. Both channels in either trip system are needed to provide trip signals in order for the feedwater and main turbine trips to occur. Each channel must have its setpoint set within the specified AV of SR 3.3.2.2.3. The AV is set to ensure that the thermal limits are not exceeded during the event. The actual setpoint is calibrated to be consistent with the applicable setpoint methodology assumptions. Nominal trip setpoints are specified in the setpoint calculations. The nominal setpoints are selected to ensure that the setpoints do not exceed the AV between successive Channel Calibrations. Operation with a trip setpoint less conservative than the nominal trip setpoint, but within its AV, is acceptable.

Surveillance SR 3.3.2.2.3 requires a Channel Calibration, which is a complete check of the instrument loop and the sensor, every 24 months. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. Channel Calibration leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

Bases for Current Requirement

The feedwater and main turbine high water level trip instrumentation is designed to detect a potential failure of the Feedwater Level Control System that causes excessive feedwater flow. With excessive feedwater flow, the water level in the reactor vessel rises toward the high water level reference point, causing the trip of the three feedwater pump turbines and the main turbine.

A trip of the feedwater pump turbines limits further increase in reactor vessel water level by limiting further addition of feedwater to the reactor vessel. A trip of the main turbine and closure of the stop valves protects the turbine from damage due to water entering the turbine.

The feedwater and main turbine high water level trip instrumentation is required to be Operable at ≥ 25% RTP to ensure that the fuel cladding integrity Safety Limit and the cladding 1% plastic strain limit are not violated during the feedwater controller failure, maximum demand event. As discussed in the Bases for LCO 3.2.1, "Average Planar Linear Heat Generation Rate (APLHGR)," LCO 3.2.2, "Minimum Critical Power Ration (MCPR)," and LCO 3.2.3, "Linear Heat Generation Rate (LHGR)," sufficient margin to these limits exists below 25% RTP; therefore, these requirements are only necessary when operating at or above this power level.

The Frequency is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

The feedwater and main turbine high water level trip instrumentation is assumed to be capable of providing a turbine trip in the design basis transient analysis for a feedwater controller failure, maximum demand event (UFSAR Section 14.5.7). The reactor vessel high water level trip indirectly initiates a reactor scram from the main turbine trip (above 30% RTP) and trips the feedwater pumps, thereby terminating the event. The reactor scram mitigates the reduction in MCPR.

Bases for the Proposed Change in Surveillance Interval

There is one instrument loop associated with satisfying this SR Function. For SR 3.3.2.2.3, the 208 loop was evaluated for the subject frequency extension.

Instrument Loop: BFN-2-L-003-0208A, -0208B, -0208C, and -0208D

Analytical Evaluation

This Setpoint Scaling Calculation ED-Q2003-930145 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0208A, -0208B, -0208C, and -0208D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. The level 8 trip signal is selected so that it is low enough to protect the turbine against gross carry over of moisture and provide adequate core thermal margin during abnormal events. Functions activated with this signal include closure of main turbine stop valves, trips of reactor feedwater pumps, and trips of Reactor Core Isolation Cooling (RCIC) and High Pressure Coolant Injection (HPCI) turbines. All of these help to prevent vessel overfill.

Level transmitters 2-LT-3-208A and 2-LT-3-208C are arranged in a two-out-of-two once logic to trip the RCIC turbine. Similarly transmitters 2-LT-3-208B and 2-LT-3-208D are arranged in a two-out-of-two once logic to trip the HPCI turbine.

The safety related portion of these loops actuate on increasing level at 579 inches above vessel zero. These loops are calibrated for normal operating condition. Failure modes for these safety related functions are:

1. Actuation when RPV level is below setpoint. Should this loop actuate when the RPV level is not high, there would be undesirable RCIC / HPCI turbine trip. The reactor's remaining core standby cooling systems would provide backup if RCIC / HPCI did not automatically restart.
2. Non-actuation when RPV level is above setpoint. Should this loop fail to

actuate upon reactor high water level, the RCIC / HPCI turbine would not trip; the reactor would continue to fill, and water would flow into the turbine. This system is not required to be single failure proof. Loss of this system would not constitute a safety hazard.

As a backup to the normal feedwater level control system, these level instruments also provide a trip of the feedwater pumps on increasing water level to 583 inches above vessel zero to prevent carry over of moisture into the steam system. This is because the steam system is not designed to handle the structural loading of water nor is the turbine.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation ED-Q2003-930145. This calculation was originally analyzed for 30 months of drift (24 months plus 25%) by using the field calibration data up to 1996. The drift evaluations previously performed were based upon drawing conclusions of how a population of like devices will operate, while for this extension request the conclusion to be statistically drawn is how these specific devices will operate in the future. The degree of freedom and confidence interval multipliers will be smaller. Also, for many of the devices evaluated it was concluded that there was no time relationship for performance.

A new analysis is done using the previously collected data and the present data collected up to 2007. A newly performed statistical analysis shows that there is no time related drift for these Gould transmitters. Past statistical analysis showed that there was no drift associated with General Electric (GE) and Rosemount trip units.

Analytical Evaluation Conclusion

The present Setpoint and Scaling Calculation remains valid if the calibration is extended from 30 months to a period of 31.5 months and instrumentation will not exceed the analytical limits if an accident or seismic event occurs during this period. Since there is no drift for these instruments, under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

In addition, the Gould transmitter data was statistically analyzed for drift values for the instruments. The analysis concluded that the transmitter, Rosemount trip units, and GE trip units have no time related drift. Therefore, these instruments can perform satisfactorily for the required calibration cycle.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

SR 3.3.4.2.3, Function a - Reactor Vessel Water Level - Low Low, Level 2; Channel Calibration

SR 3.3.4.2.3, Function b - Reactor Steam Dome Pressure - High; Channel Calibration

Description of Current Requirement

BFN TS Surveillance SR 3.3.4.2.3 requires a channel calibration performance every 24 months for each of these functions and specifies the allowable values.

The Anticipated Transient Without Scram-Recirculation Pump Trip (ATWS-RPT) System (UFSAR Section 7.19) includes sensors, relays, bypass capability, circuit breakers, and switches that are necessary to cause initiation of an RPT. The channels include electronic equipment (e.g., trip units) that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs an ATWS-RPT signal to the trip logic.

The ATWS-RPT consists of two independent trip systems, with two channels of Reactor Vessel Water Level - Low Low, Level 2 in each trip system and two channels of Reactor Steam Dome Pressure - High. Each ATWS-RPT trip system is a two-out-of-two logic for each Function. Thus, either two Reactor Vessel Water Level - Low Low, Level 2 or two Reactor Pressure - High signals are needed to trip a trip system. The outputs of the channels in a trip system are combined in a logic so that either trip system will trip both recirculation pumps (by tripping the respective motor breakers).

For Function a, Reactor Vessel Water Level - Low Low, Level 2 (LS-3-58A1, -58B1, -58C1, and -58D1), reactor vessel water level signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

Four channels of Reactor Vessel Water Level - Low Low, Level 2 with two channels in each trip system, are available and required to be Operable to ensure that no single instrument failure can preclude an ATWS-RPT from this Function on a valid signal.

For Function b, Reactor Steam Dome Pressure - High (PIS-3-204A, -204B, -204C, and -204D), the Reactor Steam Dome Pressure - High signals are initiated from four pressure transmitters that monitor reactor steam dome pressure.

Four channels of Reactor Steam Dome Pressure - High, with two channels in each trip system, are available and are required to be Operable to ensure that no single instrument failure can preclude an ATWS-RPT from this Function on a valid signal.

Surveillance SR 3.3.4.2.3 requires a Channel Calibration, which is a complete check of the instrument loop and the sensor, every 24 months. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. Channel Calibration leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

Bases for Current Requirement

The ATWS-RPT System initiates an RPT, adding negative reactivity, following events in which a scram does not (but should) occur, to lessen the effects of an ATWS event. Tripping the recirculation pumps adds negative reactivity from the increase in steam voiding in the core area as core flow decreases. When Reactor Vessel Water Level - Low Low, Level 2 or Reactor Steam Dome Pressure - High setpoint is reached, the recirculation pump motor breakers trip.

There are two motor breakers provided for each of the two recirculation pumps for a total of four breakers. The output of each trip system is provided to one of the two breakers for each recirculation pump.

Low RPV water level indicates the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, the ATWS-RPT System is initiated at Level 2 to aid in maintaining level above the top of the active fuel. The reduction of core flow reduces the neutron flux and Thermal Power and, therefore, the rate of coolant boil-off. The Reactor Vessel Water Level - Low Low, Level 2 AV is chosen so that the system will not be initiated after a Level 3 scram with feedwater still available, and for convenience with the reactor core isolation cooling initiation.

Excessively high RPV pressure may rupture the RCPB. An increase in the RPV pressure during reactor operation compresses the steam voids and results in a positive reactivity insertion. This increases neutron flux and Thermal Power, which could potentially result in fuel failure and overpressurization. The Reactor Steam Dome Pressure - High Function initiates an RPT for transients that result in a pressure increase, counteracting the pressure increase by rapidly reducing core power generation. For the overpressurization event, the RPT aids in the termination of the ATWS event and, along with the safety/relief valves, limits the peak RPV pressure to less than the ASME Section III Code limits. The Reactor Steam Dome Pressure - High AV is chosen to provide an adequate margin to the ASME Section III Code limits.

The individual Functions are required to be Operable in Mode 1 to protect against catastrophic/multiple failures of the RPS by providing a diverse trip to mitigate the consequences of a postulated ATWS event. The Reactor Steam Dome Pressure - High and Reactor Vessel Water Level - Low Low, Level 2 Functions are required to be Operable in Mode 1, since the reactor is producing significant power and the recirculation system could be at high flow. During this Mode, the potential exists for pressure increases or low water level, assuming an ATWS event. In Mode 2, the reactor is at low power and the recirculation system is at low flow; thus, the potential is low for a pressure increase or low water level, assuming an ATWS event. Therefore, the ATWS-RPT is not necessary. In Modes 3 and 4, the reactor is shut down with all control rods inserted; thus, an ATWS event is not significant and the possibility of a significant pressure increase or low water level is negligible. In Mode 5, the one rod out interlock ensures that the reactor remains subcritical; thus, an ATWS event is not significant. In addition, the RPV head is not fully tensioned and no pressure transient threat to the RCPB exists.

The Frequency is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

The ATWS-RPT is not assumed in the safety analysis. The ATWS-RPT initiates an RPT to aid in preserving the integrity of the fuel cladding following events in which a scram does not, but should, occur.

Bases for the Proposed Change in Surveillance Interval

There are two instrument loops associated with satisfying these SR Functions. For SR 3.3.4.2.3, Function a, the 58 loop was evaluated for the subject frequency extension, and, for SR 3.3.4.2.3, Function b, the 204 loop was evaluated for the subject frequency extension.

Instrument Loop: BFN-2-L-003-0058A, -0058B, -0058C, and -0058D

Analytical Evaluation

This Setpoint Scaling Calculation ED-Q2003-980141 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0058A, -0058B, -0058C, and -0058D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. These loops are required to provide RPV level monitoring at two points of decreasing level. The analytical limit of 372.5 inches above vessel zero for level 1 and an analytical limit of 448 inches above vessel zero for level 2.

On RPV decreasing level following an accident event, the following signals are provided at the levels noted:

1. RPV decreasing level $\geq$ 448 inches above vessel zero (Device LIS) Level 2
   a. "Initiate RCIC Auto Start Signal" and "Seal-In" are provided using a one-out-of-two twice logic.
   b. "Initiate HPCI Auto Start" signal is provided using one-out-of-two twice logic.
   c. Provides interlock to HPCI turbine reactor high water level trip logic using one-out-of-two twice logic to permit HPCI turbine operation after RPV level decreases below the RPV level 8 setpoint.
2. RPV decreasing level $\geq$ 448 inches above vessel zero (Device LS-1) Level 2

   Initiate Recirculation Pump Trip signal to mitigate ATU function. This function is for ATWS mitigation - non-safety related and not required for accident mitigation.
3. RPV decreasing level $\geq$ 372.5 inches above vessel zero (Device LS) Level 1
   a. "Initiate Low Pressure Coolant Injection (LPCI)/LOCA Signal Logic" is provided using one-out-of-two twice logic.
   b. "Initiate Core Spray (CS) Auto Start" signal is provided using the "Initiate Reactor Vessel Low Level Trip Signal," which is developed from a one-out-of-two twice logic and sealed-in requiring operator action to "Reset".
   c. "Start Standby Diesel Generator (DG)" signal is provided by the same signal used for "Initiate Core Spray Auto Start Signal".
   d. Provide permissive to establish auto blow down using one-out-of-two twice logic.

