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August 6, 2021

L-PI-21-016
10 CFR 50.90

ATTN: Document Control Desk
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

Prairie Island Nuclear Generating Plant, Units 1 and 2
Docket Nos. 50-282 and 50-306
Renewed Facility Operating License Nos. DPR-42 and DPR-60

Application for License Amendment to Implement 24-Month Operating Cycle

References:

1. Technical Specification Task Force (TSTF) Improved Standard Technical Specification Traveler TSTF-299, Revision 0, "Administrative Controls Program 5.5.2.b Test Interval and Exception," dated November 12, 1998 (ML040620202)

2. NRC Generic Letter (GL) 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991 (ML013100215)

Pursuant to 10 CFR 50.90, Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), is submitting a request for approval for changes to the Prairie Island Nuclear Generating Plant (PINGP) licensing basis to implement a 24-month operating cycle for PINGP Units 1 and 2 and corresponding changes to the PINGP Technical Specifications (TS). The corresponding TS changes in support of the change in the maximum surveillance intervals from 24 months to 30 months includes a change to one TS Allowable Value and changes to TS 5.5.2 and TS 5.5.17. The proposed change to TS 5.5.2 will implement TSTF-299 (Reference 1), which clarifies the intent of refueling cycle intervals with respect to the system leak test requirements to 24 months plus the allowance of TS Surveillance Requirement (SR) 3.0.2. The proposed change to TS 5.5.17 documents the use of NRC GL 91-04 (Reference 2) to increase the SR intervals in lieu of the TS program.

Enclosure 1 provides a description and assessment of the proposed changes. Attachment 1 to Enclosure 1 provides the existing TS pages marked up to show the proposed changes. Attachment 2 to Enclosure 1 provides revised (clean) TS pages. Enclosure 2 provides an evaluation in accordance with the guidance of NRC Generic Letter 91-04. Table 1 of Enclosure 2 describes the instrumentation to which the proposed change applies. Enclosure 3 provides a summary of the PINGP engineering guidance for instrument drift analysis.

Approval of the proposed amendment is requested by August 22, 2022, in support of the Unit 2 refueling outage scheduled to begin in October of 2022. Once approved, the amendment shall be implemented within 30 days.

In accordance with 10 CFR 50.91(b)(1), a copy of this application, with the enclosures, is being provided to the designated Minnesota Official.

Please contact Mr. Jeff Kivi at (612) 330-5788 or Jeffrey.L.Kivi@xcelenergy.com if there are any questions or if additional information is needed.

Summary of Commitments

This letter makes no new commitments and no revisions to existing commitments.

I declare under penalty of perjury, that the foregoing is true and correct.
Executed on August 6, 2021.

Christopher P. Domingos
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company – Minnesota

Enclosures (3)

cc: Administrator, Region III, USNRC
Project Manager, Prairie Island, USNRC
Resident Inspector, Prairie Island, USNRC
State of Minnesota

ENCLOSURE 1

PRAIRIE ISLAND NUCLEAR GENERATING PLANT

License Amendment Request

Application for License Amendment to Implement 24-Month Operating Cycle

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ATTACHMENTS

1. TECHNICAL SPECIFICATIONS PAGES (Markup)
2. TECHNICAL SPECIFICATIONS PAGES (Clean Pages)

License Amendment Request

Application for License Amendment to Implement 24-Month Operating Cycle

1.0 SUMMARY DESCRIPTION

Pursuant to 10 CFR 50.90, Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter “NSPM”), is submitting a request for approval for changes to the Prairie Island Nuclear Generating Plant (PINGP) licensing basis to implement a 24-month operating cycle for PINGP Units 1 and 2 and corresponding changes to the PINGP Technical Specifications (TS). The corresponding TS changes in support of the change in the maximum surveillance intervals from 24 months to 30 months includes a change to one TS Allowable Value and changes to TS 5.5.2 and TS 5.5.17. The proposed change to TS 5.5.2 will implement TSTF-299 (Reference 1), which clarifies the intent of refueling cycle intervals with respect to the system leak test requirements to 24 months plus the allowance of TS Surveillance Requirement (SR) 3.0.2. The proposed change to TS 5.5.17 documents the use of NRC GL 91-04 (Reference 2) to increase the SR intervals in lieu of the TS program.

2.0 BACKGROUND

In 2002, PINGP Units 1 and 2 license amendments 158 and 149 (Reference 2) adopted improved standard TS (ITS). Although it was the intent of the ITS conversion LAR to include a 24-month fuel cycle extension, not all evaluations to justify moving the Frequencies to 24 months were completed. Therefore, NSPM justified the extension of these TS SR Frequencies to a maximum of 24 months in the ITS conversion LAR submittals and proposed a restriction within TS SR 3.0.2 on the 1.25 Frequency extension (referred to as grace) to all 24-month Frequencies. Any exceptions to the restriction were technically justified and noted in the individual SR’s Frequency.

With the adoption of TS Task Force Traveler TSTF-425 in 2019 (Reference 3), TS SR 3.0.2 was updated to align with the NUREG-1431 TS SR 3.0.2 and removed the restriction from TS SR 3.0.2. The restriction was relocated with the specific 24-month Frequencies under the surveillance frequency control program (SFCP) defined by TS. The limitation on grace was relocated from TS SR 3.0.2 to the Surveillance Test Interval (STI) document. Thus, at this time, the PINGP STI states, “Unless noted otherwise, TS SR 3.0.2 does not apply to the SRs in Table 2.1 that have a Frequency of 24 months.”

3.0 DETAILED DESCRIPTION

3.1 Surveillance Interval Changes for 24-Month Fuel Cycle

The following SRs with 24-month intervals in the PI STI have limitations on application of grace and will be revised to allow grace of up to six months or 30 months total:

TS 3.3.1, Reactor Trip System (RTS) Instrumentation

SR 3.3.1.10	Perform CHANNEL CALIBRATION
SR 3.3.1.11	Perform CHANNEL CALIBRATION
SR 3.3.1.12	Perform CHANNEL CALIBRATION
SR 3.3.1.13	Perform COT
SR 3.3.1.14	Perform TADOT

TS 3.3.2, Engineered Safety Feature Actuation System (ESFAS) Instrumentation

SR 3.3.2.6	Perform CHANNEL CALIBRATION
SR 3.3.2.7	Perform MASTER RELAY TEST

TS 3.3.3, Event Monitoring (EM) Instrumentation

SR 3.3.3.2	Perform CHANNEL CALIBRATION

TS 3.3.6, Control Room Special Ventilation System (CRSVS) Actuation Instrumentation

SR 3.3.6.3	Perform TADOT
SR 3.3.6.4	Perform CHANNEL CALIBRATION

TS 3.4.1, RCS Pressure, Temperature, and Flow – Departure from Nucleate Boiling (DNB) Limit

SR 3.4.1.3	Verify RCS total flow rate is within the limit specified in the COLR

TS 3.4.9, Pressurizer

SR 3.4.9.2	Verify capacity of each required group of pressurizer heaters is ≥ 100 kW
SR 3.4.9.3	Verify required pressurizer heaters are capable of being powered from an emergency power supply

TS 3.4.11, Pressurizer Power Operated Relief Valves (PORVs)

SR 3.4.11.2	Perform a complete cycle of each Power Operated Relief Valve (PORV)

TS 3.4.12, Low Temperature Overpressure Protection (LTOP) – Reactor Coolant System Cold Leg Temperature (RCSPT) > Safety Injection (SI) Pump Disable Temperature

SR 3.4.12.5	Perform CHANNEL CALIBRATION for each OPPS actuation channel

TS 3.4.13, Low Temperature Overpressure Protection (LTOP) – Reactor Coolant System Cold Leg Temperature (RCSPT) ≤ Safety Injection (SI) Pump Disable Temperature

SR 3.4.13.6	Perform CHANNEL CALIBRATION for each OPPS actuation channel

TS 3.4.16, RCS Leakage Detection Instrumentation

SR 3.4.16.3	Perform CHANNEL CALIBRATION of the required containment sump monitor
SR 3.4.16.4	Perform CHANNEL CALIBRATION of the required containment radionuclide monitor

TS 3.5.2, ECCS - Operating

SR 3.5.2.9	Verify each ECCS throttle valve listed in SR 3.5.2.9 is in the correct position
SR 3.5.2.10	Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet strainers show no evidence of structural distress or abnormal corrosion

TS 3.6.5, Containment Spray and Cooling Systems

SR 3.6.5.4	Verify cooling water flow rate to each containment fan coil unit is ≥ 900 gpm

TS 3.6.8, Vacuum Breaker System

SR 3.6.8.2	Perform CHANNEL CALIBRATION

TS 3.7.3, Main Feedwater Regulation Valves (MFRVs) and MFRV Bypass Valves

SR 3.7.3.2	Verify each Main Feedwater Regulation Valve (MFRV) and MFRV bypass valve actuates to the isolation position on an actual or simulated actuation signal

TS 3.7.4, Steam Generator (SG) Power Operated Relief Valves (PORVs)

SR 3.7.4.2 Verify one complete manual cycle of each SG PORV block valve

TS 3.7.10, Control Room Special Ventilation System (CRSVS)

SR 3.7.10.4 Verify each CRSVS train in the Emergency Mode delivers 3600 to 4400 cfm through the associated CRSVS filters

TS 3.8.1, AC Sources - Operating

SR 3.8.1.11 Verify on an actual or simulated loss of offsite power that the DG auto-starts from standby condition

TS 3.9.3, Nuclear Instrumentation

SR 3.9.3.2 Perform CHANNEL CALIBRATION of required channels

3.2 TS Allowable Values

In accordance with the guidance of Generic Letter 91-04, for calibration interval extensions, a comparison of the projected drift errors over the extended calibration interval was made with the values of drift used in the setpoint evaluations. The setpoint evaluations conducted in support of the proposed change in the maximum surveillance interval identified one TS Allowable Value that needs to be changed. No change to the safety analysis (i.e., analytical limit or other design basis assumption) is required to support the Allowable Value change. The following Allowable Value is proposed to change in support of a maximum surveillance interval of 30 months:

TS Table 3.3.2-1 Function 1e, Safety Injection – Steam Line Low Pressure

The Allowable Value is revised from ≥ 500 psig to ≥ 505 psig.

3.3 TS 5.5 Programs and Manuals

The following TS 5.5 program changes are requested in support of the amendment.

TS 5.5.2, Primary Coolant Sources Outside Containment

The program shall include the following:

b. Integrated leak test requirements for each system at refueling cycle intervals or less.

TS 5.5.2 refers to, "…refueling cycle intervals or less." Therefore, NSPM proposes to adopt TSTF-299 (Reference 4) to change TS 5.5.2 to clarify that the interval is 24 months and that SR 3.0.2 is applicable to TS 5.5.2.

TS 5.5.17, Surveillance Frequency Control Program (SFCP)

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

The SRs that are within the scope of this request are all in the PINGP STI which is governed by TS 5.5.17, thus, this proposed amendment to allow for longer surveillance intervals using the deterministic methods of Generic Letter 91-04 is addressed in TS 5.5.17 as an exception to use of the SFCP.

3.4 Reason for the Proposed Changes

The proposed change applies to SRs that are in the PINGP STI with Frequency of 24 months where allowance of TS SR 3.0.2 may not be applied. That is, for the applicable SRs the current maximum surveillance interval is 24 months, which limits the scheduling of refueling outages to minimize their impact on peak summer generation.

3.5 Description of the Proposed TS Changes

The proposed changes to PINGP TS are shown below with deletions struck through and additions underlined.

TS 3.3.2, Table 3.3.2-1, Function 1e, Safety Injection – Steam Line Low Pressure.

Allowable Value
≥ ~~500~~ <u>505</u>[(b)] psig

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practical. The systems include portions of the Residual Heat Removal and Safety Injection Systems. The program shall include the following:

a. Preventive maintenance and periodic visual inspection requirements; and

b. Integrated leak test requirements for each system at ~~refueling cycle intervals or less~~ least once per 24 months.

The provisions of SR 3.0.2 are applicable.

5.5.17 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, “Risk-Informed Method for Control of Surveillance Frequencies,” Revision 1.

c. The 24-Month Fuel Cycle related Surveillance Requirement Frequency changes approved by the NRC in Units 1 and 2 License Amendments XXX/YYY were not subject to provision b. Subsequent changes are subject to the Surveillance Frequency Control Program.

~~c~~d. The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

4.0 TECHNICAL EVALUATION

4.1 Generic Letter 91-04 Change Evaluation

NRC GL 91-04 provides generic guidance for evaluating SR interval changes to accommodate a 24-month fuel cycle for two broad SR classifications:

- Non-Calibration SRs
- Calibration SRs

Applying the standard TS SR 3.0.2 allowance to extend a SR interval to 1.25 times the interval, the GL 91-04 guidance changes the maximum SR interval to 30 months (24 months times 1.25).

NSPM used this guidance to evaluate extending the maximum surveillance interval from 24 months to 30 months. NSPM further broke down the evaluation of Calibration SRs into those with setpoints and TS Allowable Values and those without setpoints and TS Allowable Values.

GL-91-04 defines three evaluation steps for Non-Calibration SR interval changes, and seven steps are defined for calibration SR interval changes. This section describes the approach used by NSPM to address these steps for each proposed SR with 24-month frequency to which NSPM proposes an allowance for grace of 1.25 on the SR frequency. The approach taken by NSPM is consistent with that used to support previous 24-month fuel cycle license amendments including Fermi and Robinson.

Historical SR test data and associated maintenance records were reviewed for both Non-Calibration and Calibration changes to evaluate whether there is any adverse effect on safety. The licensing basis (Updated Safety Analysis Report and commitments) was reviewed for functions associated with the subject SR intervals.

The impact of instrument drift was evaluated for the proposed calibration SR interval changes. As a result of the drift evaluation, PINGP instrumentation setpoint and uncertainty calculations will be revised, as necessary, to reflect the proposed calibration SR interval changes. The evaluation also resulted in one proposed change to a TS Allowable Value. Further, calibration information is affected for some instrumentation. The affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs with 24-month frequency.

The results of Non-Calibration and Calibration change reviews support the conclusion that the effect on plant safety associated with the proposed allowance for a maximum surveillance interval of 1.25 times the Frequency for SRs with a frequency of 24 months and increase the maximum interval to 30 months, if any, is small.