4. Loops 1-L-3-58B (Indicator 1-LI-3-58A) and 1-L-3-58D (Indicator 1-LI-3-58B) provide Post Accident Monitoring (PAM) RPV level indication in the Main Control Room.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation. The calculations were originally analyzed for 30 months of drift (24 months plus 25%). The new analysis determines the new drift data based on 30 months plus 1.05% or 31.5 months of drift, taken as a linear extrapolation of the drift data. This is a sufficient time frame to account for the approximately 45 additional days of requested relief.

These instruments use the Rosemount range code 5 transmitters, which has a measurable accuracy of ± 0.44% of URL for a 30 month calibration interval. This includes repeatability, drift, and normal temperature effects. The URL of this transmitter is 750 INWC. The drift for this transmitter is calculated for 31.5 months as:

RLD = ± 0.44% * 750 * 31.5/30 = ± 3.47 INWC.

This drift value is increased by 5% (± 3.3 INWC to ± 3.47 INWC), when the calibration period is increased from 30 months to 31.5 months.

In the same way, the drift value for the LIS and LS GE trip unit is calculated. The bounding measurable accuracy of the GE trip unit is ± 0.04 % of span for a period of 30 months of calibration interval. The span is 152.5 INWC. The drift for the GE trip unit is calculated for 31.5 months as:

RLD = ± 0.04 % * 152.5 * 31.5/30 = ± 0.064 INWC.

Therefore, this drift value is increased by 5% (± 0.06 INWC to ± 0.064 INWC) over an increase in calibration period of 30 months to 31.5 months.

The drift value for the LI, Johnson Yokogawa GE 180 meter is calculated. The bounding measurable accuracy of the Indicator is ± 4.1 % of span for a period of 30 months of calibration interval. The span is 215 VIN. The drift for the Yokogawa Indicator is calculated for 31.5 months as:

RLD = ± 4.1 % * 215 * 31.5/30 = ± 9.26 VIN.

Therefore, this drift value is increased by 5% (± 8.8 VIN to ± 9.26 VIN) over an increase in calibration period of 30 months to 31.5 months.

The drift value for the LI-1, Johnson Yokogawa UM04 meter, is calculated. The bounding measurable drift accuracy of the Indicator is ± 1 % of span for a period of 3 years. The span is 215 VIN. The drift for the Yokogawa UM04 Indicator for 31.5 months will be same as for 30 months in the calculation.

This effect of increase in drift value is applied in the above referenced calculation and the resulting inaccuracy of each component and instrument loop is as follows.

Summary of Loop Accuracy

Level 2 Recirculation Pump Trip	Present value	Revised value
Measurable Accuracy Anf	± 4.833 VIN	± 5.06 VIN
Normal Accuracy An	± 6.017 VIN	± 6.21 VIN
Accident Accuracy Aa (negative)	-25.197/+16.861 VIN	-25.26/+16.93 VIN
Seismic Accuracy As	± 8.074 VIN	± 8.22 VIN

Level 1	Present value	Revised value
Measurable Accuracy Anf	± 5.06 VIN	± 5.28 VIN
Normal Accuracy An	± 6.201 VIN	± 6.37 VIN
Accident Accuracy Aa (negative)	-25.264/+16.927 VIN	-25.33/+17.00 VIN
Seismic Accuracy As	± 9.21 VIN	± 9.33 VIN

The revised Pogo stick is as follows:

	Level 2	Recirculation pump trip
Setpoint SP	= 483 VIN Decreasing	= 483 VIN Decreasing
Measurable Accuracy Anf	= 477.94 VIN	= 477.72 VIN
Tech Spec AV	= 470 VIN	= 471 VIN
Un-measurable An	= 476.79 VIN	= 476.63 VIN
Accident Aa	= 457.74 VIN	= 457.67 VIN
Seismic As	= 474.78 VIN	= 473.67 VIN
Analytical Limit AL	= 448 VIN	= 448 VIN

The revised Pogo stick is as follows:

	Level 1
Setpoint SP	= 406 VIN Decreasing
Measurable Accuracy Anf	= 400.72 VIN
Tech Spec AV	= 398 VIN
Un-measurable An	= 399.63 VIN
Accident Aa	= 380.67 VIN
Seismic As	= 396.67 VIN
Analytical Limit AL	= 372.5 VIN

Analytical Evaluation Conclusion

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It is shown that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Instrument Loop: BFN-2-P-003-0204A, -0204B, -0204C, and -0204D

Analytical Evaluation

This Setpoint Scaling Calculation ED-N2003-920049 determines the accuracy of the reactor vessel pressure instrumentation BFN-2-P-003-0204A, -0204B, -0204C and -0204D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. These instruments provide a trip signal to the reactor recirculation pumps. This trip function is part of the ATWS, RPT and Alternate Rod Insertion (ARI) System. These loops are connected in two-out-of-two logic in parallel with the reactor low water level two-out-of-two logic for each recirculation pump.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation. The calculations were originally analyzed for 30 months of drift (24 months plus 25%). The new analysis determines the new drift data based on 30 months plus 1.05% or 31.5 months of drift, taken as a linear extrapolation of the drift data. This is a sufficient time frame to account for the approximately 45 additional days of requested relief.

These instruments use the Rosemount model 1153 GB9, which has a measurable drift accuracy of ± 0.20 % of the URL for a 30 month calibration interval. The URL of this transmitter is 3000 psig. The drift for this transmitter is calculated for 31.5 months as:

$$De = \pm 0.20\ \% * 31.5/30 = \pm 0.21\ \%\ URL.$$

This drift value is increased by 5% (± 0.20 % URL to ± 0.21 % URL), when the calibration period is increased from 30 months to 31.5 months.

In the same way, the drift value for the ATU is calculated. The bounding measurable accuracy of the Rosemount trip unit is ± 0.04 % of full scale for a period of 30 months of calibration interval. This accuracy includes the repeatability, drift, and normal temperature effects. The range is 4 to 20 MA giving a full scale of 20 MA. The drift for the ATU is calculated for 31.5 months as:

$$RLD = \pm 0.04\ \% * 20 * 31.5/30 = \pm 0.0084\ MA.$$

Therefore, this drift value is increased by 5% (± 0.008 MA to ± 0.0084 MA) over an increase in calibration period of 30 months to 31.5 months.

This effect of increase in drift value is applied in the above referenced calculation and the resulting inaccuracy of each component and instrument loop is as follows.

Summary of Loop Accuracy:

ATWS/ARI Actuation:	Present value	Revised value
PIS loop: Measurable Accuracy Anf	± 18.494 psig	± 18.61 psig
PIS loop: Normal Accuracy An	± 18.494 psig	± 18.61 psig
PIS loop: Accident Accuracy Aa	N/A	N/A
PIS loop: Seismic Accuracy As	N/A	N/A
Main Steam Relief Valve (MSRV) Actuation:		
PS loop: Measurable Accuracy Anf	± 19.33 psig	± 19.44 psig
PS loop: Normal Accuracy An	± 19.33 psig	± 19.44 psig
PS loop: Accident Accuracy Aa	N/A	N/A
PS loop: Seismic Accuracy As	N/A	N/A

The revised Pogo stick is as follows: ATWS/ARI Actuation

Setpoint SP	= 1148 psig Increasing
Measurable Accuracy Anf	= 1166.6 psig
Tech Spec AV	= 1175 psig
Un-measurable An	= 1166.6 psig
Accident Aa	= N/A
Seismic As	= N/A
Analytical Limit AL	= 1177 psig

The revised Pogo stick is as follows: MSRV Actuation (Max setpoint)

Setpoint SP	= 1155 psig Increasing
Measurable Accuracy Anf	= 1174.44 psig
Tech Spec AV	= 1175 psig
Un-measurable An	= 1174.44 psig
Accident Aa	= N/A
Seismic As	= N/A
Analytical Limit AL	= 1177 psig

Analytical Evaluation Conclusion

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It is shown that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

SR 3.3.5.1.5, Table 3.3.5-1, Function 1.a - Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration

SR 3.3.5.1.5, Table 3.3.5-1, Function 2.a - Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration

SR 3.3.5.1.5, Table 3.3.5-1, Function 3.a - Reactor Vessel Water Level - Low Low Level 2; Channel Calibration

SR 3.3.5.1.5, Table 3.3.5-1, Function 4.a - Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration

SR 3.3.5.1.5, Table 3.3.5-1, Function 5.a - Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration

Description of Current Requirement

BFN TS Table 3.3.5-1, "ECCS Instrumentation," lists applicable modes or other specified conditions, required channels per trip system, conditions referenced from required actions, surveillance requirements and allowable value, as applicable, for Functions 1.a and 2.a, Reactor Vessel Water Level - Low Low Low, Level 1, (LS-3-58A-D), Function 3.a, Reactor Vessel Water Level - Low Low, Level 2 (LIS-3-58A-D), and Functions 4.a and 5.a, Reactor Vessel Water Level - Low Low Low, Level 1 (LS-3-58A-D).

Surveillance SR 3.3.5.1.5 requires a Channel Calibration, which is a complete check of the instrument loop and the sensor, every 24 months. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. Channel Calibration leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

CS System and LPCI System

For both CS and LPCI, the Reactor Vessel Water Level - Low Low Low, Level 1 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

Four channels of Reactor Vessel Water Level - Low Low Low, Level 1 Function are only required to be Operable when the ECCS is required to be Operable to ensure that no single instrument failure can preclude ECCS initiation.

HPCI System

For HPCI, the Reactor Vessel Water Level - Low Low, Level 2 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

Four channels of Reactor Vessel Water Level - Low Low, Level 2 Function are required to be Operable only when HPCI is required to be Operable to ensure that no single instrument failure can preclude HPCI initiation.

Automatic Depressurization System (ADS)

For ADS, the Reactor Vessel Water Level - Low Low Low, Level 1 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

Four channels of Reactor Vessel Water Level - Low Low Low, Level 1 Function are required to be Operable only when ADS is required to be Operable to ensure that no single instrument failure can preclude ADS initiation. Two channels input to ADS trip system A, while the other two channels input to ADS trip system B.

Bases for Current Requirement

The purpose of the ECCS instrumentation is to initiate appropriate responses from the systems to ensure that the fuel is adequately cooled in the event of a design basis accident or transient.

For most anticipated operational occurrences and Design Basis Accidents (DBAs), a wide range of dependent and independent parameters are monitored.

Portions of the ECCS instrumentation also provide for the generation of the Common Accident Signal, which initiate the DGs and the Emergency Equipment Cooling Water (EECW) System.

CS System and LPCI System

The CS System may be initiated by automatic means. Each pump can be controlled manually by a control room remote switch. Automatic initiation occurs for conditions of Reactor Vessel Water Level - Low Low Low, Level 1 or both Drywell Pressure - High and Reactor Steam Dome Pressure - Low. Reactor water level and drywell pressure are each monitored by four redundant transmitters, which are, in turn, connected to four trip units. The outputs of these trip units are connected to relays whose contacts are arranged in a one-out-of-two taken twice logic (i.e., two trip systems) for each Function. The Reactor Steam Dome Pressure - Low variable is monitored by two transmitters for each trip system. The outputs from these transmitters are connected to relays arranged in a one-out-of-two logic.

The LPCI is an operating mode of the Residual Heat Removal (RHR) System, with two LPCI subsystems. The LPCI subsystems may be initiated by automatic or manual means. Automatic initiation occurs for conditions of Reactor Vessel Water Level - Low Low Low, Level 1 or both Drywell Pressure - High and Reactor Steam Dome Pressure - Low. Each of these diverse variables is monitored by four redundant transmitters, which, in turn, are connected to four trip units. The outputs of the trip units are connected to relays whose contacts are arranged in a one-out-of-two taken twice logic (i.e., two trip systems) for each Function.

The Reactor Vessel Water Level - Low Low Low, Level 1 AV is chosen to allow time for the low pressure injection/spray subsystems to activate and provide adequate cooling.

HPCI System

The HPCI System may be initiated by either automatic or manual means. Automatic initiation occurs for conditions of Reactor Vessel Water Level - Low Low, Level 2 or Drywell Pressure - High. Each of these variables is monitored by four redundant transmitters, which are, in turn, connected to multiple trip units. The outputs of the trip units are connected to relays whose contacts are arranged in a one-out-of-two taken twice logic for each Function.

The Reactor Vessel Water Level - Low Low, Level 2 AV is high enough such that for complete loss of feedwater flow, the RCIC System flow with HPCI assumed to fail will be sufficient to avoid initiation of low pressure ECCS at Reactor Vessel Water Level - Low Low Low, Level 1.