4.2 Variations from NRC Generic Letter 91-04

NSPM has two variations from the typical NRC GL 91-04 submittal. The first variation relates to the presumed fuel cycle length and the second variation relates to which SRs Frequencies will be changed by the proposed amendment. These variations did not affect the evaluation of the proposed change.

Variation 1. NRC GL 91-04 presumes that plants are changing from an 18-month to a 24-month Frequency. With the inclusion of TS SR 3.0.2 allowance for a maximum surveillance interval of 1.25 times the Frequency, GL 91-04 typically evaluates a maximum interval change from 22.5 months (18 months plus 4.5 months grace) to 30 months (24 months plus 6 months grace). The change for PINGP will be from 24-month intervals (no grace allowed) to 30 months (24 months plus 6 months grace).

Variation 2. The limitation on applying TS SR 3.0.2 grace applies only to SRs in the PINGP STI with a Frequency of 24 months. SRs with a Frequency of 24 months that are in the TS, but not in the STI, are already allowed grace by TS SR 3.0.2 as the limitation on grace was relocated to the PINGP STI document as part of the TSTF-425 license amendment (Reference 3). SRs in the STI with Frequency other than 24 months have no limitation on applying TS SR 3.0.2.

4.3 Non-Calibration Changes

GL 91-04 identifies three steps to evaluate Non-Calibration changes:

STEP 1: Licensees should evaluate the effect on safety of an increase in 18-month surveillance intervals to accommodate a 24-month fuel cycle. This evaluation should support a conclusion that the effect on safety is small.

EVALUATION

Each proposed Non-Calibration SR interval change has been evaluated with respect to the effect on plant safety. The methodology utilized to justify the conclusion that changing the SR interval to allow a grace of 1.25 for SRs with 24-month frequency has a minimal effect on safety, is based on whether the associated function/feature is:

1. Tested on a more frequent basis during the operating cycle by other plant programs;
2. Designed to have redundant counterparts or be single failure proof; or
3. Highly reliable.

A summary of the evaluation of the effect on safety for each proposed Non-Calibration SR interval change is presented in Enclosure 2.

STEP 2: Licensees should confirm that historical plant maintenance and surveillance data support this conclusion.

EVALUATION

The SR test history of the affected SRs has been evaluated. This evaluation consisted of a review of available SR test results and associated maintenance records going back to at least 2010 and back to 1999 in some cases. With the allowance of using grace of 1.25 times the interval for SRs with frequency of 24 months, there will be a longer period between each SR performance. If a failure that results in the loss of the associated safety function should occur during the operating cycle, and would only be detected by the performance of the 24-month TS SR without allowance for grace, then the increase in the SR testing interval could reduce the associated function availability. In addition to evaluating these SR failures, potential common failures of similar components tested by different SRs were also evaluated. This additional evaluation determined whether there is evidence of repetitive failures among similar plant components. These common component failures have been further evaluated to determine if there was an impact on plant reliability.

The evaluation documented in Enclosure 2 determined that current plant programs are adequate to ensure system reliability. SR failures that are discussed in Enclosure 2 exclude failures that:

1. Did not impact a TS safety function or TS operability;
2. Are detectable by required testing performed more frequently than the SR being extended; or
3. The cause can be attributed to an associated event such as a preventative maintenance task, human error, previous modification, or previously existing design deficiency; or that were subsequently re-performed successfully with no intervening corrective maintenance (e.g., plant conditions or malfunctioning measurement and test equipment may have caused aborting the test performance).

These types of failures are not related to potential unavailability due to SR interval extension and were therefore not further evaluated. This review of SR test history validates the conclusion that the impact, if any, on system availability will be minimal as a result of the change to allow applying grace to SRs with a 24-month SR interval. Specific SR test failures and justification for this conclusion are discussed in Enclosure 2.

STEP 3: Licensees should confirm that assumptions in the plant licensing basis would not be invalidated on the basis of performing any surveillance at the bounding SR interval limit provided to accommodate a 24-month fuel cycle.

EVALUATION

The impact of the proposed SR changes was reviewed to confirm that assumptions in the plant licensing basis would not be invalidated. In general, SR intervals are not discussed in the descriptions of functions in the plant licensing basis. A review of the PINGP Updated Safety Analysis (USAR) and PINGP commitments identified that no assumptions in the plant licensing basis that would be invalidated by the proposed bounding SR interval changes. Any necessary conforming changes will be made during implementation of the license amendment as required by 10 CFR 50.71(e), or permitted by 10 CFR 50.59.

If the proposed SR interval changes were to lead to degrading performance, NSPM would address such degradation as a routine part of Maintenance Rule Program evaluations or, in some cases, evaluations conducted under the surveillance frequency control program (SFCP). Systems and functions included in the scope of the Maintenance Rule are monitored under the Maintenance Rule program. Component and/or train level monitoring is required for high risk SSCs associated with surveillance frequencies that have been extended using the SFCP. If component and/or train monitoring is not already performed as part of the Maintenance Rule performance monitoring for SSCs affected by a SFCP surveillance frequency change, additional monitoring is required under the NSPM SFCP.

GL 91-04 states that licensees need not quantify the effect of the change in surveillance intervals on the availability of individual systems or components.

The proposed changes increase the bounding SR interval limit from 24 to 30 months (a maximum of 30 months including the 25% extension afforded by TS SR 3.0.2 where applicable) for the non-calibration SRs evaluated in Enclosure 2. The evaluations provided for each of these changes support the conclusion that: the effect of these changes on plant safety, if any is small; that the changes do not invalidate any assumption in the plant licensing basis; and that the impact, if any, on system availability is minimal. The surveillance failure analysis review of the Prairie Island Units 1 and 2 SR performance history that supports this conclusion is summarized for each SR in Enclosure 2.

4.4 Calibration Changes

GL 91-04 identifies seven steps for the evaluation of instrumentation Calibration changes.

STEP 1: Confirm that instrument drift as determined by as-found and as-left calibration data from surveillance and maintenance records has not, except on rare occasions, exceeded acceptable limits for a calibration interval.

EVALUATION

Historically, As-Found tolerances used in Surveillance Procedures at Prairie Island have been based on instrument accuracy. As required by plant procedures, out of tolerance conditions detected during performance of Surveillance Procedures are entered into the Corrective Action Program (CAP) for evaluation and trending. This ensures identification of occurrences of instruments found outside of their Allowable Value and instruments whose performance is not as anticipated by the setpoint analysis. When an instrument under surveillance is found to have exceeded the As-Found tolerance (i.e., acceptable limits) provided in the Surveillance Procedures, a CAP report is initiated and referenced/attached to the Work Order and an operability analysis is performed to determine if the out of tolerance condition has challenged the operability of the loop.

The difference between As-Found and As-Left data collected during performance of surveillance procedures represents the combined effects of instrument reference accuracy, calibration error, time dependent error and normal radiation effects. Statistical analysis was performed for all instruments which perform a SR function on the As-Found and As-Left data from surveillance procedures to determine a statistical drift value that is representative of data collected since 1999 or since when the instrument was replaced. The statistically determined drift was extrapolated for a surveillance interval of 30 months (24 months plus 25%).

A Summary Technical Specification Trip Setpoint Calculation was developed using the 30-month extrapolated drift values to determine the impact on loop uncertainty, Nominal Trip Setpoint and Allowable Value for all instrumentation providing Safety Related functions. Results of the Summary Technical Specification Trip Setpoint Calculation demonstrated whether or not existing Allowable Value and Nominal Trip Setpoint are conservative assuming a 30-month surveillance interval. The Summary Technical Specification Trip Setpoint Calculation also assessed the availability of margin between the actual plant setting and Nominal Trip Setpoint as well as ensuring that the existing as-found setting tolerance specified in Surveillance Procedures does not challenge the Allowable Value from Technical Specifications. The Summary Technical Specification Trip Setpoint Calculation identified one instance where the Allowable Value will need to be revised to support an extension of the surveillance interval to 30 months.

STEP 2: Confirm that the values of drift for each instrument type (make, model, and range) and application have been determined with a high probability and a high degree of confidence. Provide a summary of the methodology and assumptions used to determine the rate of instrument drift with time based upon historical plant calibration data.

EVALUATION

A listing of the lead instrument make, model, and range affected by this submittal is provided in Table 1 of Enclosure 2. The effect of longer calibration intervals on the TS instrumentation was evaluated by performing an instrument drift study. In performing the drift study, the recorded channel calibration data for associated instruments was obtained from records going back to at least 2010 and back to 1999 in some cases. This historical calibration data was analyzed to determine a statistically valid representation of instrument drift.

The methodology used to perform the drift analysis is consistent with the methodology utilized by other utilities requesting transition to a 24-month fuel cycle. The PINGP methodology is based on EPRI TR-103335, Revision 2, "Guidelines for Instrument Calibration Extension/Reduction Programs." A summary of the methodology is provided in Enclosure 3.

STEP 3: Confirm that the magnitude of instrument drift has been determined with a high probability and a high degree of confidence for a bounding calibration interval of 30 months for each instrument type (make, model number, and range) and application that performs a safety function. Provide a list of the channels by TS section that identifies these instrument applications.

EVALUATION

In accordance with the methodology described in Enclosure 3, the magnitude of instrument drift has been determined with a high probability and a high degree of confidence (typically 95/95) for a bounding calibration interval of 30 months for each instrument make, model, and range. For instruments not in service long enough to establish a projected drift value, or where an insufficient number of calibrations have been performed to utilize the statistical methods (i.e., fewer than 30 calibrations for any given group of instruments), the proposed allowance to apply 1.25 grace to SRs with frequency of 24 months is based on justification obtained from analysis using the method presented in Enclosure 3. The list of affected channels by TS section, including instrument make, model, and range, is provided in Table 1 of Enclosure 2.

STEP 4: Confirm that a comparison of the projected instrument drift errors has been made with the values of drift used in the setpoint analysis. If this results in revised setpoints to accommodate larger drift errors, provide proposed TS changes to update trip setpoints. If the drift errors result in revised safety analysis to support existing setpoints, provide a summary of the updated analysis conclusions to confirm that safety limits and safety analysis assumptions are not exceeded.

EVALUATION

The projected 30-month drift values were compared to the design allowances as calculated in the associated instrument setpoint analyses documented in a Summary Technical Specification Trip Setpoint Calculation. The Summary Technical Specification Trip Setpoint Calculation identified one instance where the Allowable Value will need to be revised to support an extension of the surveillance interval to a maximum of 30 months including the 25% extension afforded by TS SR 3.0.2 where applicable.

The individual setpoint calculations will be revised using the PINGP setpoint methodology. The affected calibration surveillance procedures will be revised as part of implementation, prior to implementing the allowance to apply grace of 1.25 to SRs with frequency of 24 months.

STEP 5: Confirm that the projected instrument errors caused by drift are acceptable for control of plant parameters to effect a safe shutdown with the associated instrumentation.

EVALUATION

Enclosure 2 discusses the evaluation of impact of drift on instrument setpoint and uncertainty calculations associated with allowing a grace of 1.25 to SRs with frequency of 24 months. This evaluation includes instrumentation used for safe shutdown. The revised setpoint and uncertainty calculations change calibration information if needed to accommodate allowing a grace of 1.25 to SRs with frequency of 24 months. The changes in calibration information provide assurance that the instrumentation will perform with the required accuracy to effect a safe shutdown. The calibration information is implemented through plant calibration procedures. The affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months.

STEP 6: Confirm that all conditions and assumptions of the setpoint and safety analyses have been checked and are appropriately reflected in the acceptance criteria of plant SR procedures for channel checks, channel functional tests, and channel calibrations.

EVALUATION

As discussed above, the revised setpoint and uncertainty calculations will result in changes to calibration information which are implemented through plant calibration procedures. The affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months. Existing plant processes ensure that the conditions and assumptions of the setpoint and safety analyses have been checked and are appropriately reflected in the acceptance criteria of plant surveillance procedures for channel checks, channel functional tests and channel calibrations.

STEP 7: Provide a summary description of the program for monitoring and assessing the effects of increased calibration surveillance intervals on instrument drift and its effect on safety.

EVALUATION

Instruments with TS calibration SR intervals of up to 30 months will be monitored and trended in accordance with station procedures including recording of as-found and as-left calibration data. As required by plant procedures, out of tolerance conditions are entered into the corrective action program and are evaluated and trended. This approach will identify occurrences of instruments found outside of their allowable value and instruments whose performance is not as assumed in the drift or setpoint analysis. When the as found conditions are outside the As-Found tolerance (i.e., acceptable limits), an evaluation will be performed in accordance with the station corrective action program to evaluate the effect, if any, on plant safety.

4.5 Allowable Value Changes

The supporting setpoint evaluations were developed in accordance with PINGP instrument setpoint and drift analysis methodologies, which are based, in part, upon Regulatory Guide (RG) 1.105, Revision 2, and Instrument Society of America (ISA) Standard 67.04-1988. Additional discussion is provided in 5.1.3, below.

These evaluations assessed the instrument uncertainties, setpoint, and allowable value for the affected function. The allowable values were determined in a manner suitable to establish limits for their application. As such, the revised allowable values ensure that sufficient margins are maintained in the applicable safety analyses to confirm the affected instruments are capable of performing their intended design function.

4.6 TSTF-299

NSPM has reviewed TSTF-299 (Reference 4) with regard to PINGP Units 1 and 2 and concluded that implementation would continue to provide adequate safety because the change is administrative in nature. In Reference 5, the NRC acknowledged their approval of TSTF-299, Revision 0, which is applicable to NUREG-1431. The revised wording is a voluntary administrative change to the TS that does not alter the design basis of the plant.

The revised TS 5.5.2.b will require system leak testing at least once per 24 months. However, a refueling cycle interval may be longer than 24 months. Incorporating the allowance to apply a 25 percent frequency extension, as provided in SR 3.0.2, to the system leak test requirements allows flexibility in scheduling that is inherent in the current requirement of “at refueling cycle intervals or less.” The applicability of SR 3.0.2 must be explicitly stated in TS 5.5.2.

The fixed testing frequency of “at least once every 24 months” is more precise than the current frequency of “at refueling cycle intervals or less” and is consistent with similar requirements in the PINGP TS and the Standard Technical Specifications. Adopting this more precise terminology is a clarification of the test frequency that matches the proposed changes in this license amendment request. The proposed TS change implementing TSTF-299 is administrative in nature.

Extending the test frequency by 25 percent is consistent with the test extension permitted in the Standard Technical Specifications. The 25 percent test frequency extension provides flexibility that supports consistent scheduling of refueling outages.

5.0 REGULATORY EVALUATION

The proposed change involves allowance of a grace of 1.25 on the frequency of SRs with a frequency of 24 months. The proposed changes are based on the guidance provided by NRC GL 91-04, Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle, dated April 2, 1991 (ML013100215). The guidance provided by GL 91-04 has been used as the basis for all 24-month fuel cycle SR interval license amendments requested and approved since April 2, 1991.

NSPM has evaluated the proposed change and supporting information provided by this submittal relative to the GL 91-04 guidance. NSPM has concluded the proposed change and supporting information are consistent with and satisfy the guidance provided by GL 91-04.

NSPM has further evaluated the proposed allowable value change to determine whether applicable regulations and requirements continue to be met.

In addition, NSPM has evaluated the proposed change with respect to the applicable regulatory requirements discussed below. NSPM has concluded that the proposed change does not impact conformance with regulatory requirements.

5.1 Applicable Regulatory Requirements/Criteria

5.1.1 10 CFR 50.36

10 CFR 50.36, Technical Specifications, defines the content required in licensee TS. Specifically, 10 CFR 50.36(c)(3) requires that the TS include SR requirements relating to test, calibration, or inspection to assure that the necessary quality of systems and components is maintained, that facility operation will be within safety limits, and that the limiting conditions for operation will be met. The proposed changes will allow the application of grace of 1.25 (consistent with PINGP TS SR 3.0.2) to SRs with a frequency of 24 months. No SRs are eliminated by the proposed changes. The proposed changes have been evaluated using the guidance provided by GL 91-04. Based on this evaluation, the proposed SR interval changes continue to support compliance 10 CFR 50.36(c)(3).

5.1.2 Principal Design Criteria

PINGP was not licensed to the 10 CFR 50, Appendix A, General Design Criteria (GDC) and was designed and constructed to comply with NSPM's understanding of the intent of the AEC General Design Criteria for Nuclear Power Plant Construction Permits, as proposed on July 10, 1967. Since the construction of the plant was significantly completed prior to the issuance of the February 20, 1971, 10CFR50, Appendix A GDC, the plant was not reanalyzed and the Final Safety Analysis Report (FSAR) was not revised to reflect these later criteria. However, the AEC Safety Evaluation Report acknowledged that the AEC staff assessed the plant, as described in the FSAR, against the Appendix A design criteria and "... are satisfied that the plant design generally conforms to the intent of these criteria."

Criterion 19, Protection Systems Reliability
Protection systems shall be designed for high functional reliability and in-service testability commensurate with the safety functions to be performed.

The proposed changes to SR intervals have no impact on the physical configuration, design, function, or capability to test protection systems. Therefore, PINGP conformance to Criterion 19 is unaffected by the proposed changes.

Criterion 38, Reliability and Testability of Engineered Safety Features
All engineered safety features shall be designed to provide high functional reliability and ready testability. In determining the suitability of a facility for proposed site, the degree

of reliance upon and acceptance of the inherent and engineered safety afforded by the systems, including engineered safety features, will be influenced by the known and the demonstrated performance capability and reliability of the systems, and by the extent to which the operability of such systems can be tested and inspected where appropriate during the life of the plant.

The proposed changes to SR intervals have no impact on the physical configuration, design, function, or capability to test engineered safety features. Therefore, PINGP conformance to Criterion 38 is unaffected by the proposed changes.

<u>Criterion 39, Emergency Power for Engineered Safety Features</u>
Alternate power systems shall be provided and designed with adequate independency, redundancy, capacity, and testability to permit the functioning required of the engineered safety features. As a minimum, the onsite power system and the offsite power system shall each, independently, provide this capacity assuming a failure of a single active component in each power system.

The proposed changes to SR intervals have no impact on the physical configuration, design, function, or capability to test emergency power systems. Therefore, PINGP conformance to Criterion 39 is unaffected by the proposed changes.

5.1.3 Codes and Standards

The new allowable value has been determined in accordance with the guidance provided in the PINGP drift analysis and setpoint methodologies, which are based, in part, upon RG 1.105, Revision 2, and ISA 67.04-1988. The use of RG 1.105, Revision 2, and ISA 67.04-1988 (referred to as ISA 67.04-1987) was addressed in detail in the PINGP ITS submittal and the NRC safety evaluation for the associated amendments. (Reference 2)

These evaluations determine the instrument uncertainties, setpoints, and allowable values for the affected functions. The allowable values have been determined in a manner suitable to establish limits for their application. As such, the revised allowable value ensures that sufficient margins are maintained in the applicable safety analyses to confirm the affected instrument is capable of performing its intended design function. NSPM has determined that the proposed change does not require any exemptions or relief from regulatory requirements, other than the TS.

5.2 Precedents

NRC GL 91-04 provides generic guidance for evaluating SR interval changes from 18 to 24 months. GL 91-04 identifies specific considerations to be addressed in applications to extend SR intervals to 24 months (including grace of up to 1.25 times the interval or 30 months). The methodology and approach taken by NSPM in addressing the GL 91-04 considerations is consistent with that used to support previous similar license amendments. Recent precedents include:

- Fermi 2, Amendment No. 218, dated February 24, 2021 (ML20358A155)
- Robinson 2, Amendment No. 258, dated May 25, 2018 (ML18115A150)

TSTF-299 (Reference 4) provides for clarifying and adding flexibility to the testing requirements in TS 5.5.2.b. Reference 5 documents the NRC approval of TSTF-299. A recent precedent for adopting TSTF-299 is Browns Ferry Units 1, 2, and 3 Amendment Nos. 301, 325, and 285, dated November 8, 2017 (ML17277A207).

5.3 No Significant Hazard Consideration Analysis

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter "NSPM"), is submitting a request for approval for a change to the Prairie Island Nuclear Generating Plant (PINGP) licensing basis to implement a 24-month fuel cycle for PINGP Units 1 and 2. The proposed Technical Specifications (TS) change supports removing the restriction against applying the grace of TS Surveillance Requirement (SR) 3.0.2 to SRs in the PINGP Surveillance Test Interval (STI) document that have a Frequency of 24 months by utilizing the approach contained within Generic Letter 91-04 in lieu of the approach allowed by TS 5.5.17. In effect, this changes the maximum surveillance interval for this set of SRs from 24 months to 30 months. As a result of the analysis supporting the change, one change to a TS Allowable Value was identified.

The proposed TSTF-299, "Administrative Controls Program 5.5.2.b Test Interval and Exception," administrative change revises TS 5.5.2, "Primary Coolant Sources Outside Containment," to clarify the intent of refueling cycle intervals to be 24 months with the ability to apply the 25 percent allowance of SR 3.0.2.

NSPM 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 proposed change supports removing the restriction against applying the grace of TS SR 3.0.2 to SRs in the PINGP STI that have a Frequency of 24 months and changes the maximum surveillance interval for this set of SRs from 24 months to 30 months. The proposed change does not physically alter the plant or its operation. The changes in calibration tolerances assure that the instrumentation continues to function as assumed in the accident analyses. The proposed change does not degrade the performance of, or increase the challenges to, any safety systems assumed to function in the accident analysis. The proposed change does not impact the usefulness of the SR and testing requirements in evaluating the operability of required systems and components, or the way in which the SRs are performed. In addition, the SR intervals are not considered to be an initiator of any analyzed accident, nor do the SR interval changes introduce any new accident initiators. Therefore, the proposed change does not involve a significant increase in the probability of an accident previously evaluated.

The proposed change does not affect the performance of any equipment credited to mitigate the radiological consequences of an accident. Evaluation of the proposed change demonstrated that the availability of credited equipment is not significantly affected because of other more frequent testing that is performed, the availability of redundant systems and equipment, and the high reliability of the equipment. Historical review of SR test results and associated maintenance records did not find evidence of failures that would invalidate the above conclusions.

One change to an Allowable Value has been developed in accordance with PINGP methodologies discussed above, to ensure that the design and safety analysis limits are satisfied. The methodologies used for the development of the Allowable Value ensures the affected instrumentation remains capable of mitigating design basis events as described in the safety analyses and that the results and radiological consequences described in the safety analyses remain bounding.

The proposed change to adopt TSTF-299 affects only the interval at which system leak tests are performed, not the effectiveness of the system leak test requirements. Revising the system leak test requirements from “at refueling cycle intervals or less” to “at least once per 24 months” is considered to be an administrative change because PINGP Units 1 and 2 will operate on 24-month fuel cycles with approval of the proposed change. Incorporation of the allowance to extend the 24-month interval by 25 percent, as allowed by SR 3.0.2, does not significantly degrade the reliability that results from performing the TS 5.5.2.b leak tests at the currently specified test interval.

Test intervals are not considered as initiators of any accident previously evaluated. As a result, the probability of any accident previously evaluated is not significantly increased by the proposed change. TS 5.5.2 continues to require the performance of periodic system leak tests. Therefore, accident analysis assumptions will still be verified. As a result, the consequences of any accident previously evaluated are not significantly increased.

Therefore, the proposed change does 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 previously evaluated?

Response: No

The proposed change supports removing the restriction against applying the grace of TS SR 3.0.2 to SRs in the PINGP STI that have a Frequency of 24 months and this changes the maximum surveillance interval for this set of SRs from 24 months to 30 months. One Allowable Value is changed to support the interval increase. No analytical limits are changed. The proposed change does not physically alter the plant or its operation or result in installed equipment being operated in a different manner. The changes in calibration tolerances assure that the instrumentation continues to function as assumed in the accident analyses. The proposed change does not degrade the performance of, or increase the challenges to, any safety systems assumed to function in the accident analysis. Therefore, the proposed change does not introduce any failure mechanisms of a different type than those previously evaluated.

The proposed TSTF-299 adoption affects only the interval at which system leak tests are performed and does not alter the design or physical configuration of the plant. No changes are being made to PINGP Units 1 and 2 that would introduce any new accident causal mechanisms.

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

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

Response: No

The proposed change supports removing the restriction against applying the grace of TS SR 3.0.2 to SRs in the PINGP STI that have a Frequency of 24 months and changes the maximum surveillance interval for this set of SRs from 24 months to 30 months. The evaluation of the historical SR test data concludes the proposed SR interval changes will have little, if any, impact on system availability. Performance of other more frequent testing, the existence of redundant systems and equipment, and overall system reliability supports this conclusion. The proposed change does not physically alter the plant or the performance of functions assumed in accident analyses. Existing margin between plant operating conditions and setpoints is not affected by the proposed change. The proposed change to one TS instrumentation Allowable Value is the result of application of the NSPM setpoint methodology using plant specific drift values. The revised Allowable Value more accurately reflects total instrumentation loop accuracy including drift while continuing to protect any assumed analytical limit. The proposed change does not result in any hardware changes or in any changes to the analytical limits assumed in accident analyses. Existing operating margin between plant conditions and actual plant setpoints is not significantly reduced due to these changes. The proposed change does not significantly impact any safety analysis assumptions or results.

The proposed change to adopt TSTF-299 does not change the design or function of plant equipment and does not significantly reduce the level of assurance that any plant equipment will be available to perform its function. The proposed change provides operational flexibility without significantly affecting plant operation.

Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, NSPM concludes that the proposed change presents no 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.

5.4 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.

6.0 ENVIRONMENTAL EVALUATION

The proposed change 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 change 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 change 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 change.

7.0 REFERENCES

1. NRC Generic Letter 91-04, Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle, dated April 2, 1991. (NRC ADAMS Accession No. ML013100215)

2. Letter from the NRC to Nuclear Management Company, “Prairie Island Nuclear Generating Plant, Units 1 and 2 – Issuance of Amendments Re: Conversion to Improved Technical Specifications,” dated July 26, 2002. (NRC ADAMS Accession No. ML022070654)

3. Letter from the NRC to NSPM, “Prairie Island Nuclear Generating Plant, Units 1 and 2 – Issuance of Amendments Re: Adoption of TSTF-425, Revision 3, Relocation of

Surveillance Frequencies to Licensee Control – RITSTF Initiative 5B," (NRC ADAMS Accession No. ML19045A480)

4. Technical Specification Task Force (TSTF) Improved Standard Technical Specification Traveler TSTF-299, Revision 0, "Administrative Controls Program 5.5.2.b Test Interval and Exception," dated November 12, 1998 (ML040620202)

5. Letter from the NRC to Nuclear Energy Institute (NEI), "TSTF Status Report – October 2000," dated October 31, 2000 (ML003765449)

ENCLOSURE 1, ATTACHMENT 1

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2

License Amendment Request

Application for License Amendment to Implement 24-Month Operating Cycle

TECHNICAL SPECIFICATIONS PAGES (Markup)

(3 Pages Follow)

Table 3.3.2-1 (page 1 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Safety Injection					
a. Manual Initiation	1, 2, 3, 4	2	B	SR 3.3.2.5	NA
b. Automatic Actuation Relay Logic	1, 2, 3, 4	2 trains	C	SR 3.3.2.2 SR 3.3.2.8	NA
c. High Containment Pressure	1, 2, 3	3	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≤ 4.0 psig
d. Pressurizer Low Pressure	1, 2, 3[a]	3	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≥ 1760 psig
e. Steam Line Low Pressure	1, 2, 3[a]	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≥ ~~500~~ 505[b] psig
2. Containment Spray					
a. Manual Initiation	1, 2, 3, 4	2	B	SR 3.3.2.4	NA
b. Automatic Actuation Relay Logic	1, 2, 3, 4	2 trains	C	SR 3.3.2.2 SR 3.3.2.8	NA

(a) Pressurizer Pressure ≥ 2000 psig.
(b) Time constants used in the lead/lag controller are $t_1 \geq 12$ seconds and $t_2 \leq 2$ seconds.