ADS

The ADS may be initiated by either automatic or manual means. Automatic initiation occurs when signals indicating Reactor Vessel Water Level - Low Low Low, Level 1; Drywell Pressure - High or ADS High Drywell Pressure Bypass Timer; confirmed Reactor Vessel Water Level - Low, Level 3 (confirmatory); and CS or LPCI Pump Discharge Pressure - High are all present and the ADS Initiation Timer has timed out. There are two transmitters each for Reactor Vessel Water Level - Low Low Low, Level 1 and Drywell Pressure - High, and one transmitter for confirmed Reactor Vessel Water Level - Low, Level 3 (confirmatory) in each of the two ADS trip systems. Each of these transmitters connects to a trip unit, which then drives a relay whose contacts form the initiation logic.

The Reactor Vessel Water Level - Low Low Low, Level 1 AV is chosen to allow time for the low pressure core flooding systems to initiate and provide adequate cooling.

AVs are specified for each ECCS Function specified in the table and contained in design output documents, which for instrument functions that have a specific footnote in Table 3.3.1.1-1, is incorporated by reference in Chapter 7 of the UFSAR.

In general, the individual Functions are required to be Operable in the Modes or other specified conditions that may require ECCS initiation to mitigate the consequences of a design basis transient or accident. To ensure reliable ECCS function, a combination of Functions is required to provide primary and secondary initiation signals.

The Frequency of SR 3.3.5.1.5 is based upon the magnitude of equipment drift in the setpoint analysis.

The actions of the ECCS are explicitly assumed in the safety analyses of Sections 6.5 and 8.5 and Chapter 14 of the UFSAR. The ECCS is initiated to preserve the integrity of the fuel cladding by limiting the post LOCA peak cladding temperature to less than the 10 CFR 50.46 limits.

For Functions 1.a, 2.a, 3.a, 4.a, and 5.a, the Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result.

The low pressure ECCS are initiated at Level 1 to ensure that core spray and flooding functions are available to prevent or minimize fuel damage. The Reactor

Vessel Water Level - Low Low Low, Level 1 is also utilized in the development of the Common Accident Signal, which initiates the DGs and EECW System. The Reactor Vessel Water Level - Low Low Low, Level 1 is one of the Functions assumed to be Operable and capable of initiating the ECCS during the transients analyzed in Section 8.5 and Chapter 14 of the UFSAR. In addition, the Reactor Vessel Water Level - Low Low Low, Level 1 Function is directly assumed in the analysis of the recirculation line break (UFSAR Chapter 14).

The HPCI System is initiated at Level 2 to maintain level above the top of the active fuel. The Reactor Vessel Water Level - Low Low, Level 2 is one of the Functions assumed to be Operable and capable of initiating HPCI during the transients analyzed in Sections 6.5 and 8.5 and Chapter 14 of the UFSAR.

The ADS receives one of the signals necessary for initiation from this Function. The Reactor Vessel Water Level - Low Low Low, Level 1 is one of the Functions assumed to be Operable and capable of initiating the ADS during the accident analyzed in Section 6.5 of the UFSAR.

The core cooling function of the ECCS, along with the scram action of the RPS, ensures that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46.

Bases for the Proposed Change in Surveillance Interval

There is one instrument loop associated with satisfying these SR Functions. For SR 3.3.5.1.5, Table 3.3.5-1, Functions 1.a, 2.a, 3.a, 4.a, and 5.a, the 58 loop was evaluated for the subject frequency extension.

Instrument Loop: BFN-2-L-003-0058A, -0058B, -0058C, and -0058D

Analytical Evaluation

This Setpoint Scaling Calculation ED-Q2003-980141 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0058A, -0058B, -0058C, and -0058D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. These loops are required to provide RPV level monitoring at two points of decreasing level. The analytical limit of 372.5 inches above vessel zero for level 1 and an analytical limit of 448 inches above vessel zero for level 2.

On RPV decreasing level following an accident event, the following signals are provided at the levels noted:

1. RPV decreasing level $\geq$ 448 inches above vessel zero (Device LIS) Level 2
   d. "Initiate RCIC Auto Start Signal" and "Seal-In" are provided using a one-out-of-two twice logic.
   e. "Initiate HPCI Auto Start" signal is provided using one-out-of-two twice logic.
   f. Provides interlock to HPCI turbine reactor high water level trip logic using one-out-of-two twice logic to permit HPCI turbine operation after RPV level decreases below the RPV level 8 setpoint.
2. RPV decreasing level $\geq$ 448 inches above vessel zero (Device LS-1) Level 2

   Initiate Recirculation Pump Trip signal to mitigate ATU function. This function is for ATWS mitigation - non-safety related and not required for accident mitigation.

3. RPV decreasing level $\geq$ 372.5 inches above vessel zero (Device LS) Level 1
   a. "Initiate LPCI/LOCA Signal Logic" is provided using one-out-of-two twice logic.
   b. "Initiate Core Spray Auto Start" signal is provided using the "Initiate Reactor Vessel Low Level Trip Signal," which is developed from a one-out-of-two twice logic and sealed-in requiring operator action to "Reset".
   c. "Start Standby Diesel Generator" signal is provided by the same signal used for "Initiate Core Spray Auto Start Signal".
   d. Provide permissive to establish auto blow down using one-out-of-two twice logic.
4. Loops 1-L-3-58B (Indicator 1-LI-3-58A) and 1-L-3-58D (Indicator 1-LI-3-58B) provide PAM RPV level indication in the Main Control Room.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation. The calculations were originally analyzed for 30 months of drift (24 months plus 25%). The new analysis determines the new drift data based on 30 months plus 1.05% or 31.5 months of drift, taken as a linear extrapolation of the drift data. This is a sufficient time frame to account for the approximately 45 additional days of requested relief.

These instruments use the Rosemount range code 5 transmitters, which has a measurable accuracy of ± 0.44% of URL for a 30 month calibration interval. This includes repeatability, drift, and normal temperature effects. The URL of this transmitter is 750 INWC. The drift for this transmitter is calculated for 31.5 months as:

RLD = ± 0.44% * 750 * 31.5/30 = ± 3.47 INWC.

This drift value is increased by 5% (± 3.3 INWC to ± 3.47 INWC), when the calibration period is increased from 30 months to 31.5 months.

In the same way, the drift value for the LIS and LS GE trip unit is calculated. The bounding measurable accuracy of the GE trip unit is ± 0.04 % of span for a period of 30 months of calibration interval. The span is 152.5 INWC. The drift for the GE trip unit is calculated for 31.5 months as:

RLD = ± 0.04 % * 152.5 * 31.5/30 = ± 0.064 INWC.

Therefore, this drift value is increased by 5% (± 0.06 INWC to ± 0.064 INWC) over an increase in calibration period of 30 months to 31.5 months.

The drift value for the LI, Johnson Yokogawa GE 180 meter is calculated. The bounding measurable accuracy of the Indicator is ± 4.1 % of span for a period of 30 months of calibration interval. The span is 215 VIN. The drift for the Yokogawa Indicator is calculated for 31.5 months as:

RLD = ± 4.1 % * 215 * 31.5/30 = ± 9.26 VIN.

Therefore, this drift value is increased by 5% (± 8.8 VIN to ± 9.26 VIN) over an increase in calibration period of 30 months to 31.5 months.

The drift value for the LI-1, Johnson Yokogawa UM04 meter, is calculated. The bounding measurable drift accuracy of the Indicator is ± 1 % of span for a period of 3 years. The span is 215 VIN. The drift for the Yokogawa UM04 Indicator for 31.5 months will be same as for 30 months in the calculation.

This effect of increase in drift value is applied in the above referenced calculation and the resulting inaccuracy of each component and instrument loop is as follows.

Summary of Loop Accuracy

Level 2 Recirculation Pump Trip	Present value	Revised value
Measurable Accuracy Anf	± 4.833 VIN	± 5.06 VIN
Normal Accuracy An	± 6.017 VIN	± 6.21 VIN
Accident Accuracy Aa (negative)	-25.197/+16.861 VIN	-25.26/+16.93 VIN
Seismic Accuracy As	± 8.074 VIN	± 8.22 VIN

Level 1	Present value	Revised value
Measurable Accuracy Anf	± 5.06 VIN	± 5.28 VIN
Normal Accuracy An	± 6.201 VIN	± 6.37 VIN
Accident Accuracy Aa (negative)	-25.264/+16.927 VIN	-25.33/+17.00 VIN
Seismic Accuracy As	± 9.21 VIN	± 9.33 VIN

The revised Pogo stick is as follows:

	Level 2	Recirculation pump trip
Setpoint SP	= 483 VIN Decreasing	= 483 VIN Decreasing
Measurable Accuracy Anf	= 477.94 VIN	= 477.72 VIN
Tech Spec AV	= 470 VIN	= 471 VIN
Un-measurable An	= 476.79 VIN	= 476.63 VIN
Accident Aa	= 457.74 VIN	= 457.67 VIN
Seismic As	= 474.78 VIN	= 473.67 VIN
Analytical Limit AL	= 448 VIN	= 448 VIN

The revised Pogo stick is as follows:

	Level 1
Setpoint SP	= 406 VIN Decreasing
Measurable Accuracy Anf	= 400.72 VIN
Tech Spec AV	= 398 VIN
Un-measurable An	= 399.63 VIN
Accident Aa	= 380.67 VIN
Seismic As	= 396.67 VIN
Analytical Limit AL	= 372.5 VIN

Analytical Evaluation Conclusion

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It is shown that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

SR 3.3.5.2.3, Table 3.3.5.2-1, Function 1 - Reactor Vessel Water Level - Low Low, Level 2; Channel Calibration

SR 3.3.5.2.3, Table 3.3.5.2-1, Function 2 - Reactor Vessel Water Level - High, Level 8; Channel Calibration

Description of Current Requirement

Surveillance SR 3.3.5.2.3 requires Channel Calibrations, which are complete check of the instrument loops and sensors, every 24 months. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. Channel Calibration leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

For Function 1, Reactor Vessel Water Level - Low Low, Level 2 (LIS-3-58A-D), Low RPV water level indicates that normal feedwater flow is insufficient to maintain reactor vessel water level and that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, the RCIC System is initiated at Level 2 to assist in maintaining water level above the top of the active fuel.

Reactor Vessel Water Level - Low Low, Level 2 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

Four channels of Reactor Vessel Water Level - Low Low, Level 2 Function are available and are required to be Operable when RCIC is required to be Operable to ensure that no single instrument failure can preclude RCIC initiation.

For Function 2, Reactor Vessel Water Level - High, Level 8 (LIS-3-208A and 208C), High RPV water level indicates that sufficient cooling water inventory exists in the reactor vessel such that there is no danger to the fuel. Therefore, the Level 8 signal is used to close the RCIC steam supply valve to prevent overflow into the main steam lines (MSLs).

Reactor Vessel Water Level - High, Level 8 signals for RCIC are initiated from two level transmitters from the narrow range water level measurement instrumentation, which sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

Two channels of Reactor Vessel Water Level - High, Level 8 Function are available and are required to be Operable when RCIC is required to be Operable.

Bases for Current Requirement

The purpose of the RCIC System instrumentation is to initiate actions to ensure adequate core cooling when the reactor vessel is isolated from its primary heat sink (the main condenser) and normal coolant makeup flow from the Reactor Feedwater System is unavailable, such that initiation of the low pressure ECCS pumps does not occur. A more complete discussion of RCIC System operation is provided in the Bases of LCO 3.5.3, "RCIC System."

The Reactor Vessel Water Level - Low Low, Level 2 AV is set high enough such that for complete loss of feedwater flow, the RCIC System flow with high pressure coolant injection assumed to fail will be sufficient to avoid initiation of low pressure ECCS at Level 1.

The Reactor Vessel Water Level - High, Level 8 AV is high enough to preclude closing the RCIC steam supply valve, yet low enough to trip the RCIC System prior to water overflowing into the MSLs.

The individual Functions are required to be Operable in Mode 1 and in Modes 2 and 3 with reactor steam dome pressure > 150 psig since this is when RCIC is required to be Operable.

The Frequency of SR 3.3.5.2.3 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

The function of the RCIC System to provide makeup coolant to the reactor is used to respond to transient events. The RCIC System is not an Engineered Safety Feature System and no credit is taken in the safety analyses for RCIC System operation.

Bases for the Proposed Change in Surveillance Interval

There are two instrument loops associated with satisfying these SR Functions. For SR 3.3.5.2.3, Table 3.3.5.2-1, Function 1, the 58 loop was evaluated for the subject frequency extension. For SR 3.3.5.2.3, Table 3.3.5.2-1, Function 2, the 208 loop was evaluated for the subject frequency extension.

Instrument Loop: BFN-2-L-003-0058A, -0058B, -0058C, and -0058D

Analytical Evaluation

This Setpoint Scaling Calculation ED-Q2003-980141 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0058A, -0058B, -0058C, and -0058D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. These loops are required to provide RPV level monitoring at two points of decreasing level. The analytical limit of 372.5 inches above vessel zero for level 1 and an analytical limit of 448 inches above vessel zero for level 2.