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed. The date (i.e., month and year) the change was implemented shall be indicated.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practical. The systems include portions of the Residual Heat Removal and Safety Injection Systems. The program shall include the following:

a. Preventive maintenance and periodic visual inspection requirements; and

b. Integrated leak test requirements for each system at ~~refueling cycle intervals or less~~. least once per 24 months.

The provisions of SR 3.0.2 are applicable.

5.5.3 Post Accident Sampling

This program provides controls that ensure the capability to obtain and analyze reactor coolant, radioactive gases, and particulates in plant gaseous effluents and containment atmosphere samples under accident conditions. The program shall include the following:

a. Training of personnel;

b. Procedures for sampling and analysis; and

c. Provisions for maintenance of sampling and analysis equipment.

5.5 Programs and Manuals

5.5.16 Control Room Envelope Habitability Program (continued)

e. The quantitative limits on unfiltered air in-leakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered in-leakage measured by the testing described in paragraph c. The unfiltered air in-leakage limit for radiological challenges is the in-leakage flow rate assumed in the licensing basis analysis of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions of the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability and determining CRE unfiltered in-leakage as required by paragraph c.

5.5.17 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The 24-Month Fuel Cycle related Surveillance Requirement Frequency changes approved by the NRC in Units 1 and 2 License Amendments XXX/ YYY were not subject to provision b. Subsequent changes are subject to the Surveillance Frequency Control Program.

d ~~c.~~ The provisions of Surveillance Requirements 3.0.2 and 3.0.3 are applicable to the Frequencies established in the Surveillance Frequency Control Program.

ENCLOSURE 1, ATTACHMENT 2

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2

License Amendment Request

Application for License Amendment to Implement 24-Month Operating Cycle

TECHNICAL SPECIFICATIONS PAGES (Clean Pages)

(3 Pages Follow)

Table 3.3.2-1 (page 1 of 4)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Safety Injection					
a. Manual Initiation	1, 2, 3, 4	2	B	SR 3.3.2.5	NA
b. Automatic Actuation Relay Logic	1, 2, 3, 4	2 trains	C	SR 3.3.2.2 SR 3.3.2.8	NA
c. High Containment Pressure	1, 2, 3	3	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≤ 4.0 psig
d. Pressurizer Low Pressure	1, 2, 3[a]	3	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≥ 1760 psig
e. Steam Line Low Pressure	1, 2, 3[a]	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.3 SR 3.3.2.6	≥ 505[b] psig
2. Containment Spray					
a. Manual Initiation	1, 2, 3, 4	2	B	SR 3.3.2.4	NA
b. Automatic Actuation Relay Logic	1, 2, 3, 4	2 trains	C	SR 3.3.2.2 SR 3.3.2.8	NA

(a) Pressurizer Pressure ≥ 2000 psig.
(b) Time constants used in the lead/lag controller are $t_1 \geq 12$ seconds and $t_2 \leq 2$ seconds.

5.5 Programs and Manuals

5.5.1 Offsite Dose Calculation Manual (ODCM) (continued)

c. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODCM as a part of or concurrent with the Radioactive Effluent Report for the period of the report in which any change in the ODCM was made. Each change shall be identified by markings in the margin of the affected pages, clearly indicating the area of the page that was changed. The date (i.e., month and year) the change was implemented shall be indicated.

5.5.2 Primary Coolant Sources Outside Containment

This program provides controls to minimize leakage from those portions of systems outside containment that could contain highly radioactive fluids during a serious transient or accident to levels as low as practical. The systems include portions of the Residual Heat Removal and Safety Injection Systems. The program shall include the following:

a. Preventive maintenance and periodic visual inspection requirements; and

b. Integrated leak test requirements for each system at least once per 24 months.

The provisions of SR 3.0.2 are applicable.

5.5.3 Post Accident Sampling

This program provides controls that ensure the capability to obtain and analyze reactor coolant, radioactive gases, and particulates in plant gaseous effluents and containment atmosphere samples under accident conditions. The program shall include the following:

a. Training of personnel;

b. Procedures for sampling and analysis; and

5.5 Programs and Manuals

5.5.16 Control Room Envelope Habitability Program (continued)

e. The quantitative limits on unfiltered air in-leakage into the CRE. These limits shall be stated in a manner to allow direct comparison to the unfiltered in-leakage measured by the testing described in paragraph c. The unfiltered air in-leakage limit for radiological challenges is the in-leakage flow rate assumed in the licensing basis analysis of DBA consequences. Unfiltered air inleakage limits for hazardous chemicals must ensure that exposure of CRE occupants to these hazards will be within the assumptions of the licensing basis.

f. The provisions of SR 3.0.2 are applicable to the Frequencies for assessing CRE habitability and determining CRE unfiltered in-leakage as required by paragraph c.

5.5.17 Surveillance Frequency Control Program

This program provides controls for Surveillance Frequencies. The program shall ensure that Surveillance Requirements specified in the Technical Specifications are performed at intervals sufficient to assure the associated Limiting Conditions for Operation are met.

a. The Surveillance Frequency Control Program shall contain a list of Frequencies of those Surveillance Requirements for which the Frequency is controlled by the program.

b. Changes to the Frequencies listed in the Surveillance Frequency Control Program shall be made in accordance with NEI 04-10, "Risk-Informed Method for Control of Surveillance Frequencies," Revision 1.

c. The 24-Month Fuel Cycle related Surveillance Requirement Frequency changes approved by the NRC in Units 1 and 2 License Amendments XXX/YYY were not subject to provision b. Subsequent changes are subject to the Surveillance Frequency Control Program.

ENCLOSURE 2

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2

License Amendment Request

Application for License Amendment to Implement 24-Month Operating Cycle

GENERIC LETTER 91-04 EVALUATION

(43 Pages Follow)

Prairie Island Nuclear Generating
Plant, Units 1 and 2
Docket Nos. 50-282 and 50-306
Renewed Facility Operating License
Nos. DPR-42 and DPR-60

GL 91-04 Evaluation

1. BACKGROUND

Northern States Power Company, a Minnesota corporation, doing business as Xcel Energy (hereafter “NSPM”), plans to extend selected Prairie Island Units 1 & 2 Surveillance Requirement (SR) intervals from the current 24-month to a maximum of 30-months (24-months plus 25% extension afforded by TS SR 3.0.2). Technical Specification (TS) Surveillance Requirement (SR) changes are required to accommodate a 30-month maximum SR interval for Prairie Island Units 1 & 2. The proposed TS SR changes were evaluated in accordance with the guidance provided in Nuclear Regulatory Commission (NRC) Generic Letter (GL) 91-04, “Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle,” dated April 2, 1991. GL 91-04 provides the NRC Staff guidance that identifies the types of information that must be addressed when proposing extension of a SR intervals to a maximum of 30 months including the 25% extension afforded by TS SR 3.0.2 where applicable.

Going forward in this evaluation, any reference to 30-months is defined as extension of a 24-month SR interval to a maximum of 30 months including the 25% extension afforded by TS SR 3.0.2.

Attachment 1 to this evaluation identifies TS SRs that have Frequency controlled under the Surveillance Frequency Control Program (SFCP) whose current Frequency in the SFCP as documented in the Prairie Island Surveillance Test Interval document (STI) is 24 months without allowance for the grace allowed by TS SR 3.0.2. Performance data and failure history associated with the affected TS SRs has been evaluated. The evaluations support the conclusion that the effect of the proposed changes on plant safety, reliability and availability of the systems, components, and functions, if any, is small.

The SRs were broadly categorized as non-calibration SRs, calibration SRs with setpoints (TS Allowable Values), and calibration SRs without setpoints (no TS Allowable Values).

Prairie Island Units 1 & 2 historical SR performance data and associated maintenance records were reviewed to evaluate the effect of these changes on safety. This Surveillance Failure Analysis (SFA) included non-calibration SRs, calibration SRs with setpoints (TS Allowable Values), and calibration SRs without setpoints (no TS Allowable Values). In addition, the potential impact of instrument drift associated with the proposed increases in calibration intervals was evaluated for the calibration SRs with setpoints (TS Allowable Values). These evaluations and results are described below.

The SFA identified no SR failures that would call into question the acceptability of the proposed extension of SR intervals. The Summary Technical Specification Trip Setpoint Calculation identified one instance where the Allowable Value will need to be revised to support an extension of the surveillance interval to 30 months.

In addition, USAR reviews confirm that plant-licensing basis assumptions are not affected by the proposed SR interval changes.

In summary, these reviews support the conclusion that the effect on plant safety associated with the proposed SR interval increases from 24 to 30 months, if any, is small.

2. EVALUATION

This evaluation discusses each step outlined by the NRC in GL 91-04 and provides a description of the methodology used by NSPM to complete the evaluation for each applicable TS SR. The Prairie Island Units 1 & 2 drift analysis methodology is based on Electric Power Research Institute (EPRI) 3002002556 (TR-103335R2), Guidelines for Instrument Calibration Extension/Reduction-Revision 2; Statistical Analysis of Instrument Calibration Data. This is the current revision of EPRI TR-103335 which was used for previous plant submittals including: H.B. Robinson Steam Electric Plant, submittal dated April 3, 2017, (ML16295A060) and Fermi 2 Power Plant, submittal dated November 8, 2019 (ML15155B416).

Ideally, five operating cycles (approximately 10 years at the 24-month SR interval) of performance data was obtained for each SR proposed for extension to 30 months. This provides sufficient data to identify repetitive issues. Exceptions to the availability of historical data, e.g., for recently added SRs, are discussed with the individual evaluations for the affected SRs.

Surveillance Failure Analysis

Surveillance Failure Analysis includes non-calibration, calibration SRs with setpoints (TS Allowable Values) and calibration SRs without setpoints (no TS Allowable Values) interval changes. The failure history for each of the affected 24-month SRs was evaluated.

The SFA is concerned with failures that could result in the loss of the associated safety function during the operating cycle that would only be detected by the performance of the 24-month SR, and whether the proposed increase in the SR interval might result in a decrease in availability of the associated function.

The Prairie Island Units 1 & 2 SR program tracks and schedules Work Orders which are credited with satisfying TS SRs. These Work Orders involve performance of all or part of SR procedures which fulfill one or more SRs. The Work Orders that satisfy SRs where SR interval changes are proposed were evaluated. The SR failures described in this enclosure exclude failures that:

a. Did not impact a TS safety function or TS operability

b. Are detectable by required testing performed more frequently than the 24-month SR being extended; or

c. The cause can be attributed to an associated event such as a preventative maintenance task, human error, previous modification, or previously existing design deficiency; or that were subsequently re-performed successfully with no intervening corrective maintenance (e.g., plant conditions or malfunctioning measurement and test equipment may have caused aborting the test performance). These types of failures are not related to potential unavailability due to SR interval extension and were therefore not further evaluated. This review of SR test history validates the conclusion that the impact, if any, on system availability will be minimal as a result of the change to allow applying grace to SRs with a 24-month SR interval. Specific SR test failures and justification for this conclusion are discussed in this evaluation.

These types of failures are not related to potential unavailability due to testing interval extension and are therefore not listed or further evaluated in this submittal.

The following sections summarize the results of the SR failure history evaluation. The evaluation confirmed that the impact on system availability of increasing the SR intervals from 24-months to 30-months, if any, is small.

A. Non-Calibration Changes

GL 91-04 identifies three steps to evaluate Non-Calibration changes:

STEP 1: Licensees should evaluate the effect on safety of an increase in 18-month surveillance intervals to accommodate a 24-month fuel cycle. This evaluation should support a conclusion that the effect on safety is small.

EVALUATION

Each proposed Non-Calibration SR interval change has been evaluated with respect to the effect on plant safety. The methodology utilized to justify the conclusion that changing the SR interval to allow a grace of 1.25 for SRs with 24-month frequency has a minimal effect on safety, is based on whether the associated function/feature is:

1. Tested on a more frequent basis during the operating cycle by other plant programs,
2. Designed to have redundant counterparts or be single failure proof, or
3. Highly reliable.

STEP 2: Licensees should confirm that historical plant maintenance and surveillance data support this conclusion.

EVALUATION

The SR test history of the affected SRs has been evaluated. This evaluation consisted of a review of available SR test results and associated maintenance records going back to at least 2010 and back to 1999 in some cases. With the allowance of using grace of 1.25 times the interval for SRs with frequency of 24 months, there will be a longer period between each SR performance. If a failure that results in the loss of the associated safety function should occur during the operating cycle, and would only be detected by the performance of the 24-month TS SR without allowance for grace, then the increase in the SR testing interval could reduce the associated function availability. In addition to evaluating these SR failures, potential common failures of similar components tested by different SRs were also evaluated. This additional evaluation determined whether there is evidence of repetitive failures among similar plant components. These common component failures have been further evaluated to determine if there was an impact on plant reliability.

STEP 3: Licensees should confirm that assumptions in the plant licensing basis would not be invalidated on the basis of performing any surveillance at the bounding SR interval limit provided to accommodate a 24 MFC.

EVALUATION

The impact of the proposed SR changes was reviewed to confirm that assumptions in the plant licensing basis would not be invalidated. In general, SR intervals are not discussed in the descriptions of functions in the plant licensing basis. A review of the PINGP Updated Safety Analysis (USAR) and PINGP commitments identified that no assumptions in the plant licensing basis that would be invalidated by the proposed bounding SR interval changes. Any necessary conforming changes will be made during implementation of the license amendment as required by 10 CFR 50.71(e), or permitted by 10 CFR 50.59.

If the proposed SR interval changes were to lead to degrading performance, NSPM would address such degradation as a routine part of Maintenance Rule Program evaluations or, in some cases, evaluations conducted under the surveillance frequency control program (SFCP). Systems and functions included in the scope of the Maintenance Rule are monitored under the Maintenance Rule program. Component and/or train level monitoring is required for high risk SSCs associated with surveillance frequencies that have been extended using the SFCP. If component and/or train monitoring is not already performed as part of the Maintenance Rule performance monitoring for SSCs affected by a SFCP surveillance frequency change, additional monitoring is required under the NSPM SFCP.

GL 91-04 states that licensees need not quantify the effect of the change in surveillance intervals on the availability of individual systems or components.

The proposed changes increase the bounding SR interval limit from 24 to 30 months (a maximum of 30 months including the 25% extension afforded by TS SR 3.0.2 where applicable) for the non-calibration SRs discussed below.