On RPV decreasing level following an accident event, the following signals are provided at the levels noted:

1. RPV decreasing level ≥ 448 inches above vessel zero (Device LIS) Level 2
    g. "Initiate RCIC Auto Start Signal" and "Seal-In" are provided using a one-out-of-two twice logic.
    h. "Initiate HPCI Auto Start" signal is provided using one-out-of-two twice logic.
    i. Provides interlock to HPCI turbine reactor high water level trip logic using one-out-of-two twice logic to permit HPCI turbine operation after RPV level decreases below the RPV level 8 setpoint.
2. RPV decreasing level ≥ 448 inches above vessel zero (Device LS-1) Level 2

    Initiate Recirculation Pump Trip signal to mitigate ATU function. This function is for ATWS mitigation - non-safety related and not required for accident mitigation.

3. RPV decreasing level ≥ 372.5 inches above vessel zero (Device LS) Level 1

   e. "Initiate LPCI/LOCA Signal Logic" is provided using one-out-of-two twice logic.

   f. "Initiate Core Spray Auto Start" signal is provided using the "Initiate Reactor Vessel Low Level Trip Signal," which is developed from a one-out-of-two twice logic and sealed-in requiring operator action to "Reset".

   g. "Start Standby Diesel Generator" signal is provided by the same signal used for "Initiate Core Spray Auto Start Signal".

   h. Provide permissive to establish auto blow down using one-out-of-two twice logic.

4. Loops 1-L-3-58B (Indicator 1-LI-3-58A) and 1-L-3-58D (Indicator 1-LI-3-58B) provide PAM RPV level indication in the Main Control Room.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation. The calculations were originally analyzed for 30 months of drift (24 months plus 25%). The new analysis determines the new drift data based on 30 months plus 1.05% or 31.5 months of drift, taken as a linear extrapolation of the drift data. This is a sufficient time frame to account for the approximately 45 additional days of requested relief.

These instruments use the Rosemount range code 5 transmitters, which has a measurable accuracy of ± 0.44% of URL for a 30 month calibration interval. This includes repeatability, drift, and normal temperature effects. The URL of this transmitter is 750 INWC. The drift for this transmitter is calculated for 31.5 months as:

RLD = ± 0.44% * 750 * 31.5/30 = ± 3.47 INWC.

This drift value is increased by 5% (± 3.3 INWC to ± 3.47 INWC), when the calibration period is increased from 30 months to 31.5 months.

In the same way, the drift value for the LIS and LS GE trip unit is calculated. The bounding measurable accuracy of the GE trip unit is ± 0.04 % of span for a period of 30 months of calibration interval. The span is 152.5 INWC. The drift for the GE trip unit is calculated for 31.5 months as:

RLD = ± 0.04 % * 152.5 * 31.5/30 = ± 0.064 INWC.

Therefore, this drift value is increased by 5% (± 0.06 INWC to ± 0.064 INWC) over an increase in calibration period of 30 months to 31.5 months.

The drift value for the LI, Johnson Yokogawa GE 180 meter is calculated. The bounding measurable accuracy of the Indicator is ± 4.1 % of span for a period of 30 months of calibration interval. The span is 215 VIN. The drift for the Yokogawa Indicator is calculated for 31.5 months as:

RLD = ± 4.1 % * 215 * 31.5/30 = ± 9.26 VIN.

Therefore, this drift value is increased by 5% (± 8.8 VIN to ± 9.26 VIN) over an increase in calibration period of 30 months to 31.5 months.

The drift value for the LI-1, Johnson Yokogawa UM04 meter, is calculated. The bounding measurable drift accuracy of the Indicator is ± 1 % of span for a period of 3 years. The span is 215 VIN. The drift for the Yokogawa UM04 Indicator for 31.5 months will be same as for 30 months in the calculation.

This effect of increase in drift value is applied in the above referenced calculation and the resulting inaccuracy of each component and instrument loop is as follows.

Summary of Loop Accuracy

Level 2 Recirculation Pump Trip	Present value	Revised value
Measurable Accuracy Anf	± 4.833 VIN	± 5.06 VIN
Normal Accuracy An	± 6.017 VIN	± 6.21 VIN
Accident Accuracy Aa (negative)	-25.197/+16.861 VIN	-25.26/+16.93 VIN
Seismic Accuracy As	± 8.074 VIN	± 8.22 VIN

Level 1	Present value	Revised value
Measurable Accuracy Anf	± 5.06 VIN	± 5.28 VIN
Normal Accuracy An	± 6.201 VIN	± 6.37 VIN
Accident Accuracy Aa (negative)	-25.264/+16.927 VIN	-25.33/+17.00 VIN
Seismic Accuracy As	± 9.21 VIN	± 9.33 VIN

The revised Pogo stick is as follows:

	Level 2	Recirculation pump trip
Setpoint SP	= 483 VIN Decreasing	= 483 VIN Decreasing
Measurable Accuracy Anf	= 477.94 VIN	= 477.72 VIN
Tech Spec AV	= 470 VIN	= 471 VIN
Un-measurable An	= 476.79 VIN	= 476.63 VIN
Accident Aa	= 457.74 VIN	= 457.67 VIN
Seismic As	= 474.78 VIN	= 473.67 VIN
Analytical Limit AL	= 448 VIN	= 448 VIN

The revised Pogo stick is as follows:

	Level 1
Setpoint SP	= 406 VIN Decreasing
Measurable Accuracy Anf	= 400.72 VIN
Tech Spec AV	= 398 VIN
Un-measurable An	= 399.63 VIN
Accident Aa	= 380.67 VIN
Seismic As	= 396.67 VIN
Analytical Limit AL	= 372.5 VIN

Analytical Evaluation Conclusion

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It is shown that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Instrument Loop: BFN-2-L-003-0208A, -0208B, -0208C, and -0208D

Analytical Evaluation

This Setpoint Scaling Calculation ED-Q2003-930145 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0208A, -0208B, -0208C, and -0208D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. The level 8 trip signal is selected so that it is low enough to protect the turbine against gross carry over of moisture and provide adequate core thermal margin during abnormal events. Functions activated with this signal include closure of main turbine stop valves, trips of reactor feedwater pumps, and trips of RCIC and HPCI turbines. All of these help to prevent vessel overfill.

Level transmitters 2-LT-3-208A and 2-LT-3-208C are arranged in a two-out-of-two once logic to trip the RCIC turbine. Similarly transmitters 2-LT-3-208B and

2-LT-3-208D are arranged in a two-out-of-two once logic to trip the HPCI turbine.

The safety related portion of these loops actuate on increasing level at 579 inches above vessel zero. These loops are calibrated for normal operating condition. Failure modes for these safety related functions are:

1. Actuation when RPV level is below setpoint. Should this loop actuate when the RPV level is not high, there would be undesirable RCIC / HPCI turbine trip. The reactor's remaining core standby cooling systems would provide backup if RCIC / HPCI did not automatically restart.
2. Non-actuation when RPV level is above setpoint. Should this loop fail to actuate upon reactor high water level, the RCIC / HPCI turbine would not trip; the reactor would continue to fill, and water would flow into the turbine. This system is not required to be single failure proof. Loss of this system would not constitute a safety hazard.

These level instruments also provide anticipatory trip of the feedwater pumps on increasing water level to 583 inches above vessel zero to prevent carry over of moisture into the steam system. This is because the steam system is not designed to handle the structural loading of water nor is the turbine.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation ED-Q2003-930145. This calculation was originally analyzed for 30 months of drift (24 months plus 25%) by using the field calibration data up to 1996. The drift evaluations previously performed were based upon drawing conclusions of how a population of like devices will operate, while for this extension request the conclusion to be statistically drawn is how these specific devices will operate in the future. The degree of freedom and confidence interval multipliers will be smaller. Also, for many of the devices evaluated it was concluded that there was no time relationship for performance.

A new analysis is done using the previously collected data and the present data collected up to 2007. A newly performed statistical analysis shows that there is no time related drift for these Gould transmitters. Past statistical analysis showed that there was no drift associated with GE and Rosemount trip units.

Analytical Evaluation Conclusion

The present Setpoint and Scaling Calculation remains valid if the calibration is extended from 30 months to a period of 31.5 months and instrumentation will not exceed the analytical limits if an accident or seismic event occurs during this period. Since there is no drift for these instruments, under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

In addition, the Gould transmitter data was statistically analyzed for drift values for the instruments. The analysis concluded that the transmitter, Rosemount trip units, and GE trip units have no time related drift. Therefore, these instruments can perform satisfactorily for the required calibration cycle.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

SR 3.3.6.1.5, Table 3.3.6.1-1, Function 1.a - Reactor Vessel Water Level - Low Low Low Level 1; Channel Calibration

SR 3.3.6.1.5, Table 3.3.6.1-1, Function 2.a - Reactor Vessel Water Level - Low Level 3; Channel Calibration

SR 3.3.6.1.5, Table 3.3.6.1-1, Function 5.h - Reactor Vessel Water Level - Low Level 3; Channel Calibration

SR 3.3.6.1.5, Table 3.3.6.1-1, Function 6.b - Reactor Vessel Water Level - Low Level 3; Channel Calibration

Description of Current Requirement

BFN TS Table 3.3.6.1-1, "Primary Containment Isolation Instrumentation," lists applicable modes or other specified conditions, required channels per trip system, conditions referenced from required actions, surveillance requirements, and allowable value, as applicable, for Functions 1.a, Reactor Vessel Water Level - Low Low Low, Level 1 (LIS-3-56A-D), Function 2.a, Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D), 5.h, Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D), and 6.b, Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D).

Surveillance SR 3.3.6.1.5 requires a Channel Calibration, which is a complete check of the instrument loops and sensors, every 24 months. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. Channel Calibration leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Primary Containment Isolation instrumentation includes the sensors, relays, and switches that are necessary to cause initiation of primary containment and RCPB isolation. Most channels include electronic equipment (e.g., trip units) that compares measured input signals with pre-established setpoints. When the setpoint is exceeded, the channel output relay actuates, which then outputs a primary containment isolation signal to the isolation logic. Functional diversity is provided by monitoring a wide range of independent parameters. The input parameters to the isolation logics are (a) reactor vessel water level, (b) area ambient temperatures, (c) main steam line (MSL) flow measurement, (d) Standby Liquid Control (SLC) System initiation, (e) main steam line pressure, (f) HPCI and RCIC steam line flow, (g) drywell pressure, (h) HPCI and RCIC steam line pressure, (i) HPCI and RCIC turbine exhaust diaphragm pressure, and (j) reactor steam dome pressure. Redundant sensor input signals from each parameter are provided for initiation of isolation. The only exception is SLC System initiation.

The Primary Containment Isolation Functions each contain four channels. One channel for each Function is provided in each of the four Primary Containment Isolation System (PCIS) trip channels (trip channels A1 and A2 for PCIS trip system A and trip channels B1 and B2 for PCIS trip system B). Any one of these inputs will trip the associated PCIS trip channel. The PCIS trip channel output relays are arranged in logic systems such that PCIS trip channels A1 or A2 and B1 or B2 must trip (one-out-of-two taken twice logic) to cause an isolation. For most penetrations a logic system initiates isolation of its associated inboard primary containment isolation valves, while another logic system initiates isolation of its associated outboard primary containment isolation valves, so that operation of either logic isolates the penetration.

Primary Containment Isolation Drywell Pressure - High and Reactor Vessel Water Level - Low, Level 3 Functions are required for isolation of the Group 2 (excluding RHR valves for SDC), 6 and 8 valves.

Main Steam Line Isolation

The MSL Isolation Reactor Vessel Water Level - Low Low Low, Level 1 and Main Steam Line Pressure - Low Functions each contain four channels. One channel for each function is provided in each of the four Primary Containment Isolation System (PCIS) trip channels (trip channels A1 and A2 for PCIS trip system A and trip channels B1 and B2 for PCIS trip system B). The Main Steam Line Flow - High and Main Steam Tunnel Temperature - High Functions each contain 16 channels. Each PCIS trip channel receives four inputs from each of these functions, one flow input from each MSL and one temperature input from each of the four areas monitored. Any one of these inputs will trip the associated PCIS trip channel.

The PCIS trip channel output relays are arranged in logic systems for the Main Steam Isolation Valves (separate logic systems for the inboard and outboard valves) such that PCIS trip channels A1 or A2 and B1 or B2 must trip (one-out-of-two taken twice logic) to cause an isolation of the Main Steam Isolation Valves (MSIVs).

The PCIS trip channel output relays are arranged in logic systems for the MSL Drain Valves and Recirculation Loop Sample Valves such that both PCIS trip channels A1 and B1 must trip to isolate the inboard valves and both PCIS trip channels A2 and B2 must trip to isolate the outboard valves. This is effectively a two-out-of-two logic for each valve. The Recirculation Loop Sample Valves are isolated only by the Reactor Vessel Water Level - Low Low Low, Level 1 Function.