The evaluations provided for each of these changes, support the conclusion that: the effect of these changes on plant safety, if any is small; that the changes do not invalidate any assumption in the plant licensing basis; and that the impact, if any, on system availability is minimal. The SFA review of the Prairie Island Units 1 & 2 SR performance history that supports this conclusion is summarized for each SR discussed below.

TS 3.3.1 Reactor Trip System (RTS) Instrumentation

SR 3.3.1.14 Perform TADOT.

Table 3.3.1-1 Function 1, Manual Reactor Trip
Table 3.3.1-1 Function 11a, Loss of Reactor Coolant Pump (RCP) - RCP Breaker Open

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.3.1.14 is the performance of a Trip Actuating Device Operational Test (TADOT). A TADOT operates the actuating devices for Functions 1 and 11a (Manual Reactor Trip Switch and RCP Breakers Position) and confirms that a reactor trip signal is generated. The TADOT for these functions are performed in an operating mode consistent with a unit shutdown (not in Modes 1 or 2) to maintain safe operating conditions. The components generating the reactor trip signal for both functions are robust and highly reliable.

The current 24-month maximum interval is based on the known reliability of the affected equipment and the multichannel redundancy available and has been shown to be acceptable through operating experience. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history did not identify any failures during the TADOTs specified in Table 3.3.1-1 for Functions 1 and 11a in the last five operating cycles.

Based on the SR test history and the demonstrated reliability of the affected components that generate the reactor trip signals, the impact of this change on safety, if any, is small.

TS 3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

SR 3.3.2.7 Perform MASTER RELAY TEST

Table 3.3.2-1 Function 4b, Steam Line Isolation - Automatic Actuation Relay Logic
Table 3.3.2-1 Function 5a, Feedwater Isolation - Automatic Actuation Relay Logic

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.3.2.7 is the performance of a Master Relay Test. The Master Relay Test is the energizing of the master relay, verifying contact operation. This SR is performed during cold shutdown for Steam Line Isolation (Function 4b) and Feedwater Isolation (Function 5a). These conditions are consistent with safe plant operation to perform the test. Master relays are highly reliable components located in a plant environment that would not make them susceptible to a time related degradation mechanism. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history did not identify any failures that impacted the safety function tested by SR 3.3.2.7 in the last five operating cycles. A master relay surveillance was failed due to improper light indication for a Main Steam Isolation Valve following actuation to close the valve, but the valve was confirmed to actually close. A limit switch adjustment corrected the position indication issue.

Based on the SR test history, the impact of this change on safety, if any, is small.

TS 3.4.1 <u>RCS Pressure, Temperature, and Flow-Departure from Nucleate Boiling (DNB) Limits</u>

SR 3.4.1.3 Verify RCS total flow rate is within the limit specified in the COLR.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.4.1.3 verifies RCS total flow is within the limit specified in the COLR after every refueling outage. This SR confirms that core alterations did not significantly impact system flow resistance and that RCS total flow is greater than that assumed in DNB limiting transient analyses.

SR 3.4.1.3 is required to be performed within 72 hours of achieving 90% of rated thermal power. This ensures that the RCS flow measurement is performed at power level that is representative of rated power operations and provides time for actual test performance. There is no impact on safety if SR 3.4.1.3 is performed at a maximum interval of 30 months between tests as long as RCS total flow is verified at the specified operational conditions and time requirement following a refueling outage.

A review of SR test history did not identify any failures for SR 3.4.1.3 in the last five operating cycles.

RCS flow verification is performed every 12 hours in conjunction with the channel check required by SR 3.3.1.1 for RCS flow instrumentation. Alternate indications of RCS flow degradation, such as a loop differential temperature (ΔT) increase, are checked at the same frequency as the RCS flow instrumentation.

Based on the SR test history and the more frequent confirmation of RCS flow during the operating cycle, the impact of this change on safety, if any, is small.

TS 3.4.9 Pressurizer

SR 3.4.9.2 Verify capacity of each required group of pressurizer heaters is > 100 kW.

SR 3.4.9.2 Verify capacity of each required group of pressurizer heaters is > 100 kW.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.4.9.2 is satisfied when the power supplies are demonstrated to be capable of producing the minimum power and the associated pressurizer heaters are verified to be at their design rating. Heater power indication is available from ERCS which provides a mechanism to trend the Group A and B heater performance throughout the operating cycle. If potential degradation is identified, SR 3.4.9.2 can be performed in any operating mode to confirm pressurizer heater capacity.

The current 24-month maximum interval is considered adequate to detect heater degradation and has been shown by operating experience to be acceptable. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history did not identify any failures during the testing of this TS function in the last five operating cycles. Surveillance results indicate that significant margin exists to the 100 kW requirement for the Group A and Group B pressurizer heaters on both units.

Therefore, the impact, if any, on pressurizer heater availability is minimal from the proposed change to a maximum interval of 30 months. Based on the history of Pressurizer Power Operated Relief Valves (PORVs) performance and the ability to monitor heater degradation during the operating cycle, the impact of this change on safety, if any, is small.

TS 3.4.9 Pressurizer

SR 3.4.9.3 Verify required pressurizer heaters are capable of being powered from an emergency power supply.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.4.9.3 demonstrates that the Group B heaters can be manually transferred from the non-safeguards to the safeguards power supply and energized. This SR is not applicable for the Group A heaters since this group is permanently powered by a Class 1E power supply. The Group B heaters are transferred to or verified powered from their safeguards power supply in conjunction with the verification of heater capacity per SR 3.4.9.2. Switching evolutions, such as transferring the power source for the Group B heaters, are typically very reliable and the current 24-month maximum interval is based on similar verifications of emergency power supplies.

The frequency is based on a typical fuel cycle and is consistent with similar verifications of emergency power supplies. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history did not identify any failures during the testing of this TS function in the last five operating cycles.

Therefore, the impact, if any, on confirming the capability of powering the Group B heaters from a safeguards power supply is minimal from the proposed change to a maximum interval of 30 months. Based on the history of the associated equipment performance, the impact of this change on safety, if any, is small.

TS 3.4.11 Pressurizer Power Operated Relief Valves (PORVs)

SR 3.4.11.2 Perform a complete cycle of each PORV.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.4.11.2 requires a complete cycle of each PORV. Operating a PORV through one complete cycle ensures that the PORV can be manually actuated for mitigation of an SGTR.

This SR is performed during cold shutdown (Mode 5) or refueling (Mode 6) with the RCS depressurized and the associated PORV block valves open. These conditions are consistent with safe plant operation to perform the test. Enclosure A to Generic Letter 90-06 states that the PORVs should not be stroke tested at power which implies that these components are reliable and should only be tested in a condition consistent with safe plant operation.

The current 24-month maximum interval is based on a typical refueling cycle and industry accepted practice. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history did not identify any failures for this TS function in the last five operating cycles. Therefore, the impact, if any, on PORV availability is minimal from the proposed change to a maximum interval of 30 months. Based on the history of PORV performance, the impact of this change on safety, if any, is small.

TS 3.5.2 ECCS – Operating

SR 3.5.2.9 Verify each ECCS throttle valve listed below is in the correct position.

Unit 1 Valve Number	Unit 2 Valve Number
SI-15-6	2SI-15-6
SI-15-7	2SI-15-7
SI-15-8	2SI-15-8
SI-15-9	2SI-15-9

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.5.2.9 verifies that the specified throttle valves are in the correct position to ensure proper ECCS flows are maintained in the event of a LOCA. During refueling outages, ECCS flow verification is performed to confirm the proper position of the throttle valves. Prior to Mode 4 entry during startup, the throttle valves are blocked and sealed or verified in that condition to prevent inadvertent operation. Therefore, administrative controls are established to ensure the valves are in the correct position throughout the operating cycle regardless of the duration.

The current 24-month maximum interval is based on the need to perform this surveillance under the conditions that apply during a plant outage and the potential for unplanned plant transients if the Surveillances were performed with the reactor at power. The interval is also acceptable based on consideration of the design reliability (and confirming operating experience) of the equipment. The actuation logic is tested as part of ESF Actuation System testing, and equipment performance is monitored as part of the Inservice Testing Program. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history did not identify any failures for this TS function in the last five operating cycles. Based on the SR test history and the administrative controls established to ensure correct valve position, the impact of this change on safety, if any, is small.

TS 3.5.2 ECCS – Operating

SR 3.5.2.10 Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet strainers show no evidence of structural distress or abnormal corrosion.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.5.2.10 verifies that the containment sump suction inlet to the RHR System is unrestricted and remains in the proper operating condition. The current surveillance test interval is consistent with performance during a refueling outage and is acceptable, based on operating experience, for detecting abnormal degradation. Extending the maximum interval to 30 months does not invalidate that basis.

A review of SR test history did not identify any failures of this TS function in the last five operating cycles.

Based on the SR test history and that operating experience has determined that performance during a refueling outage is acceptable, the impact of this change on safety, if any, is small.

TS 3.6.5 Containment Spray and Cooling Systems

SR 3.6.5.4 Verify cooling water flow rate to each containment fan coil unit is ≥ 900 gpm.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.6.5.4 verifies that the cooling water flow rate to each containment fan coil unit is ≥ 900 gpm. This provides assurance that the design flow rate assumed in the safety analyses will be achieved.

The frequency of SR 3.6.5.4 is based on the need to perform these Surveillances under the conditions that apply during a plant outage; the known reliability of the Cooling Water System; the two train redundancy available; and, the low probability of a significant degradation of flow occurring between surveillances. Extending the maximum interval to 30 months does not invalidate this basis. Furthermore, related tests are performed under the Inservice Test Program on a more frequent basis that would identify cooling water pump (flow delivery) or valve (flow path) degradation that could potentially impact fan coil operability.

A review of SR test history did not identify any failures of this TS function in the last five operating cycles.

Based on the SR test history, testing performed under the Inservice Test Program, and demonstrated affected system/component reliability, the impact of this change on safety, if any, is small.

TS 3.7.3 Main Feedwater Regulation Valves (MFRVs) and MFRV Bypass Valves

SR 3.7.3.2 Verify each MFRV and MFRV bypass valve actuates to the isolation position on an actual or simulated actuation signal.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.7.3.2 verifies that the MFRVs and MFRV bypass valves can close on an actual or simulated feedwater isolation signal.

The 24-month test interval for SR 3.7.3.2 is based on a refueling cycle. This SR is performed during shutdown conditions consistent with safe plant operation to perform the test. Operating experience has shown that these components pass the surveillance when performed. Therefore, this interval is acceptable from a reliability standpoint and extending it to 30 months will not invalidate this basis.

A review of SR test history did not identify any failures for this TS function in the last five operating cycles. Based on the SR test history and demonstrated system/component reliability, the impact of this change on safety, if any, is small.

TS 3.7.4 Steam Generator (SG) Power Operated Relief Valves (PORVs)

SR 3.7.4.2 Verify one complete manual cycle of each SG PORV block valve.

The SR interval months for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

The function of the block valve is to isolate a failed open SG PORV. Manually cycling the block valve both closed and open per SR 3.7.4.2 demonstrates its capability to perform this function.

Operating experience has shown that these components pass SR 3.7.4.2 when performed at the current test interval. The performance of this SR is acceptable from a reliability standpoint. Performance of this SR on a maximum interval of 30 months does not invalidate this basis. Furthermore, the SG PORV block valves are manually cycled each quarter to support Inservice Testing Requirements for both the SG PORVs and the block valves.

A review of SR test history did not identify any failures for this TS function in the last five operating cycles. Based on the SR test history, quarterly SG PORV testing, and demonstrated component reliability, the impact of this change on safety, if any, is small.

TS 3.7.10 Control Room Special Ventilation System (CRSVS)

SR 3.7.10.4 Verify each CRSVS train in the Emergency Mode delivers 3600 to 4400 cfm through the associated CRSVS filters.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.7.10.4 verifies the proper operation of the CRSVS in the emergency mode. In the emergency mode, a CRSVS train is designed to provide 4000±10% cfm through the PAC filter unit using a pitot tube traverse. This test can be performed in any operating mode and is not constrained by the duration of an operating cycle.

SR 3.7.10.4 is currently performed on a 24-month staggered basis frequency which is consistent with industry component reliability experience. Performance of this SR on a maximum interval of 30 months does not invalidate this basis. SR 3.7.10.1 is performed on a 92-day frequency. SR 3.7.10.1 operates the CRSVS for ≥ 15 minutes every 92 days. The installed instrumentation at the filter instrument panel for measuring PAC filter unit flow can be used to identify flow degradation between performances of SR 3.7.10.4. This parameter is recorded in the surveillance procedure used to satisfy SR 3.7.10.1.

A review of SR test history did not identify any failures for this TS function in the last five operating cycles. Based on the SR test history and the ability to monitor PAC filter unit flow on a 92-day basis, the impact of this change on safety, if any, is small.

TS 3.8.1 AC Sources-Operating

SR 3.8.1.11 Verify on an actual or simulated loss of offsite power signal that the DG auto-starts from standby condition.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.8.11.1 demonstrates the as designed operation of the standby power sources during loss of the offsite source. This SR verifies DG starts on the loss of offsite power.

The basis for the current 24-month interval takes into consideration unit conditions required to perform the SR and is intended to be consistent with expected fuel cycle lengths. Extending the maximum interval to 30 months does not invalidate this basis.

For Unit 1, the ability for a DG to start from standby conditions using a simulated loss of offsite power signal and achieve rated speed and voltage conditions in 10 seconds is currently verified every 184 days in conjunction with the performance of SR 3.8.1.6 and the actuation logic testing performed on a 31 day basis per SR 3.3.4.2 for the automatic load sequencer. The satisfactory performance of SR 3.8.1.6 and SR 3.3.4.2 permits crediting the completion of SR 3.8.1.11. For Unit 1, all DG starts used to satisfy SR 3.8.1.6 are initiated by a simulated loss of offsite power signal. Therefore, the safety function verified by SR 3.8.1.11 is tested on a more frequent basis than required during an operating cycle for Unit 1.

For Unit 2, the ability for a DG to start from standby conditions using a simulated loss of offsite power signal and achieve rated speed and voltage conditions in 10 seconds is currently verified annually in conjunction with the performance of SR 3.8.1.6 and the actuation logic testing performed on a 31 day basis per SR 3.3.4.2 for the automatic load sequencer. The satisfactory performance of SR 3.8.1.6 and SR 3.3.4.2 permits crediting the completion of SR 3.8.1.11 when a simulated loss of offsite power signal is used to start the DG. For Unit 2, two different start methods are used to satisfy SR 3.8.1.6, a manual start signal and a simulated loss of offsite power start signal. A start from a simulated loss of offsite power signal is performed during the first two quarters of each calendar year such that SR 3.8.1.11 can be credited annually. Therefore, the safety function verified by SR 3.8.1.11 is tested on a more frequent basis than required during an operating cycle for Unit 2.

A review of SR test history over the last five operating cycles did not identify any failures this TS function that would have been detected solely by the more frequent performance of this SR.

Based on the SR test history and the ability to perform the testing required per SR 3.8.1.11 on a more frequent basis by using a simulated loss of offsite power to start the DG from standby during the performance of SR 3.8.1.6, the impact of this change on safety, if any, is small.

B. Calibration Changes with Setpoints (TS Allowable Values)

NRC GL 91-04 requires that licensees address instrument drift when proposing an increase in the SR interval for calibrating instruments that perform safety functions including providing the capability for safe shutdown. The effect of the increased calibration interval on instrument errors must be addressed because instrument errors caused by drift were considered when determining safety system setpoints and when performing safety analyses.

NRC GL 91-04 identifies seven steps for the evaluation of instrumentation calibration changes. These seven steps are discussed below:

STEP 1: Confirm that instrument drift as determined by as-found and as-left calibration data from surveillance and maintenance records has not, except on rare occasions, exceeded acceptable limits for a calibration interval.

EVALUATION

Historically, As-Found tolerances used in Surveillance Procedures at Prairie Island have been based on instrument accuracy. As required by plant procedures, out of tolerance conditions detected during performance of Surveillance Procedures are entered into the Corrective Action Program (CAP) for evaluation and trending. This ensures identification of occurrences of instruments found outside of their allowable value and instruments whose performance is not as anticipated by the setpoint analysis. When an instrument under surveillance is found to have exceeded the As-Found tolerance (i.e., acceptable limits) provided in the Surveillance Procedures, a CAP Report is initiated and referenced/attached to the Work Order and an operability analysis is performed to determine if the out of tolerance condition has challenged the operability of the loop.

The difference between As-Found and As-Left data collected during performance of surveillance procedures represents the combined effects of instrument reference accuracy, calibration error, time dependent error and normal radiation effects. Statistical analysis was performed for all instruments which perform a SR function on the As-Found and As-Left data from surveillance procedures to determine a statistical drift value that is representative of data collected since 1999 or since when the instrument was replaced. The statistically determined drift was extrapolated for a surveillance interval of 30 months (24 months plus 25%).

A Summary Technical Specification Trip Setpoint Calculation was developed using the 30-month extrapolated drift values to determine the impact on loop uncertainty, Nominal Trip Setpoint and Allowable Value all for instrumentation providing Safety Related functions. Results of the Summary Technical Specification Trip Setpoint Calculation demonstrated whether or not existing Allowable Value and Nominal Trip Setpoint are conservative assuming a 30-month surveillance interval. The Summary Technical Specification Trip Setpoint Calculation also assessed the availability of margin between the actual plant setting and Nominal Trip Setpoint as well as ensuring that the existing as-found setting tolerance specified in Surveillance Procedures does not challenge the Allowable Value from Technical Specifications. The Summary Technical Specification Trip Setpoint Calculation identified one instance where the Allowable Value will need to be revised to support an extension of the surveillance interval to 30 months.

STEP 2: Confirm that the values of drift for each instrument type (make, model, and range) and application have been determined with a high probability and a high degree of confidence. Provide a summary of the methodology and assumptions used to determine the rate of instrument drift with time based upon historical plant calibration data.

EVALUATION

A listing of the lead instrument make, model, and range affected by this submittal is provided in Table 1. The effect of longer calibration intervals on the TS instrumentation was evaluated by performing an instrument drift study. In performing the drift study, the recorded channel calibration data for associated instruments was obtained from records going back to at least 2010 and back to 1999 in some cases. This historical calibration data was analyzed to determine a statistically valid representation of instrument drift. The methodology used to perform the drift analysis is consistent with the methodology utilized by other utilities requesting transition to a 24-month fuel cycle. The PINGP methodology is based on EPRI TR-103335, Revision 2, "Guidelines for Instrument Calibration Extension/Reduction Programs."

STEP 3: Confirm that the magnitude of instrument drift has been determined with a high probability and a high degree of confidence for a bounding calibration interval of 30 months for each instrument type (make, model number, and range) and application that performs a safety function. Provide a list of the channels by TS section that identifies these instrument applications.

EVALUATION

In accordance with the methodology described in EPRI TR-103335, Revision 2, the magnitude of instrument drift has been determined with a high probability and a high degree of confidence (typically 95/95) for a bounding calibration interval of 30 months for each instrument make, model, and range. For instruments not in service long enough to establish a projected drift value, or where an insufficient number of calibrations have been performed to utilize the statistical methods (i.e., fewer than 30 calibrations for any given group of instruments), the proposed allowance to apply 1.25 grace to SRs with frequency of 24 months is based on justification obtained from analysis using the method based on EPRI TR-103335, Revision 2. The list of affected channels, including the lead instrument make, model, and range, is provided in Table 1 of this evaluation.

STEP 4: Confirm that a comparison of the projected instrument drift errors has been made with the values of drift used in the setpoint analysis. If this results in revised setpoints to accommodate larger drift errors, provide proposed TS changes to update trip setpoints. If the drift errors result in revised safety analysis to support existing setpoints, provide a summary of the updated analysis conclusions to confirm that safety limits and safety analysis assumptions are not exceeded.

EVALUATION

The projected 30-month drift values were compared to the design allowances as calculated in the associated instrument setpoint analyses documented in a Summary Technical Specification Trip Setpoint Calculation. The Summary Technical Specification Trip Setpoint Calculation identified one instance where the Allowable Value will need to be revised to support an extension of the surveillance interval to 30 months. (a maximum of 30 months including the 25% extension afforded by TS SR 3.0.2 where applicable)

The individual setpoint calculations will be revised using the PINGP setpoint methodology. The affected calibration surveillance procedures will be revised as part of implementation, prior to implementing the allowance to apply grace of 1.25 to SRs with frequency of 24 months.

STEP 5: Confirm that the projected instrument errors caused by drift are acceptable for control of plant parameters to affect a safe shutdown with the associated instrumentation.

EVALUATION

This evaluation includes instrumentation used for safe shutdown. The revised setpoint and uncertainty calculations change calibration information if needed to accommodate allowing a grace of 1.25 to SRs with frequency of 24 months. The changes in calibration information provide assurance that the instrumentation will perform with the required accuracy to effect a safe shutdown. The calibration information is implemented through plant calibration procedures. The affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months.

<u>STEP 6</u>: Confirm that all conditions and assumptions of the setpoint and safety analyses have been checked and are appropriately reflected in the acceptance criteria of plant SR procedures for channel checks, channel functional tests, and channel calibrations.

<u>EVALUATION</u>

As discussed in step 5, the revised setpoint and uncertainty calculations result in changes to calibration information which are implemented through plant calibration procedures. The affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months. Existing plant processes ensure that the conditions and assumptions of the setpoint and safety analyses have been checked and are appropriately reflected in the acceptance criteria of plant surveillance procedures for channel checks, channel functional tests and channel calibrations.

<u>STEP 7</u>: Provide a summary description of the program for monitoring and assessing the effects of increased calibration surveillance intervals on instrument drift and its effect on safety.

<u>EVALUATION</u>

Instruments with TS calibration SR intervals of up to 30 months will be monitored and trended in accordance with station procedures including recording of as-found and as-left calibration data. As required by plant procedures, out of tolerance conditions are entered into the corrective action program and are evaluated and trended. This approach will identify occurrences of instruments found outside of their allowable value and instruments whose performance is not as assumed in the drift or setpoint analysis. When the as found conditions are outside the As-Found tolerance (i.e., acceptable limits), an evaluation will be performed in accordance with the station corrective action program to evaluate the effect, if any, on plant safety.

<u>Calibration Changes with Setpoints (TS Allowable Values) Conclusion</u>

The Summary Technical Specification Trip Setpoint Calculation identified one instance where the Allowable Value will need to be revised to support an extension of the surveillance interval to 30 months.

The evaluation identified changes to calibration tolerances included in plant calibration surveillance procedures. The discussion for each calibration SR that follows identifies whether calibration tolerances are affected. The affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months.

Drift Evaluation Overview

The Surveillance Failure Analysis (SFA) included calibration SRs for extension of the SR Applicable Instrumentation. The instrumentation identified in Table 1 includes the lead instruments (e.g., Transmitter, RTD, etc.) associated with actuation functions (e.g., Reactor Protection System trip functions, Engineered Safety Features Actuation System functions).

Rigorous drift analysis includes evaluation of historical as-found and as-left Prairie Island Units 1 & 2 calibration data. NSPM-EM 3.3.4.2, Rev 1, The Analysis of Instrument Drift, describes methods used for this evaluation.

The methods are based on the Electric Power Research Institute (EPRI) EPRI 3002002556 (TR-103335R2), "Guidelines for Instrument calibration Extension/Reduction - Revision 2; Statistical Analysis of Instrument Calibration Data," dated January 2014.

NRC reviewed and commented on TR 103335 Rev. 0 in 1997. (US Nuclear Regulatory Commission Letter from Mr. Thomas H. Essig to Mr. R. W. James of Electric Power Research Institute, dated December 1, 1997, "Status Report on the Staff Review of EPRI Technical Report TR-103335, “Guidelines for Instrument Calibration Extension/Reduction Programs,” dated March 1994”). The comments are addressed in TR-103335R2, Appendix E. The methodology is consistent with that used by other utilities identified in Enclosure 1 requesting transition to a 30-month maximum SR interval which have referenced the EPRI Guidelines.

The 30-month (i.e., 24 months +25%) drift terms developed as described above were applied to the associated Prairie Island Units 1 & 2 setpoint calculations and calibration procedure validation calculations. These calculations determined instrument loop uncertainties and validated setpoints and Allowable Values, as appropriate, for the associated functions. The revised setpoint calculations will be developed in accordance with NSPM-EM 3.3.4.1, Rev 2, “Instrument Setpoint / Uncertainty Calculation”.

As noted previously, the Summary Technical Specification Trip Setpoint Calculation identified one instance where the Allowable Value will need to be revised to support an extension of the surveillance interval to 30 months.

Some calibration information (e.g., tolerances) that are implemented through plant calibration surveillance procedures are affected. Any affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months.

The proposed calibration-setpoint related SR interval increases from 24 to 30 months including the 25% extension afforded by TS SR 3.0.2 are discussed below.

TS 3.3.1 Reactor Protection System (RPS) Instrumentation

The RPS initiates a reactor scram when one or more monitored parameters exceed their specified limit, to preserve the integrity of the fuel cladding and the Reactor Coolant System and minimize the energy that must be absorbed following a loss of coolant accident.

SR 3.3.1.10, CHANNEL CALIBRATION, applies to the RPS functions listed below for Table 3.3.1-1. The proposed change extends the SR 3.3.1.10 interval from 24 to 30 months which includes the 25% extension afforded by TS SR 3.0.2.

Table 3.3.1-1

Function 8a	Pressurizer Pressure - Low
Function 8b	Pressurizer Pressure - High
Function 9	Pressurizer Water Level - High
Function 10	Reactor Coolant Flow - Low
Function 11b	Loss of Reactor Coolant Pump (RCP) - Underfrequency 4 kV Buses 11 and 12 (21 and 22)
Function 12	Undervoltage on 4 kV Buses 11 and 12 (21 and 22)
Function 13	Steam Generator (SG) Water Level - Low Low
Function 14a	Turbine Trip - Low Autostop Oil Pressure
Function 14b	Turbine Trip - Turbine Stop Valve Closure
Function 16b2	Reactor Trip System Interlocks - Low Power Reactor Trips Block, P-7 -Turbine Impulse Pressure

Functions 14b was not subject to rigorous drift analysis. The basis for not performing a rigorous drift analysis is discussed below.

Function 14b, Turbine Stop Valve – Closure

Turbine Stop Valve (TSV) closure signals are initiated from position switches located on each of the TSVs. The limit switches that perform this function are considered mechanical components which do not experience instrument drift as addressed by GL 91-04. Therefore, rigorous drift analysis is not necessary for this instrumentation. Plant calibration surveillance procedures are unaffected.

The GL 91-04 evaluations for the functions subject to SR 3.3.1.10 CHANNEL CALIBRATION requirements do not affect any TS Allowable Values. Any affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months.

A review of SR test history identified no failures of the TS functions that would have been detected solely by the periodic performance of this SR.

Accordingly, the impact, if any, on system availability is minimal from the proposed change to a 30-month SR interval. Based on the history of system performance, the impact of this change on safety, if any, is small.

SR 3.3.1.11, CHANNEL CALIBRATION, applies to the RPS functions listed below for Table 3.3.1-1. The proposed change extends the SR 3.3.1.11 interval from 24 to 30 months which includes the 25% extension afforded by TS SR 3.0.2.

Table 3.3.1-1.

Function 2a	Power Range Neutron Flux - High
Function 2b	Power Range Neutron Flux - Low
Function 3a	Power Range Neutron Flux Rate - High Positive Rate
Function 3b	Power Range Neutron Flux Rate - High Negative Rate
Function 4	Intermediate Range Neutron Flux
Function 5	Source Range Neutron Flux
Function 16b1	Reactor Trip System Interlocks - Low Power Reactor Trips Block, P-7 - Power Range Neutron Flux
Function 16c	Reactor Trip System Interlocks - Power Range Neutron Flux, P-8
Function 16d	Reactor Trip System Interlocks - Power Range Neutron Flux, P-9
Function 16e	Reactor Trip System Interlocks - Power Range Neutron Flux, P-10

The GL 91-04 evaluations for the functions subject to SR 3.3.1.11, CHANNEL CALIBRATION, requirements do not affect any TS Allowable Values. Any affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months.