Primary Containment Isolation

The Primary Containment Isolation Functions each contain four channels. One channel for each Function is provided in each of the four PCIS trip channels (trip channels A1 and A2 for PCIS trip system A and trip channels B1 and B2 for PCIS trip system B). Any one of these inputs will trip the associated PCIS trip channel. The PCIS trip channel output relays are arranged in logic systems such that PCIS trip channels A1 or A2 and B1 or B2 must trip (one-out-of-two taken twice logic) to cause an isolation. For most penetrations a logic system initiates isolation of its associated inboard primary containment isolation valves, while another logic system initiates isolation of its associated outboard primary containment isolation valves, so that operation of either logic isolates the penetration.

RWCU System Isolation

The RWCU Isolation Reactor Vessel Water Level - Low, Level 3 Function contains four channels. Each of the six Area Temperature - High Functions contain four channels which monitor the area associated with the Function. One channel for each of these RWCU Isolation Functions are provided in each of the four PCIS trip channels (trip channels A1 and A2 for PCIS trip system A and trip channels B1 and B2 for PCIS trip system B). Any one of these inputs will trip the associated PCIS trip channel. The PCIS trip channel output relays are arranged in logic systems (one logic system for the inboard valve and one logic system for the outboard valve) such that PCIS trip channels A1 or A2 and B1 or B2 must trip (one-out-of-two taken twice logic) to cause an isolation. The SLC System Initiation Function provides an isolation signal to close both RWCU isolation valves.

Shutdown Cooling System Isolation

The Shutdown Cooling System Isolation Reactor Vessel Water Level - Low, Level 3 and Drywell Pressure - High Functions each contain four channels. One channel for each Function is provided in each of the four PCIS trip channels (trip channels A1 and A2 for PCIS trip system A and trip channels B1 and B2 for PCIS trip system B). Any one of these inputs will trip the associated PCIS trip channel. The PCIS trip channel output relays are arranged in logic systems (each division of logic provides a signal for one RHR LPCI to Reactor isolation valve and one RHR SDC Supply isolation valve) such that PCIS trip channels A1 or A2 and B1 or B2 must trip (one-out-of-two taken twice logic) to cause an isolation. Isolation of the RHR LPCI to Reactor isolation valves from these functions are enabled only when both RHR SDC Supply isolation valves are open.

The Reactor Steam Dome Pressure - High Function consists of two channels, one per trip system. The output relays from these channels are arranged in logic systems to provide one-out-of-two isolation logic to each RHR SDC isolation valve.

<u>Bases for Current Requirement</u>

The Primary Containment Isolation instrumentation automatically initiates closure of appropriate primary containment isolation valves (PCIVs). The function of the PCIVs, in combination with other accident mitigation systems, is to limit fission product release during and following postulated Design Basis Accidents (DBAs). Primary containment isolation within the time limits specified for those isolation valves designed to close automatically ensures that the release of radioactive material to the environment will be consistent with the assumptions used in the analyses for a DBA.

Main Steam Line Isolation

For Function 1.a, Reactor Vessel Water Level - Low Low Low, Level 1 (LIS-3-56A-D), Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of the MSIVs and other interfaces with the reactor vessel occurs to prevent offsite dose limits from being exceeded. The Reactor Vessel Water Level - Low Low Low, Level 1 Function is one of the many Functions assumed to be Operable and capable of providing isolation signals. The Reactor Vessel Water Level - Low Low Low, Level 1 Function associated with isolation is assumed in the analysis of the recirculation line break. The isolation of the MSLs on Level 1 supports actions to ensure that offsite dose limits are not exceeded for a DBA.

Reactor vessel water level signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level - Low Low Low, Level 1 Function are available and are required to be Operable to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level - Low Low Low, Level 1 AV is chosen to be the same as the ECCS Level 1 AV (LCO 3.3.5.1) to ensure that the MSLs isolate on a potential LOCA to prevent offsite doses from exceeding 10 CFR 50.67 limits.

Primary Containment Isolation

For Function 2.a, Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D), Low RPV water level indicates that the capability to cool the fuel may be threatened. The valves whose penetrations communicate with the primary containment are isolated to limit the release of fission products. The isolation of the primary containment on Level 3 supports actions to ensure that offsite dose limits of 10 CFR 50.67 are not exceeded. The Reactor Vessel Water Level - Low, Level 3 Function associated with isolation is implicitly assumed in the FSAR analysis as these leakage paths are assumed to be isolated post LOCA.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level - Low, Level 3 Function are available and are required to be Operable to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level - Low, Level 3 AV was chosen to be the same as the RPS Level 3 scram AV (LCO 3.3.1.1), since isolation of these valves is not critical to orderly plant shutdown.

Reactor Water Cleanup System Isolation

For Function 5.h, Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D) Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of some interfaces with the reactor vessel occurs to isolate the potential sources of a break. The isolation of the RWCU System on Level 3 supports actions to ensure that the fuel peak cladding temperature remains below the limits of 10 CFR 50.46. The Reactor Vessel Water Level - Low, Level 3 Function associated with RWCU isolation is not directly assumed in the FSAR safety analyses because the RWCU System line break is bounded by breaks of larger systems (recirculation and MSL breaks are more limiting).

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel.

Four channels of Reactor Vessel Water Level - Low, Level 3 Function are available and are required to be Operable to ensure that no single instrument failure can preclude the isolation function.

The Reactor Vessel Water Level - Low, Level 3 AV was chosen to be the same as the RPS Level 3 scram AV (LCO 3.3.1.1), since isolation of these valves is not critical to orderly plant shutdown.

Shutdown Cooling System Isolation

For Function 6.b, Reactor Vessel Water Level - Low, Level 3 (LIS-3-203A-D) Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of some reactor vessel interfaces occurs to begin isolating the potential sources of a break. The Reactor Vessel Water Level - Low, Level 3 Function associated with RHR Shutdown Cooling System isolation is not directly assumed in safety analyses because a break of the RHR Shutdown Cooling System is bounded by breaks of the recirculation and MSL. The RHR Shutdown Cooling System isolation on Level 3 supports actions to ensure that the RPV water level does not drop below the top of the active fuel during a vessel draindown event caused by a leak (e.g., pipe break or inadvertent valve opening) in the RHR Shutdown Cooling System.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels (two channels per trip system) of the Reactor Vessel Water Level - Low, Level 3 Function are available and are required to be Operable to ensure that no single instrument failure can preclude the isolation function. As noted (footnote (b) to Table 3.3.6.1-1), only two channels of the Reactor Vessel Water Level - Low , Level 3 Function (one channel for PCIS trip system A and one channel for PCIS trip system B) with the capability of isolating one RHR SDC supply isolation valve are required to be Operable in Modes 4 and 5, provided the RHR Shutdown Cooling System integrity is maintained. System integrity is maintained provided the piping is intact and no maintenance is being performed that has the potential for draining the reactor vessel through the system.

The Reactor Vessel Water Level - Low, Level 3 AV was chosen to be the same as the RPS Reactor Vessel Water Level - Low, Level 3 AV (LCO 3.3.1.1), since the capability to cool the fuel may be threatened.

The Reactor Vessel Water Level - Low, Level 3 Function is only required to be Operable in Modes 3, 4, and 5 to prevent the potential flow paths from lowering the reactor vessel level to the top of the fuel. In Modes 1 and 2, other isolation Functions are required to be Operable (i.e., Reactor Steam Dome Pressure - High and Drywell Pressure - High) and administrative controls for the flow paths prevent unexpected loss of inventory via these flow paths.

The Frequencies of SR 3.3.6.1.3, SR 3.3.6.1.4, and SR 3.3.6.1.5 are based on the magnitude of equipment drift in the setpoint analysis.

In general, the individual Functions are required to be Operable in Modes 1, 2, and 3 consistent with the Applicability for LCO 3.6.1.1, "Primary Containment."

The isolation signals generated by the primary containment isolation instrumentation are implicitly assumed in the safety analyses of Section 5.2 and Chapter 14 of the UFSAR to initiate closure of valves to limit offsite doses.

Bases for the Proposed Change in Surveillance Interval

There are two instrument loops associated with satisfying these SR Functions. For SR 3.3.6.1.5, Table 3.3.6.1-1, Function 1.a, the 56 loop was evaluated for the subject frequency extension. For SR 3.3.6.1.5, Table 3.3.6.1-1, Functions 2.a, 5.h, and 6.b, the 203 loop was evaluated for the subject frequency extension.

Instrument Loops: BFN-2-L-003-0056A, -0056B, -0056C, and -0056D

Analytical Evaluation

TVA Setpoint Scaling Calculation ED-Q2003-880124 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0056A, -0056B, -0056C and -0056D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. These instruments initiate primary containment isolation (PCIS Group 1) of main steam lines, drain lines, and sample lines.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation. The calculations were originally analyzed for 30 months of drift (24 months plus 25%). The new analysis determines the new drift data based on 30 months plus 1.05% or 31.5 months of drift, taken as a linear extrapolation of the drift data. This is a sufficient time frame to account for the approximately 45 additional days of requested relief.

These instruments use the Rosemount range code 5 transmitters, which has a measurable accuracy of ± 0.44% of URL for a 30 month calibration interval. This includes repeatability, drift, and normal temperature effects. The URL of this transmitter is 750 INWC. The drift for this transmitter is calculated for 31.5 months as:

RLD = ± 0.44% * 750 * 31.5/30 = ± 3.5 INWC.

This drift value is increased by 5% (± 3.3 INWC to ± 3.5 INWC), when the calibration period is increased from 30 months to 31.5 months.

In the same way, the drift value for the ATU is calculated. The bounding measurable accuracy of the Rosemount trip unit is ± 0.20% of span for a period of 30 months of calibration interval. This accuracy includes the repeatability, drift, and normal temperature effects. The range is 4 to 20 MA giving a span of 16 MA. The drift for the ATU is calculated for 31.5 months as:

RLD = ± 0.20 % * 16 * 31.5/30 = ± 0.034 MA

Therefore, this drift value is increased by 5% (± 0.032 MA to ± 0.034 MA) over an increase in calibration period of 30 months to 31.5 months.

This effect of increase in drift value is applied in the above referenced calculation and the resulting inaccuracy of each component and instrument loop is as follows.

Summary of Loop Accuracy

	Present value	Revised value
Measurable Accuracy Anf	± 4.802 VIN	± 5.08 VIN
Normal Accuracy An	± 6.362 VIN	± 6.57 VIN
Accident Accuracy Aa (negative)	- 21.431/+13.862 VIN	- 21.53/+13.96 VIN
Seismic Accuracy As	± 8.266 VIN	± 8.439 VIN
Margin	12.069 VIN	11.97 VIN

The revised Pogo stick is as follows:

Setpoint SP	= 406 VIN Decreasing
Measurable accuracy Anf	= 400.92 VIN
Tech Spec AV	= 398 VIN
Un-measurable An	= 399.43 VIN
Accident Aa	= 384.47 VIN
Seismic As	= 397.561 VIN
Analytical Limit AL	= 372.5 VIN

Analytical Evaluation Conclusion

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It is shown that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Associated Instrument Loop: BFN-2-L-003-0203A, -0203B, -0203C, and -0203D

Analytical Evaluation

TVA Setpoint Scaling Calculation ED-Q2003-940060 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0203A, -0203B, -0203C and -0203D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. These instruments initiate auto scram, RWCU system isolation, primary containment isolation, and annunciation signals on low RPV level 3.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation. The calculations were originally analyzed for 30 months of drift (24 months plus 25%). The new analysis determines the new drift data based on 30 months plus 1.05% or 31.5 months of drift, taken as a linear extrapolation of the drift data. This is a sufficient time frame to account for the approximately 45 additional days of requested relief.

These instruments use the Rosemount range code 4 transmitters, which have a measurable accuracy of ± 0.44% of URL for a 30 month calibration interval. This includes repeatability, drift, and normal temperature effects. The URL of this transmitter is 150 INWC. The drift for this transmitter is calculated for 31.5 months as:

RLD = ± 0.44% * 150 * 31.5/30 = ± 0.69 INWC.

This drift value is increased by 5% (± 0.66 INWC to ± 0.69 INWC), when the calibration period is increased from 30 months to 31.5 months.

In the same way, the drift value for the ATU is calculated. The bounding measurable accuracy of the Rosemount trip unit is ± 0.20% of span for a period of 30 months of calibration interval. This accuracy includes the repeatability, drift, and normal temperature effects. The range is 4 to 20 MA giving a span of 16 MA. The drift for the ATU is calculated for 31.5 months as:

RLD = ± 0.20 % * 16 * 31.5/30 = ± 0.034 MA.

Therefore, this drift value is increased by 5% (± 0.032 MA to ± 0.034 MA) over an increase in calibration period of 30 months to 31.5 months.

This effect of increase in drift value is applied in the above referenced calculation and the resulting inaccuracy of each component and instrument loop is as follows.

Summary of Loop Accuracy

	Present value	Revised value
Measurable Accuracy Anf	± 1.00 VIN	± 1.04 VIN
Normal Accuracy An	± 2.56 VIN	± 2.56 VIN
Accident Accuracy Aa (negative)	± 7.3 VIN	± 7.31 VIN
Seismic Accuracy As	± 2.77 VIN	± 2.77 VIN
Margin	4.7 VIN	4.69 VIN

The revised Pogo stick is as follows:

Setpoint SP	= 530 VIN Decreasing
Measurable Accuracy Anf	= 528.96 VIN
Tech Spec AV	= 528 VIN
Un-measurable An	= 527.44 VIN
Accident Aa	= 522.694 VIN
Seismic As	= 527.23 VIN
Analytical Limit AL	= 518 VIN

Analytical Evaluation Conclusion

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It is shown that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

For the 203B loop, one SR performance data showed that the acceptable as found value exceeded its TS limit by 0.2 inches, but the loop would have been within its Analytical Limit even if there was an accident of any kind at that time. The loop was recalibrated satisfactorily. Another SR run shows that the loop value exceeded the acceptable as found value, but it was within the TS limit. The conduit seal was found damaged and the seal was replaced after the SR performance. The following SR performance was satisfactory.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

SR 3.3.6.2.3, Table 3.3.6.2-1, Function 1 - Reactor Vessel Water Level - Low Level 3; Channel Calibration

Description of Current Requirement

BFN TS Table 3.3.6.2-1, "Secondary Containment Isolation Instrumentation," lists applicable modes or other specified conditions, required channels per trip system, conditions referenced from required actions, surveillance requirements and allowable value, as applicable, for Function 1 - Reactor Vessel Water Level - Low Level 3 (LIS-3-203A-D).

Surveillance SR 3.3.6.2.3 requires a Channel Calibration, which is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. Channel Calibration leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. These signals are the same that isolate the primary containment (additional information on the arrangement of these channels in the PCIS trip systems can be found in the Bases for LCO 3.3.6.1, "Primary Containment Isolation Instrumentation," Function 2). Four channels of Reactor Vessel Water Level - Low, Level 3 Function are available and are required to be Operable to ensure that no single instrument failure can preclude the isolation function.

Bases for Current Requirement

Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. An isolation of the secondary containment and actuation of the SGT System are initiated in order to minimize the potential of an offsite dose release. The Reactor Vessel Water Level - Low, Level 3 Function is one of the Functions assumed to be Operable and capable of providing isolation and initiation signals. The isolation and initiation systems on Reactor Vessel Water Level - Low, Level 3 support actions to ensure that any offsite releases are within the limits calculated in the safety analysis Section 14.6.3.6 of the UFSAR.

The Reactor Vessel Water Level - Low, Level 3 Function is required to be Operable in Modes 1, 2, and 3 where considerable energy exists in the RCS; thus, there is a probability of pipe breaks resulting in significant releases of radioactive steam and gas. In Modes 4 and 5, the probability and consequences of these events are low due to the RCS pressure and temperature limitations of these Modes; thus, this Function is not required. In addition, the Function is also required to be Operable during operations with a potential for draining the reactor vessel (OPDRVs) because the capability of isolating potential sources of leakage must be provided to ensure that offsite dose limits are not exceeded if core damage occurs.

The Frequency of SR 3.3.6.2.3 is based on the magnitude of equipment drift in the setpoint analysis.

The isolation signals generated by the secondary containment isolation instrumentation are implicitly assumed in the safety analyses of Section 7.3.5 and Chapters 5 and 14 of the UFSAR to initiate closure of valves and start the SGT

System to limit offsite doses.

Bases for the Proposed Change in Surveillance Interval

There is one instrument loop associated with satisfying this SR Function. For SR 3.3.6.2.3, Table 3.3.6.2-1, Function 1, the 203 loop was evaluated for the subject frequency extension.

Instrument Loop: BFN-2-L-003-0203A, -0203B, -0203C, and -0203D

Analytical Evaluation

TVA Setpoint Scaling Calculation ED-Q2003-940060 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0203A, -0203B, -0203C and -0203D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. These instruments initiate auto scram, RWCU system isolation, primary containment isolation, and annunciation signals on low RPV level 3.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation. The calculations were originally analyzed for 30 months of drift (24 months plus 25%). The new analysis determines the new drift data based on 30 months plus 1.05% or 31.5 months of drift, taken as a linear extrapolation of the drift data. This is a sufficient time frame to account for the approximately 45 additional days of requested relief.

These instruments use the Rosemount range code 4 transmitters, which have a measurable accuracy of ± 0.44% of URL for a 30 month calibration interval. This includes repeatability, drift, and normal temperature effects. The URL of this transmitter is 150 INWC. The drift for this transmitter is calculated for 31.5 months as:

RLD = ± 0.44% * 150 * 31.5/30 = ± 0.69 INWC.

This drift value is increased by 5% (± 0.66 INWC to ± 0.69 INWC), when the calibration period is increased from 30 months to 31.5 months.

In the same way, the drift value for the ATU is calculated. The bounding measurable accuracy of the Rosemount trip unit is ± 0.20% of span for a period of 30 months of calibration interval. This accuracy includes the repeatability, drift, and normal temperature effects. The range is 4 to 20 MA giving a span of 16 MA. The drift for the ATU is calculated for 31.5 months as:

RLD = ± 0.20 % * 16 * 31.5/30 = ± 0.034 MA.

Therefore, this drift value is increased by 5% (± 0.032 MA to ± 0.034 MA) over an increase in calibration period of 30 months to 31.5 months.

This effect of increase in drift value is applied in the above referenced calculation and the resulting inaccuracy of each component and instrument loop is as follows.

Summary of Loop Accuracy

	Present value	Revised value
Measurable Accuracy Anf	± 1.00 VIN	± 1.04 VIN
Normal Accuracy An	± 2.56 VIN	± 2.56 VIN
Accident Accuracy Aa (negative)	± 7.3 VIN	± 7.31 VIN
Seismic Accuracy As	± 2.77 VIN	± 2.77 VIN
Margin	4.7 VIN	4.69 VIN

The revised Pogo stick is as follows:

Setpoint SP	= 530 VIN Decreasing
Measurable Accuracy Anf	= 528.96 VIN
Tech Spec AV	= 528 VIN
Un-measurable An	= 527.44 VIN
Accident Aa	= 522.694 VIN
Seismic As	= 527.23 VIN
Analytical Limit AL	= 518 VIN

Analytical Evaluation Conclusion

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It is shown that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

For the 203B loop, one SR performance data showed that the acceptable as found value exceeded its TS limit by 0.2 inches, but the loop would have been within its Analytical Limit even if there was an accident of any kind at that time. The loop was recalibrated satisfactorily. Another SR run shows that the loop value exceeded the acceptable as found value, but it was within the TS limit. The conduit seal was found damaged and the seal was replaced after the SR performance. The following SR performance was satisfactory.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

SR 3.3.7.1.5, Table 3.3.7.1-1, Function 1 - Reactor Vessel Water Level - Low Level 3; Channel Calibration

Description of Current Requirement

BFN TS Table 3.3.7.1-1, "Control Room Emergency Ventilation (CREV) System Instrumentation," lists applicable modes or other specified conditions, required channels per trip system, conditions referenced from required actions, surveillance requirements and allowable value, as applicable, for Function 1 - Reactor Vessel Water Level - Low Level 3 (LIS-3-203A-D).

Surveillance SR 3.3.7.1.1 requires Performance of the Channel Check once every 24 hours ensures that a gross failure of instrumentation has not occurred. A Channel Check is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A Channel Check will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each Channel Calibration.

Reactor Vessel Water Level - Low, Level 3 signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels of Reactor Vessel Water Level - Low, Level 3 Function are available (two channels per trip system) and are required to be Operable to ensure that a single instrument failure cannot preclude CREV System initiation. The Reactor Vessel Water Level - Low, Level 3 allowable value was chosen to be the same as the RPS Level 3 scram allowable value (LCO 3.3.1.1).

Bases for Current Requirement

The CREV System is designed to provide a radiologically controlled environment to ensure the habitability of the control room for the safety of control room operators under all plant conditions. Two independent CREV subsystems are each capable of fulfilling the stated safety function. The instrumentation and controls for the CREV System automatically initiate action to pressurize the control room (CR) to minimize the consequences of radioactive material in the control room environment.

Low RPV water level indicates that the capability of cooling the fuel may be threatened. A low reactor vessel water level could indicate a LOCA and will automatically initiate the CREV System, since this could be a precursor to a potential radiation release and subsequent radiation exposure to control room personnel.

The Reactor Vessel Water Level - Low, Level 3 Function is required to be Operable in Modes 1, 2, and 3, and during OPDRVs to ensure that the control room personnel are protected during a LOCA. In Modes 4 and 5 at times other than OPDRVs, the probability of a vessel draindown event resulting in a release of radioactive material into the environment is minimal. In addition, adequate protection is performed by the Control Room Air Supply Duct Radiation - High Function. Therefore, this Function is not required in other Modes and specified conditions.

The Frequency is based upon operating experience that demonstrates channel failure is rare. The Channel Check supplements less formal, but more frequent, checks of channel status during normal operational use of the displays associated with channels required by the LCO.

The ability of the CREV System to maintain the habitability of the CR is explicitly assumed for certain accidents as discussed in the FSAR safety analyses Section 14.6.3.7 of the UFSAR. CREV System operation ensures that the radiation exposure of control room personnel, through the duration of any one of the postulated accidents, does not exceed the limits set by General Design Criteria 19 of 10 CFR 50, Appendix A.

Bases for the Proposed Change in Surveillance Interval

There is one instrument loop associated with satisfying this SR Function. For SR 3.3.7.1.5, Table 3.3.7.1-1, Function 1, the 203 loop was evaluated for the subject frequency extension.

Instrument Loop: BFN-2-L-003-0203A, -0203B, -0203C, and -0203D

Analytical Evaluation

TVA Setpoint Scaling Calculation ED-Q2003-940060 determines the accuracy of the reactor vessel level instrumentation BFN-2-L-003-0203A, -0203B, -0203C and -0203D to demonstrate that they are sufficiently accurate to perform their intended function without safety or operational limits being exceeded. These instruments initiate auto scram, RWCU system isolation, primary containment isolation, and annunciation signals on low RPV level 3.

TS Change Request Methodology

The bases for the proposed TS change consisted of a review of the existing drift data in the scaling and setpoint calculation. The calculations were originally analyzed for 30 months of drift (24 months plus 25%). The new analysis determines the new drift data based on 30 months plus 1.05% or 31.5 months of drift, taken as a linear extrapolation of the drift data. This is a sufficient time frame to account for the approximately 45 additional days of requested relief.

These instruments use the Rosemount range code 4 transmitters, which have a measurable accuracy of ± 0.44% of URL for a 30 month calibration interval. This includes repeatability, drift, and normal temperature effects. The URL of this transmitter is 150 INWC. The drift for this transmitter is calculated for 31.5 months as:

RLD = ± 0.44% * 150 * 31.5/30 = ± 0.69 INWC.

This drift value is increased by 5% (± 0.66 INWC to ± 0.69 INWC), when the calibration period is increased from 30 months to 31.5 months.

In the same way, the drift value for the ATU is calculated. The bounding measurable accuracy of the Rosemount trip unit is ± 0.20% of span for a period of 30 months of calibration interval. This accuracy includes the repeatability, drift, and normal temperature effects. The range is 4 to 20 MA giving a span of 16 MA. The drift for the ATU is calculated for 31.5 months as:

RLD = ± 0.20 % * 16 * 31.5/30 = ± 0.034 MA.

Therefore, this drift value is increased by 5% (± 0.032 MA to ± 0.034 MA) over an increase in calibration period of 30 months to 31.5 months.

This effect of increase in drift value is applied in the above referenced calculation and the resulting inaccuracy of each component and instrument loop is as follows.