A review of SR test history identified no failures of the TS functions that would have been detected solely by the periodic performance of this SR.

Accordingly, the impact, if any, on system availability is minimal from the proposed change to a 30-month SR interval. Based on the history of system performance, the impact of this change on safety, if any, is small.

SR 3.3.1.12, CHANNEL CALIBRATION, applies to the RPS functions listed below for Table 3.3.1-1. The proposed change extends the SR 3.3.1.11 interval from 24 to 30 months which includes the 25% extension afforded by TS SR 3.0.2.

Table 3.3.1-1

Function 6	Overtemperature ΔT
Function 7	Overpower ΔT

The GL 91-04 evaluations for the functions subject to SR 3.3.1.12 CHANNEL CALIBRATION requirements do not affect any TS Allowable Values. Any affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months.

A review of SR test history identified no failures of the TS functions that would have been detected solely by the periodic performance of this SR.

Accordingly, the impact, if any, on system availability is minimal from the proposed change to a 30-month SR interval. Based on the history of system performance, the impact of this change on safety, if any, is small

TS 3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

The purpose of the ESFAS 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. The ESFAS instrumentation actuates Safety Injection (SI), Containment Spray, Auxiliary Feedwater and system isolations.

SR 3.3.2.6, CHANNEL CALIBRATION, applies to the ESFAS functions listed below for Table 3.3.2-1. The proposed change extends the SR 3.3.2.6 interval from 24 to 30 months which includes the 25% extension afforded by TS SR 3.0.2.

Table 3.3.2-1

Function 1c	Safety Injection - High Containment Pressure
Function 1d	Safety Injection - Pressurizer Low Pressure
Function 1e	Safety Injection - Steam Line Low Pressure
Function 2c	Containment Spray - High-High Containment Pressure
Function 4c	Steam Line Isolation - High-High Containment Pressure
Function 4d	Steam Line Isolation - High Steam Flow
Function 4d	Steam Line Isolation - Coincident with Low-Low Tavg
Function 4e	Steam Line Isolation - High High Steam Flow
Function 5b	Feedwater Isolation - High - High Steam Generator (SG) Water Level
Function 6b	Auxiliary Feedwater - Low-Low SG Water Level
Function 6d	Auxiliary Feedwater - Undervoltage on 4 kV Buses 11 and 12 (21 and 22)

The GL 91-04 evaluations for the functions subject to SR 3.3.2.6 CHANNEL CALIBRATION requirements do not affect any TS Allowable Values, except as noted below. Any affected calibration surveillance procedures will be revised as part of implementation, prior to the first application of grace to SRs in the PINGP STI with frequency of 24 months.

Function 1e Safety Injection - Steam Line Low Pressure

> The Summary Technical Specification Trip Setpoint Calculation identified the Setpoint and TS Allowable Value for Table 3.3.2-1, Function 1e, Safety Injection - Steam Line Low Pressure, will need to change to accommodate the increase in the surveillance interval.

A review of SR test history identified no failures of the TS functions that would have been detected solely by the periodic performance of this SR.

Accordingly, the impact, if any, on system availability is minimal from the proposed change to a 30-month SR interval. Based on the history of system performance, the impact of this change on safety, if any, is small

C. Calibration Changes without Setpoints (No TS Allowable Values)

For other surveillances, NRC GL 91-04 requires that licensees address the effect on safety of the change in surveillance intervals to accommodate a 30-month maximum SR interval. Historical maintenance and surveillance data were reviewed to validate the effect on safety is small. The performance of surveillances to accommodate a 30-month maximum SR interval would not invalidate any assumption in the plant licensing basis

In summary, the Prairie Island Units 1 & 2 review of historical surveillance and maintenance data supports the increase in surveillance intervals from 24 to 30 months. The evaluation identified no changes to calibration tolerances included in plant calibration surveillance procedures without setpoints (No TS Allowable Values)

TS 3.3.1 Reactor Protection System (RPS) Instrumentation

The RPS initiates a reactor scram when one or more monitored parameters exceed their specified limit, to preserve the integrity of the fuel cladding and the Reactor Coolant System and minimize the energy that must be absorbed following a loss of coolant accident.

SR 3.3.1.11, CHANNEL CALIBRATION, applies to the RPS functions listed below for Table 3.3.1-1. The proposed change extends the SR 3.3.1.11 interval from 24 to 30 months which includes the 25% extension afforded by TS SR 3.0.2.

Table 3.3.1-1.

Function 16a Intermediate Range Neutron Flux, P-6

SPC-RP-039 supports the justification of the P6 Technical Specification setpoint by coordinating the functional P6 requirement with the Source Range process value. SPC-RP-039 evaluates the Source Range setpoint coordination with the Intermediate Range interlock as the means of analysis in determining an appropriate Intermediate Range setpoint, as opposed to statistically evaluating Intermediate Range drawer uncertainty.

The P-6 permissive is required to allow manual blocking of the Source Range High Flux Reactor Trip and disabling of Source Range detector voltage during a reactor startup, after nominal IRM indication has been established. The P-6 permissive is not credited in any accident analysis and no Analytical Limit exists. The block and the unblock involve a permissive function only; these are considered nominal setpoints and, typically, no formal setpoint evaluation or uncertainty calculation is performed. The originally specified field setpoint for this function is $1.0E^{-10}$ amps. This is the typical nominal trip setpoint value established by Westinghouse for this function.

In the Analysis section (Section 3.0) of SPC-RP-039, the nominal Technical Specification value of the Unit 1 P6 Intermediate Range Interlock is determined by coordinating the functional P6 requirement with the Intermediate Range equivalent of the Source Range Actual Plant Setpoint (APS), minus Source Range random uncertainties. The Intermediate Range channel measurement uncertainties were not evaluated in SPC-RP-039. Since this permissive was not determined using Intermediate Range channel measurement uncertainty, this trip setpoint is evaluated in this section and not the section for calibration changes with setpoints. Table 3.3.3-1 in Tech Specs lists $\geq 1.0E^{-10}$ as the Allowable Value. This does not represent an Allowable Value as defined by PINGP setpoint methodology, but it is listed as an Allowable Value in Tech Specs.

A review of the P-6 SR Test History for the last 22 years indicates there have been zero instances of unacceptable data for the trip (permissive) setpoint. There have been two instances of unacceptable data for the reset point, but none since 2004.

Accordingly, the impact, if any, on system availability is minimal from the proposed change to a 30-month maximum SR interval. Based on the history of system performance, the impact of this change on safety, if any, is small.

TS 3.3.3 Event Monitoring (EM) Instrumentation

The primary purpose of the EM instrumentation is to display unit variables that provide information required by the control room operators during accident situations.

SR 3.3.3.2, CHANNEL CALIBRATION, applies to the EM functions listed below for Table 3.3.3-1. The proposed change extends the SR 3.3.3.2 interval from 24 to 30 months which includes the 25% extension afforded by TS SR 3.0.2.

Table 3.3.3-1

Function 1	Power Range Neutron Flux (Logarithmic Scale)
Function 2	Source Range Neutron Flux (Logarithmic Scale)
Function 3	Reactor Coolant System (RCS) Hot Leg Temperature
Function 4	RCS Cold Leg Temperature
Function 5	RCS Pressure (Wide Range)
Function 6	Reactor Vessel Water Level
Function 7	Containment Sump Water Level (Wide Range)
Function 8	Containment Pressure (Wide Range)
Function 9	Penetration Flow Path Automatic Containment Isolation Valve Position
Function 10	Containment Area Radiation (High Range)
Function 12	Pressurizer Level
Function 13	Steam Generator Water Level (Wide Range)
Function 14	Condensate Storage Tank Level
Function 15	Core Exit Temperature
Function 16	Refueling Water Storage Tank Level
Function 17	Steam Generator Water Level (Narrow Range)

The historical data for the EM instrumentation channels listed above was evaluated for indication only, including alarm function, if applicable. Control and actuation functions, if applicable, were evaluated in Section B of this evaluation.

A review of SR test history identified no failures of the TS functions that would have been detected solely by the periodic performance of this SR.

Accordingly, the impact, if any, on system availability is minimal from the proposed change to a 30-month maximum SR interval. Based on the history of system performance, the impact of this change on safety, if any, is small.

TS 3.3.6 Control Room Special Ventilation System (CRSVS) Actuation Instrumentation

The CRSVS provides an enclosed control room environment from which the unit can be operated following an uncontrolled release of radioactivity. During normal operation, the Control Room Ventilation System provides control room ventilation. Upon receipt of an actuation signal, automatic control dampers of the associated train isolate the control room and direct a portion of recirculated air through redundant PAC filters before entry to the air handling units.

SR 3.3.6.4, Perform CHANNEL CALIBRATION

Table 3.3.6-1, Function 2, Control Room Radiation - Atmosphere

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.3.6.4, Table 3.3.6-1, Function 2 is the performance of a Channel Calibration.

The current 24-month interval is based on the known reliability of the affected and the multichannel redundancy available and has been shown to be acceptable through operating experience. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history identified no unsatisfactory results that would have been detected solely by the more frequent performance of this SR.

Based on the SR test history, and the multichannel redundancy available, the impact of this change on safety, if any, is small.

TS 3.4.12 Low Temperature Overpressure Protection (LTOP) –Reactor Coolant System Cold Leg Temperature (RCSCLT) > Safety Injection (SI) Pump Disable Temperature

The LTOP function limits RCS pressure at low temperatures so the integrity of the reactor coolant pressure boundary (RCPB) is not compromised by violating the pressure and temperature (P/T) limits of 10 CFR 50, Appendix G.

SR 3.4.12.5, Perform CHANNEL CALIBRATION for each OPPS actuation channel

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

Performance of a CHANNEL CALIBRATION on OPPS is required at the specified frequency to adjust the whole channel so it responds, and the valve opens within the required range and accuracy to known input.

Performance monitoring of the revised surveillance frequencies will be performed consistent with the existing monitoring requirements for the Surveillance Frequency Control Program. Systems and functions included in the scope of the Maintenance Rule are monitored under the Maintenance Rule program. Component and/or train level monitoring is required for high risk SSCs associated with surveillance frequencies that have been extended using the SFCP. If component and/or train monitoring is not already performed as part of the Maintenance Rule performance monitoring for SSCs affected by a SFCP surveillance frequency change, additional monitoring is required under the NSPM SFCP.

A review of SR test history identified no unsatisfactory results that would have been detected solely by the more frequent performance of this SR.

Based on the SR test history, and the multichannel redundancy available, the impact of this change on safety, if any, is small.

TS 3.4.13 Low Temperature Overpressure Protection (LTOP) – Reactor Coolant System Cold Leg Temperature (RCSCLT) < Safety Injection (SI) Pump Disable Temperature

The LTOP function limits RCS pressure at low temperatures so the integrity of the reactor coolant pressure boundary (RCPB) is not compromised by violating the pressure and temperature (P/T) limits of 10 CFR 50, Appendix G.

SR 3.4.13.6, Perform CHANNEL CALIBRATION for each OPPS actuation channel

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

Performance of a CHANNEL CALIBRATION on OPPS is required at the specified frequency to adjust the whole channel so it responds, and the valve opens within the required range and accuracy to known input.

Performance monitoring of the revised surveillance frequencies will be performed consistent with the existing monitoring requirements for the Surveillance Frequency Control Program. Systems and functions included in the scope of the Maintenance Rule are monitored under the Maintenance Rule program. Component and/or train level monitoring is required for high risk SSCs associated with surveillance frequencies that have been extended using the SFCP. If component and/or train monitoring is not already performed as part of the Maintenance Rule performance monitoring for SSCs affected by a SFCP surveillance frequency change, additional monitoring is required under the NSPM SFCP.

A review of SR test history identified no unsatisfactory results that would have been detected solely by the more frequent performance of this SR.

Based on the SR test history, and the multichannel redundancy available, the impact of this change on safety, if any, is small.

TS 3.4.16 <u>RCS Leakage Detection Instrumentation</u>

AEC GDC 16 requires that means be provided for monitoring reactor coolant pressure boundary (RCPB) to detect RCS leakage. Leakage detection systems must have the capability to detect significant RCPB degradation as soon after occurrence as practical to minimize the potential for propagation to a gross failure.

SR 3.4.16.3 Perform CHANNEL CALIBRATION of the required containment sump monitor.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.4.16.3 is the performance of a Channel Calibration.

The current 24-month interval is based on the known reliability of the affected and the multichannel redundancy available and has been shown to be acceptable through operating experience. Extending the maximum interval to 30 months does not invalidate this basis.

The limit switches that perform this function are considered mechanical components which do not experience instrument drift as addressed by GL 91-04. A review of SR test history identified no unsatisfactory results that would have been detected solely by the more frequent performance of this SR.

Based on the SR test history, and the multichannel redundancy available, the impact of this change on safety, if any, is small.

SR 3.4.16.4 Perform CHANNEL CALIBRATION of the required containment radionuclide monitor.

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.4.16.4 is the performance of a Channel Calibration.

The current 24-month interval is based on the known reliability of the affected and the multichannel redundancy available and has been shown to be acceptable through operating experience. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history identified no unsatisfactory results that would have been detected solely by the more frequent performance of this SR. There is no change to the Allowable Value of “Five times Background”.

Based on the SR test history, and the multichannel redundancy available, the impact of this change on safety, if any, is small.

3.6.8 Vacuum Breaker System

The purpose of the Vacuum Breaker System is to protect the containment vessel against negative pressure (i.e., a lower pressure inside than outside). Excessive negative pressure inside containment can occur if there is an inadvertent actuation of containment cooling features, such as the Containment Spray System or Containment Cooling System.

SR 3.6.8.2 Perform CHANNEL CALIBRATION

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.6.8.2 is the performance of a Channel Calibration.

The current 24-month interval is based on the known reliability of the affected and the multichannel redundancy available and has been shown to be acceptable through operating experience. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history identified no unsatisfactory results that would have been detected solely by the more frequent performance of this SR.

Based on the SR test history, and the multichannel redundancy available, the impact of this change on safety, if any, is small.

3.9.3 Nuclear Instrumentation

Core subcritical neutron flux monitors are used during refueling operations to monitor the core reactivity condition. The installed core subcritical neutron flux monitors are part of the Nuclear Instrumentation System (NIS). These detectors are located external to the reactor vessel and detect neutrons leaking from the core.