Summary of Loop Accuracy

	Present value	Revised value
Measurable Accuracy Anf	± 1.00 VIN	± 1.04 VIN
Normal Accuracy An	± 2.56 VIN	± 2.56 VIN
Accident Accuracy Aa (negative)	± 7.3 VIN	± 7.31 VIN
Seismic Accuracy As	± 2.77 VIN	± 2.77 VIN
Margin	4.7 VIN	4.69 VIN

The revised Pogo stick is as follows:

Setpoint SP	= 530 VIN Decreasing
Measurable Accuracy Anf	= 528.96 VIN
Tech Spec AV	= 528 VIN
Un-measurable An	= 527.44 VIN
Accident Aa	= 522.694 VIN
Seismic As	= 527.23 VIN
Analytical Limit AL	= 518 VIN

Analytical Evaluation Conclusion

The extension of calibration period from 30 months to 31.5 months will not exceed the analytical limit if an accident or seismic event occurs during this period. It is shown that under normal operation the measurable accuracy will not exceed the allowable value given in the TSs. Therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

Surveillance Evaluation

A review was performed on these instrument loops and of their three previous performances of SRs (3/2003, 4/2005 and 10/2006). Also, a review of work orders, corrective action program, and operating experience was performed for the last 69 months regarding the performance of these instruments. The significant results of the review are tabulated in Table 2.

For the 203B loop, one SR performance data showed that the acceptable as found value exceeded its TS limit by 0.2 inches, but the loop would have been within its Analytical Limit even if there was an accident of any kind at that time. The loop was recalibrated satisfactorily. Another SR run shows that the loop value exceeded the acceptable as found value, but it was within the TS limit. The conduit seal was found damaged and the seal was replaced after the SR performance. The following SR performance was satisfactory.

These reviews did not identify any trend in failed surveillance procedure performances or significant instrument performance issues. These instruments have performed their design function satisfactorily and, therefore, the extension of calibration to 45 more days is acceptable during normal operation and in an accident or seismic event.

SR 3.10.1 - Perform the applicable SRs for the required Mode 3 LCOs

Description of Current Requirement

BFN TS Surveillance SR 3.10.1 requires that the applicable SRs for the required Mode 3 LCOs be performed at the frequency specified in the applicable SRs.

Bases for Current Requirement

The purpose of this Special Operations SR/LCO is to allow certain reactor coolant pressure tests to be performed in Mode 4 when the metallurgical characteristics of the RPV require the pressure testing at temperatures > 212°F (normally corresponding to Mode 3) or to allow completing these reactor coolant pressure tests when the initial conditions do not require temperatures > 212°F.

The requirement for secondary containment Operability according to the imposed Mode 3 requirements provides conservatism in the response of the unit to any event that may occur. Operations in all other Modes are unaffected by this LCO.

Allowing the reactor to be considered in Mode 4 when the reactor coolant temperature is > 212°F, during, or as a consequence of, hydrostatic or leak testing, or as a consequence of control rod scram time testing initiated in conjunction with an inservice leak or hydrostatic test, effectively provides an exception to Mode 3 requirements, including Operability of primary containment and the full complement of redundant Emergency Core Cooling Systems. Since the tests are performed nearly water solid (except for an air bubble for pressure control), at low decay heat values, and near Mode 4 conditions, the stored energy in the reactor core will be very low. Under these conditions, the potential for failed fuel and a subsequent increase in coolant activity above the LCO 3.4.6, "RCS Specific Activity," limits are minimized. In addition, the secondary containment will be Operable, in accordance with this Special Operations LCO, and will be capable of handling any airborne radioactivity or steam leaks that could occur during the performance of hydrostatic or leak testing. The required pressure testing conditions provide adequate assurance that the consequences of a steam leak will be conservatively bounded by the consequences of the postulated main steam line break outside of primary containment described in the Letter from T. Pickens (BWROG) to G. C. Lainas, NRC, "Amendment 17 to General Electric Licensing Topical Report NEDE-24011-P-A," August 15, 1986. Therefore, these requirements will conservatively limit radiation releases to the environment.

In the event of a large primary system leak, the reactor vessel would rapidly depressurize, allowing the low pressure core cooling systems to operate. The capability of the low pressure coolant injection and core spray subsystems, as required in Mode 4 by LCO 3.5.2, "ECCS - Shutdown," would be more than adequate to keep the core flooded under this low decay heat load condition. Small system leaks would be detected by leakage inspections before significant inventory loss occurred.

For the purposes of this test, the protection provided by normally required Mode 4 applicable LCOs, in addition to the secondary containment requirements required to be met by this Special Operations LCO, will ensure acceptable consequences during normal hydrostatic test conditions and during postulated accident conditions.

Bases for the Proposed Change in Surveillance Interval

Though affected by the performance of the instrument calibration SRs discussed herein, SR 3.10.1 does not require a change because its existing specified frequency is according to the applicable SRs.

For this frequency period and situation, the completion of SR 3.10.1.1, perform the applicable SRs for the required Mode 3 LCOs, is dependent on the completion of SR 3.3.1.1.13. Therefore, an extension to SR 3.10.1 is presumed to be included with the extension to SR 3.3.1.1.13.

TABLE 2

Unique Identifier	Surveillance Requirement	Date of SR Performance	Acceptability	Remarks
2-L -3-056A	2-SR-3.3.6.1.5(1A/A1)	10/11/2006	SAT	
		03/25/2005	SAT	
		03/04/2003	SAT	
2-L -3-056B	2-SR-3.3.6.1.5(1A/B1)	10/17/2006	SAT	
		03/25/2005	SAT	SP OK, AAF for LT high values
		03/08/2003	SAT	SP OK, AAF for LT high all values
2-L -3-056C	2-SR-3.3.6.1.5(1A/A2)	10/11/2006	SAT	
		03/26/2005	SAT	
		03/08/2003	SAT	SP OK, AAF for LT high values
2-L -3-056D	2-SR-3.3.6.1.5(1A/B2)	10/17/2006	SAT	
		03/26/2005	SAT	SP OK, AAF for high Gross failure
		03/08/2003	SAT	SP OK, AAF for LT high values
2-L -3-058A	2-SR-3.3.5.1.5(RWL A)	10/13/2006	SAT	
		04/14/2005	SAT	
		03/01/2003	SAT	SP OK
2-L -3-058C	2-SR-3.3.5.1.5(RWL C)	10/13/2006	SAT	SP OK, AAF for LT low values
		07/15/2005	SAT	SP OK, TDR AAF Hi WO 05-718489*
		03/02/2003	SAT	
2-L -3-203A	2-SR-3.3.1.1.13(4A)	10/11/2006	SAT	
		03/23/2005	SAT	
		03/05/2003	SAT	
2-L -3-203B	2-SR-3.3.1.1.13(4B)	10/16/2006	SAT	SP OK, AAF for LT high values
		03/23/2005	Note 1	SP High PER 79367; Outside TS
		03/06/2003	Note 2	SP High PER 03-4515; but within TS
2-L -3-203C	2-SR-3.3.1.1.13(4C)	10/11/2006	SAT	
		03/23/2005	SAT	
		03/06/2003	SAT	SP OK, AAF for LT high values
2-L -3-208A	2-SR-3.3.5.2.3(RCIC A)	10/12/2006	SAT	
		03/22/2005	SAT	
		02/25/2003	SAT	
2-L -3-208C	2-SR-3.3.5.2.3(RCIC C)	10/12/2006	SAT	SP OK, AAF for LT high all values
		03/22/2005	SAT	SP OK, AAF for LT high all values
		02/25/2003	SAT	
2-P -3-204A	2-SR-3.3.4.2.3(A)	10/12/2006	SAT	
		04/06/2005	SAT	
		03/03/2003	SAT	
2-P -3-204B	2-SR-3.3.4.2.3(B)	10/12/2006	SAT	
		04/07/2005	SAT	
		03/03/2003	SAT	
2-P -3-204C	2-SR-3.3.4.2.3(C)	10/18/2006	SAT	SP OK, AAF for PT high values
		04/06/2005	SAT	SP OK, AAF for PT high values
		03/03/2003	SAT	
2-P -3-204D	2-SR-3.3.4.2.3(D)	10/18/2006	SAT	SP OK, AAF for PT high values
		04/07/2005	SAT	
		03/06/2003	SAT	SP OK, AAF for PT high values
Notes:				WO = Work Order
* No TS value, exceeded AAF but not exceeded calculated AV				LT = Level Transmitter
1. As found was outside the TS limit but calibrated SAT within AAL				PT = Pressure Transmitter
2. As found was within the TS limit and calibrated SAT within AAL				TDR = Time Delay Relay

TABLE 3

BFN Calculation Number and Revision	Unique Identifier	Surveillance Requirement	TS Allowable Value	TS Function	Analytical Limit	Setpoint	Calculated Acceptable As-Found Value (31.5 Months)	Acceptable As-Left Value
ED-Q2003-880124 R06	2-L -003-0056A	2-SR-3.3.6.1.5(1A/A1)	398 AVZ	PCIS Initiation	372.5 AVZ	406 AVZ	± 5.08 VI	± 0.607 VI
ED-Q2003-880124 R06	2-L -003-0056B	2-SR-3.3.6.1.5(1A/B1)	398 AVZ	PCIS Initiation	372.5 AVZ	406 AVZ	± 5.08 VI	± 0.607 VI
ED-Q2003-880124 R06	2-L -003-0056C	2-SR-3.3.6.1.5(1A/A2)	398 AVZ	PCIS Initiation	372.5 AVZ	406 AVZ	± 5.08 VI	± 0.607 VI
ED-Q2003-880124 R06	2-L -003-0056D	2-SR-3.3.6.1.5(1A/B2)	398 AVZ	PCIS Initiation	372.5 AVZ	406 AVZ	± 5.08 VI	± 0.607 VI
ED-Q2003-980141 R01	2-L -003-0058A	2-SR-3.3.5.1.5(RWL A)	398 AVZ	Level 1 Initiate CS, ADS	372.5 AVZ	406 AVZ	± 5.28 VI	± 0.9 VI
			470 AVZ	Level 2 Initiate HPCI/RCIC	448 AVZ	483 AVZ	± 5.06 VI	± 0.7 VI
ED-Q2003-980141 R01	2-L -003-0058C	2-SR-3.3.5.1.5(RWL C)	398 AVZ	Level 1 Initiate CS, ADS	372.5 AVZ	406 AVZ	± 5.28 VI	± 0.9 VI
			470 AVZ	Level 2 Initiate HPCI/RCIC	448 AVZ	483 AVZ	± 5.06 VI	± 0.7 VI
ED-Q2003-940060 R03	2-L -003-0203A	2-SR-3.3.1.1.13(4A)	528 AVZ	Level 3 Reactor scram	518 AVZ	530 AVZ	± 1.04 VI	± 0.2 VI
ED-Q2003-940060 R03	2-L -003-0203B	2-SR-3.3.1.1.13(4B)	528 AVZ	Level 3 Reactor scram	518 AVZ	530 AVZ	± 1.04 VI	± 0.2 VI
ED-Q2003-940060 R03	2-L -003-0203C	2-SR-3.3.1.1.13(4C)	528 AVZ	Level 3 Reactor scram	518 AVZ	530 AVZ	± 1.04 VI	± 0.2 VI
ED-Q2003-930145 R04	2-L -003-0208A	2-SR-3.3.5.2.3(RCIC A)	583 AVZ	RCIC Turbine trip	592 AVZ	579 AVZ	± 2.99 VI	± 0.17 VI
			586 AVZ	Feedwater pump trip	588 AVZ	583 AVZ	± 2.99 VI	± 0.19 VI
ED-Q2003-930145 R04	2-L -003-0208C	2-SR-3.3.5.2.3(RCIC C)	583 AVZ	RCIC Turbine trip	592 AVZ	579 AVZ	± 2.99 VI	± 0.17 VI
			586 AVZ	Feedwater pump trip	588 AVZ	583 AVZ	± 2.99 VI	± 0.19 VI
ED-Q2003-920049 R04	2-P -003-0204A	2-SR-3.3.4.2.3(A)	1175 psig	ATWS / ARI trip	1177 PSIG	1148 PSIG	± 18.61 PSI	± 5.3 PSI
			1175 psig	MSRV Actuation (max)	1177 PSIG	1155 PSIG	± 19.44 PSI	± 6.5 PSI
ED-Q2003-920049 R04	2-P -003-0204B	2-SR-3.3.4.2.3(B)	1175 psig	ATWS / ARI trip	1177 PSIG	1148 PSIG	± 18.61 PSI	± 5.3 PSI
			1175 psig	MSRV Actuation (max)	1177 PSIG	1155 PSIG	± 19.44 PSI	± 6.5 PSI
ED-Q2003-920049 R04	2-P -003-0204C	2-SR-3.3.4.2.3(C)	1175 psig	ATWS / ARI trip	1177 PSIG	1148 PSIG	± 18.61 PSI	± 5.3 PSI
			1175 psig	MSRV Actuation (max)	1177 PSIG	1155 PSIG	± 19.44 PSI	± 6.5 PSI
ED-Q2003-920049 R04	2-P -003-0204D	2-SR-3.3.4.2.3(D)	1175 psig	ATWS / ARI trip	1177 PSIG	1148 PSIG	± 18.61 PSI	± 5.3 PSI
			1175 psig	MSRV Actuation (max)	1177 PSIG	1155 PSIG	± 19.44 PSI	± 6.5 PSI

4.0 REGULATORY EVALUATION

4.1 Precedent

A search of NRC actions on license amendments revealed one, similar applicable precedent concerning the extension of surveillance requirement intervals:

1. Kewaunee Power Station, Docket No. 50-305, License No. DPR-43, Licensed Amendment 187. The NRC staff approved the surveillance interval extensions by letter dated July 12, 2006 (Adams Accession No. ML061640302).
2. TVA Browns Ferry Nuclear Plant, Docket No. 50-259, 50-260, and 50-296, License No. DPR-33, DPR-52, & DPR-68, Licensed Amendment Nos. 235, 255, and 215. The NRC staff approved the surveillance interval extensions by letter to TVA dated November 30, 1998.

4.2 Significant Hazards Consideration[8]

TVA has evaluated whether or not a significant hazards consideration is involved with the proposed amendment(s) by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

1. Does the proposed amendment involve a significant increase in the probability or consequences of an accident previously evaluated?

   Response: No.

   The requested action is a one-time extension to the performance interval of a limited number of TS surveillance requirements. The performance of these surveillances, or the failure to perform these surveillances, is not a precursor to an accident. Performing these surveillances or failing to perform these surveillances does not affect the probability of an accident. Therefore, the proposed delay in performance of the surveillance requirements in this amendment request does not increase the probability of an accident previously evaluated.

   A delay in performing these surveillances does not result in a system being unable to perform its required function. In the case of this one-time extension request, the relatively short period of additional time that the systems and components will be in service before the next performance of the surveillance will not affect the ability of those systems to operate as designed. Therefore, the systems required to mitigate accidents will remain capable of performing their required function. No new failure modes have been introduced because of this action and the consequences remain consistent with previously evaluated accidents. Therefore, the proposed delay in performance of the surveillance requirements in this amendment request does not involve a significant increase in the consequences of an accident.

   Therefore, operation of the facility in accordance with the proposed license amendment would not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Does the proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

   Response: No.

   The proposed amendment does not involve a physical alteration of any system, structure, or component (SSC) or a change in the way any SSC is operated. The proposed amendment does not involve operation of any SSCs in a manner or configuration different from those previously recognized or evaluated. No new failure mechanisms will be introduced by the one-time surveillance requirement extensions being requested.

Therefore, the proposed change does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Does the proposed amendment involve a significant reduction in a margin of safety?

   Response: No.

   The proposed amendment is a one-time extension of the performance interval of a limited number of TS surveillance requirements. Extending these surveillance requirements does not involve a modification of any TS Limiting Conditions for Operation. Extending these surveillance requirements does not involve a change to any limit on accident consequences specified in the license or regulations. Extending these surveillance requirements does not involve a change to how accidents are mitigated or a significant increase in the consequences of an accident. Extending these surveillance requirements does not involve a change in a methodology used to evaluate consequences of an accident. Extending these surveillance requirements does not involve a change in any operating procedure or process.

   The instrumentation and components involved in this request have exhibited reliable operation based on the results of the most recent performance of their 24-month surveillance requirements.

   Based on the limited additional period of time that the systems and components will be in service before the surveillances are next performed, as well as the operating experience that these surveillances are typically successful when performed, it is reasonable to conclude that the margins of safety associated with these surveillance requirements will not be affected by the requested extension.

   Therefore, the proposed change does not involve a significant reduction in a margin of safety. Based on the above, TVA concludes that the proposed amendment(s) does (do) not involve a significant hazards consideration under the standards set forth in 10 CFR 50.92 (c), and, accordingly, a finding of "no significant hazards consideration" is justified.

4.3 Conclusions

In conclusion, based on the considerations discussed above, (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

5.0 ENVIRONMENTAL CONSIDERATION

A review has determined that the proposed amendment would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed amendment does not involve (i) a significant hazards consideration, (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite, or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed amendment meets the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed amendment.

6.0 REFERENCES

1. BFN Unit 2 Technical Specifications - License DPR-52 for BFN Unit 2, Docket No. 50-260 (thru Amendment 300)
    a. Section 3.3
    b. Section 3.10.1
2. BFN Updated Final Safety Analysis Report (thru Amendment 22)
    c. Chapter 5, especially Section 5.2
    d. Section 6.5
    e. Section 8.5
    f. Chapter 7, especially Sections 7.2, 7.3.5, and 7.19
    g. Chapter 14, especially Sections 14.5.7, 14.6.3.6, and 15.6.3.7
    h. Appendix A
3. TVA Instrumentation & Controls Branch Technical Instruction, EEB-TI-28, "Setpoint Calculations"
4. Letter from T. Pickens (BWROG) to G. C. Lainas, NRC, "Amendment 17 to General Electric Licensing Topical Report NEDE-24011-P-A," August 15, 1986.
5. Kewaunee Power Station, Docket No. 50-305, License No. DPR-43, Licensed Amendment 187. The NRC staff approved the surveillance interval extensions by letter dated July 12, 2006 (Adams Accession No. ML061640302).
6. TVA Browns Ferry Nuclear Plant, Docket No. 50-259, 50-260, and 50-296, License No. DPR-33, DPR-52, & DPR-68, Licensed Amendment Nos. 235, 255, and 215. The NRC staff approved the surveillance interval extensions by letter to TVA dated November 30, 1998.
7. Engineering Work Request EWR08EEB999122, BFN Unit 2 - One-Time Extension of Surveillance Requirements - November 2008. This EWR response documents the calculations that were reviewed and marked up to support the requested extension.

ATTACHMENT 1

TECHNICAL SPECIFICATIONS PAGE MARKUPS

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.1.10	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.1.1.11	(Deleted)	
SR 3.3.1.1.12	Perform CHANNEL FUNCTIONAL TEST.	24 months
SR 3.3.1.1.13	-------------------------NOTE------------------------ Neutron detectors are excluded. --- Perform CHANNEL CALIBRATION.	24 months (a)
SR 3.3.1.1.14	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months
SR 3.3.1.1.15	Verify Turbine Stop Valve - Closure and Turbine Control Valve Fast Closure, Trip Oil Pressure - Low Functions are not bypassed when THERMAL POWER is ≥ 30% RTP.	24 months
SR 3.3.1.1.16	-------------------------NOTE------------------------ For Function 2.a, not required to be performed when entering MODE 2 from MODE 1 until 12 hours after entering MODE 2. --- Perform CHANNEL FUNCTIONAL TEST.	184 days
SR 3.3.1.1.17	Verify OPRM is not bypassed when APRM Simulated Thermal Power is ≥ 25% and recirculation drive flow is < 60% of rated recirculation drive flow.	24 months

(a) The FREQUENCY of 24 months for Surveillance Requirements SR 3.3.1.1.13 Table 3.3.1.1-1 Function 4 may be extended an additional 37 days, but not later than May 18, 2009.

SURVEILLANCE REQUIREMENTS

-----NOTE-----
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided feedwater and main turbine high water level trip capability is maintained.

	SURVEILLANCE	FREQUENCY
SR 3.3.2.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.2.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.2.2.3	Perform CHANNEL CALIBRATION. The Allowable Value shall be ≤ 586 inches above vessel zero.	24 months (a)
SR 3.3.2.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including valve actuation.	24 months

(a) The FREQUENCY of 24 months for Surveillance Requirement SR 3.3.2.2.3 may be extended an additional 37 days, but not later than May 18, 2009.

SURVEILLANCE REQUIREMENTS

--NOTE--
When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains ATWS-RPT trip capability.

SURVEILLANCE		FREQUENCY
SR 3.3.4.2.1	Perform CHANNEL CHECK of the Reactor Vessel Water Level - Low Low, Level 2 Function.	24 hours
SR 3.3.4.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.4.2.3	Perform CHANNEL CALIBRATION. The Allowable Values shall be: a. Reactor Vessel Water Level - Low Low, Level 2: ≥ 471.52 inches above vessel zero; and b. Reactor Steam Dome Pressure - High: ≤ 1175 psig.	24 months[(a)]
SR 3.3.4.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST including breaker actuation.	24 months

(a) The FREQUENCY of 24 months for Surveillance Requirements SR 3.3.4.2.3.a and SR 3.3.4.2.3.b may be extended an additional 37 days, but not later than May 18, 2009.

SURVEILLANCE REQUIREMENTS

-----NOTES-----

1. Refer to Table 3.3.5.1-1 to determine which SRs apply for each ECCS Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Functions 3.c and 3.f; and (b) for up to 6 hours for Functions other than 3.c and 3.f provided the associated Function or the redundant Function maintains ECCS initiation capability.

	SURVEILLANCE	FREQUENCY
SR 3.3.5.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.5.1.4	Perform CHANNEL CALIBRATION.	184 days
SR 3.3.5.1.5	Perform CHANNEL CALIBRATION.	24 months[(a)]
SR 3.3.5.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

[(a)] The FREQUENCY of 24 months for Surveillance Requirement SR 3.3.5.1.5 Table 3.3.5.1-1 Functions 1.a, 2.a, 3.a, 4.a, & 5.a may be extended an additional 37 days, but not later than May 18, 2009.

SURVEILLANCE REQUIREMENTS

--NOTES--

1. Refer to Table 3.3.5.2-1 to determine which SRs apply for each RCIC Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed as follows: (a) for up to 6 hours for Function 2 and (b) for up to 6 hours for Function 1 provided the associated Function maintains RCIC initiation capability.

SURVEILLANCE		FREQUENCY
SR 3.3.5.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.5.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.5.2.3	Perform CHANNEL CALIBRATION.	24 months[(a)]
SR 3.3.5.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

[(a)] The FREQUENCY of 24 months for Surveillance Requirement SR 3.3.5.2.3 Table 3.3.5.2-1 Functions 1 & 2 may be extended an additional 37 days, but not later than May 18, 2009.

SURVEILLANCE REQUIREMENTS

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1. Refer to Table 3.3.6.1-1 to determine which SRs apply for each Primary Containment Isolation Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains isolation capability.

	SURVEILLANCE	FREQUENCY
SR 3.3.6.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.6.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.6.1.4	Perform CHANNEL CALIBRATION.	122 days
SR 3.3.6.1.5	Perform CHANNEL CALIBRATION.	24 months[(a)]
SR 3.3.6.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

[(a)] The FREQUENCY of 24 months for Surveillance Requirement SR 3.3.6.1.5 Table 3.3.6.1-1 Functions 1.a, 2.a, 5.h, & 6.b may be extended an additional 37 days, but not later than May 18, 2009.

SURVEILLANCE REQUIREMENTS

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1. Refer to Table 3.3.6.2-1 to determine which SRs apply for each Secondary Containment Isolation Function.

2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains secondary containment isolation capability.

3. For Functions 3 and 4, when a channel is placed in an inoperable status solely for performance of a CHANNEL CALIBRATION or maintenance, entry into associated Conditions and Required Actions may be delayed for up to 24 hours provided the downscale trip of the inoperable channel is placed in the tripped condition.

SURVEILLANCE		FREQUENCY
SR 3.3.6.2.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.6.2.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.6.2.3	Perform CHANNEL CALIBRATION.	24 months[(a)]
SR 3.3.6.2.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

(a) The FREQUENCY of 24 months for Surveillance Requirement SR 3.3.6.2.3 Table 3.3.6.2-1 Function 1 may be extended an additional 37 days, but not later than May 18, 2009.

SURVEILLANCE REQUIREMENTS

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1. Refer to Table 3.3.7.1-1 to determine which SRs apply for each CREV Function.
2. When a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains CREV initiation capability.
3. For Functions 3 and 4, when a channel is placed in an inoperable status solely for the performance of a CHANNEL CALIBRATION or maintenance, entry into the associated Conditions and Required Actions may be delayed for up to 24 hours provided the downscale trip of the inoperable channel is placed in the trip condition.

SURVEILLANCE		FREQUENCY
SR 3.3.7.1.1	Perform CHANNEL CHECK.	24 hours
SR 3.3.7.1.2	Perform CHANNEL FUNCTIONAL TEST.	92 days
SR 3.3.7.1.3	Perform CHANNEL CALIBRATION.	92 days
SR 3.3.7.1.4	Perform LOGIC SYSTEM FUNCTIONAL TEST.	184 days
SR 3.3.7.1.5	Perform CHANNEL CALIBRATION.	24 months[(a)]
SR 3.3.7.1.6	Perform LOGIC SYSTEM FUNCTIONAL TEST.	24 months

(a) The FREQUENCY of 24 months for Surveillance Requirement SR 3.3.7.1.5 Table 3.3.7.1-1 Function 1 may be extended an additional 37 days, but not later than May 18, 2009.