SR 3.9.3.2 Perform CHANNEL CALIBRATION

The SR interval for this SR is being increased from a maximum of 24 months to a maximum interval of 30 months which includes the 25% extension afforded by TS SR 3.0.2.

SR 3.9.3.2 is the performance of a Channel Calibration.

The current 24-month interval is based on the known reliability of the affected and the multichannel redundancy available and has been shown to be acceptable through operating experience. Extending the maximum interval to 30 months does not invalidate this basis.

A review of SR test history identified no unsatisfactory results that would have been detected solely by the more frequent performance of this SR.

Based on the SR test history, and the multichannel redundancy available, the impact of this change on safety, if any, is small.

Overall Calibration Changes Summary

Based on the foregoing the impact on safety, if any, for the proposed changes in SR intervals from 24 to 30 months for the CHANNEL CALIBRATION SRs discussed above, would be small.

D. GL 91-04 Evaluation Conclusion

NRC GL 91-04 provides generic guidance for evaluating SR interval changes from 18 to 24 months (+ 25% to 30 months). This enclosure provides NSPM's evaluation of the proposed surveillance interval changes for Non-Calibration and Calibration changes. The evaluation addresses the supporting information requested by GL91-04 to support the proposed Non-Calibration and Calibration changes.

The review of historical surveillance test data and associated maintenance records for both Non-Calibration and Calibration changes support a conclusion that the impact on safety, if any, for the proposed changes in surveillance intervals from 24 to 30 months, would be small.

PINGP will continue to track any SR failures through the site Corrective Action Program (CAP) which evaluates for any commonality among failures.

Additionally, the impact of instrument drift was evaluated for the proposed calibration surveillance interval changes. The Summary Technical Specification Trip Setpoint Calculation identified one instance where the Allowable Value will need to be revised to support an extension of the surveillance interval to 30 months.

In conclusion, the GL 91-04 evaluation supports the determination that the effect on plant safety associated with the proposed SR interval changes from 24 to 30 months, if any, is small.

Table 1

Applicable Instrumentation

Surveillance Requirement	Tech Spec Section/Function	Description	Manufacturer	Model Number	Range
SR 3.3.1.10	Table 3.3.1-1, Function 10	Perform CHANNEL Calibration. Reactor Coolant Flow - Low	FOXBORO	E13DH	0 - 350.3 INWC
SR 3.3.1.10	Table 3.3.1-1, Function 11b	Perform CHANNEL Calibration. Loss of Reactor Coolant Pump (RCP) - Underfrequency 4 kV Buses 11 and 12 (21 and 22)	GENERAL ELECTRIC	SFF201B1A	40 - 79.9 Hz
SR 3.3.1.10	Table 3.3.1-1, Function 12	Perform CHANNEL Calibration. Undervoltage on 4 kV Buses 11 and 12 (21 and 22)	ASCO VALVE CO	214A147	84.06 - 117.7 VAC
SR 3.3.1.10	Table 3.3.1-1, Function 12	Perform CHANNEL Calibration. Undervoltage on 4 kV Buses 11 and 12 (21 and 22)	ASCO VALVE CO	214B111	84.06 - 117.7 VAC
SR 3.3.1.10	Table 3.3.1-1, Function 13	Perform CHANNEL Calibration. Steam Generator (SG) Water Level - Low Low	ROSEMOUNT / EMERSON ELEC	3152ND-2-A-2-F3-E-3-Q8-W2	32.40 - 138.90 INWC
SR 3.3.1.10	Table 3.3.1-1, Function 13	Perform CHANNEL Calibration. Steam Generator (SG) Water Level - Low Low	ROSEMOUNT / EMERSON ELEC	3152ND-2-A-2-F3-E-3-Q8-W2	32.50 - 138.90 INWC
SR 3.3.1.10	Table 3.3.1-1, Function 14a	Perform CHANNEL Calibration. Turbine Trip - Low Autostop Oil Pressure	MERCOID DIV OF DWYER INST	DA-23-127 R. 8S	0 - 200.00 PSIG
SR 3.3.1.10	Table 3.3.1-1, Function 16b2	Perform CHANNEL Calibration. Reactor Trip System Interlocks - Low Power Reactor Trips Block, P-7 -Turbine Impulse Pressure	NUS INSTRUMENTS LLC	DAM503-03	0 - 120% RTP
SR 3.3.1.10	Table 3.3.1-1, Function 8a	Perform CHANNEL Calibration. Pressurizer Pressure - Low	ROSEMOUNT / EMERSON ELEC	1154GP9RC	1715 - 2515 PSIG
SR 3.3.1.10	Table 3.3.1-1, Function 8b	Perform CHANNEL Calibration. Pressurizer Pressure - High	ROSEMOUNT / EMERSON ELEC	1154GP9RC	1715 - 2515 PSIG
SR 3.3.1.10	Table 3.3.1-1, Function 9	Perform CHANNEL Calibration. Pressurizer Water Level - High	BARTON INSTRUMENT SYSTEMS	764/351	163 - 295.8 INWC
SR 3.3.1.11	Table 3.3.1-1, Function 16a	Perform CHANNEL Calibration. Reactor Trip System Interlocks - Intermediate Range Neutron Flux, P-6	WESTINGHOUSE	3359C39G01	1E-11 - 1.301E-10 A
SR 3.3.1.11	Table 3.3.1-1, Function 16b1	Perform CHANNEL Calibration. Reactor Trip System Interlocks - Low Power Reactor Trips Block, P-7 - Power Range Neutron Flux	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.11	Table 3.3.1-1, Function 16c	Perform CHANNEL Calibration. Reactor Trip System Interlocks - Power Range Neutron Flux, P-8	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.11	Table 3.3.1-1, Function 16d	Perform CHANNEL Calibration. Reactor Trip System Interlocks - Power Range Neutron Flux, P-9	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.11	Table 3.3.1-1, Function 16e	Perform CHANNEL Calibration. Reactor Trip System Interlocks - Power Range Neutron Flux, P-10	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.11	Table 3.3.1-1, Function 2a	Perform CHANNEL Calibration. Power Range Neutron Flux - High	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.11	Table 3.3.1-1, Function 2b	Perform CHANNEL Calibration. Power Range Neutron Flux - Low	WESTINGHOUSE	3359C39G01	0 - 120% RTP

Applicable Instrumentation

Surveillance Requirement	Tech Spec Section/Function	Description	Manufacturer	Model Number	Range
SR 3.3.1.11	Table 3.3.1-1, Function 3a	Perform CHANNEL Calibration. Power Range Neutron Flux Rate - High Positive Rate	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.11	Table 3.3.1-1, Function 3b	Perform CHANNEL Calibration. Power Range Neutron Flux Rate - High Negative Rate	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.11	Table 3.3.1-1, Function 4	Perform CHANNEL Calibration. Intermediate Range Neutron Flux	WESTINGHOUSE	3359C39G01	1E-11 - 1.301E-10 A
SR 3.3.1.11	Table 3.3.1-1, Function 5	Perform CHANNEL Calibration. Source Range Neutron Flux	WESTINGHOUSE	3359C39G01	1.0E1 - 1.0E6 CPS
SR 3.3.1.12	Table 3.3.1-1, Function 6	Perform CHANNEL Calibration. Overtemperature ΔT	NUS INSTRUMENTS LLC	RTL501-3/13	495 - 645 DEG F (398.14 - 458.75 OHMS)
SR 3.3.1.12	Table 3.3.1-1, Function 6	Perform CHANNEL Calibration. Overtemperature ΔT	ROSEMOUNT / EMERSON ELEC	1154GP9RC	1715 - 2515 PSIG
SR 3.3.1.12	Table 3.3.1-1, Function 7	Perform CHANNEL Calibration. Overpower ΔT	NUS INSTRUMENTS LLC	RTL501-3/13	495 - 645 DEG F (398.14 - 458.75 OHMS)
SR 3.3.1.13	Table 3.3.1-1, Function 16a	Perform COT. Reactor Trip System Interlocks - Intermediate Range Neutron Flux, P-6	WESTINGHOUSE	3359C39G01	1E-11 - 1.301E-10 A
SR 3.3.1.13	Table 3.3.1-1, Function 16b1	Perform COT. Reactor Trip System Interlocks - Low Power Reactor Trips Block, P-7 - Power Range Neutron Flux	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.13	Table 3.3.1-1, Function 16c	Perform COT. Reactor Trip System Interlocks - Power Range Neutron Flux, P-8	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.13	Table 3.3.1-1, Function 16d	Perform COT. Reactor Trip System Interlocks - Power Range Neutron Flux, P-9	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.1.13	Table 3.3.1-1, Function 16e	Perform COT. Reactor Trip System Interlocks - Power Range Neutron Flux, P-10	WESTINGHOUSE	3359C39G01	0 - 120% RTP
SR 3.3.2.6	Table 3.3.2-1, Function 1c	Perform CHANNEL CALIBRATION. Safety Injection - High Containment Pressure	ROSEMOUNT / EMERSON ELEC	1154DP6RC	-2 - 30 PSIG
SR 3.3.2.6	Table 3.3.2-1, Function 1d	Perform CHANNEL CALIBRATION. Safety Injection - Pressurizer Low Pressure	ROSEMOUNT / EMERSON ELEC	1154GP9RC	1715 - 2515 PSIG
SR 3.3.2.6	Table 3.3.2-1, Function 1e	Perform CHANNEL CALIBRATION. Safety Injection - Steam Line Low Pressure	ROSEMOUNT / EMERSON ELEC	1154GP9RC	2.0000 - 1402.0 PSIG
SR 3.3.2.6	Table 3.3.2-1, Function 2c	Perform CHANNEL CALIBRATION. Containment Spray - High-High Containment Pressure	ROSEMOUNT / EMERSON ELEC	1154DP6RC	-2 - 30 PSIG
SR 3.3.2.6	Table 3.3.2-1, Function 2c	Perform CHANNEL CALIBRATION. Containment Spray - High-High Containment Pressure	ROSEMOUNT / EMERSON ELEC	1154DP6RC	-4 - 60 PSIG
SR 3.3.2.6	Table 3.3.2-1, Function 4c	Perform CHANNEL CALIBRATION. Steam Line Isolation - High-High Containment Pressure	ROSEMOUNT / EMERSON ELEC	1154DP6RC	-4 - 60 PSIG

Applicable Instrumentation

Surveillance Requirement	Tech Spec Section/Function	Description	Manufacturer	Model Number	Range
SR 3.3.2.6	Table 3.3.2-1, Function 4d	Perform CHANNEL CALIBRATION. Steam Line Isolation - High Steam Flow	ROSEMOUNT / EMERSON ELEC	3154ND4R	0 - 1455.8 INWC
SR 3.3.2.6	Table 3.3.2-1, Function 4d	Perform CHANNEL CALIBRATION. Steam Line Isolation - Coincident with Low-Low Tavg	RDF	21450	495.00 - 645.00 DEG F (398.14 - 458.75 OHMs)
SR 3.3.2.6	Table 3.3.2-1, Function 4d	Perform CHANNEL CALIBRATION. Steam Line Isolation - Coincident with Low-Low Tavg	WEED INSTRUMENT CO INC	N9355E-2A-20	495.00 - 645.00 DEG F (398.16 - 459.03 OHMs)
SR 3.3.2.6	Table 3.3.2-1, Function 4e	Perform CHANNEL CALIBRATION. Steam Line Isolation - High High Steam Flow	ROSEMOUNT / EMERSON ELEC	3154ND4R	UNIT 1: 0 - 1413.1 INWC UNIT 2: 0 - 1455.8 INWC
SR 3.3.2.6	Table 3.3.2-1, Function 5b	Perform CHANNEL CALIBRATION. Feedwater Isolation - High - High Steam Generator (SG) Water Level	ROSEMOUNT / EMERSON ELEC	3152ND-2-A-2-F3-E-3-Q8-W2	UNIT 1: 32.40 - 138.90 INWC UNIT 2: 32.50 - 238.90 INWC
SR 3.3.2.6	Table 3.3.2-1, Function 6b	Perform CHANNEL CALIBRATION. Auxiliary Feedwater - Low-Low SG Water Level	ROSEMOUNT / EMERSON ELEC	3152ND-2-A-2-F3-E-3-Q8-W2	UNIT 1: 32.40 - 138.90 INWC UNIT 2: 32.50 - 238.90 INWC
SR 3.3.2.6	Table 3.3.2-1, Function 6d	Perform CHANNEL CALIBRATION. Auxiliary Feedwater - Undervoltage on 4 kV Buses 11 and 12 (21 and 22)	ASCO VALVE CO	214A147	84.06 - 117.7 VAC
SR 3.3.2.6	Table 3.3.2-1, Function 6d	Perform CHANNEL CALIBRATION. Auxiliary Feedwater - Undervoltage on 4 kV Buses 11 and 12 (21 and 22)	ASCO VALVE CO	214B111	84.06 - 117.7 VAC
SR 3.3.3.2	Table 3.3.3-1, Function 1	Perform CHANNEL CALIBRATION Power Range Neutron Flux (Logarithmic Scale)	THERMO FISHER SCIENTIFIC	Ex-core Neutron Flux Monitoring System	0.1 - 10E5 CPS
SR 3.3.3.2	Table 3.3.3-1, Function 10	Perform CHANNEL CALIBRATION Containment Area Radiation (High Range)	GENERAL ATOMICS	RD-23	10E0 - 10E8 R/hr
SR 3.3.3.2	Table 3.3.3-1, Function 12	Perform CHANNEL CALIBRATION Pressurizer Level	BARTON INSTRUMENT SYSTEMS	764	163 - 295.8 INWC
SR 3.3.3.2	Table 3.3.3-1, Function 13	Perform CHANNEL CALIBRATION Steam Generator Water Level (Wide Range)	ROSEMOUNT	1154	0 - 575 INWC
SR 3.3.3.2	Table 3.3.3-1, Function 14	Perform CHANNEL CALIBRATION Condensate Storage Tank Level	FOXBORO	E13DM	-50 - 310 INWC
SR 3.3.3.2	Table 3.3.3-1, Function 16	Perform CHANNEL CALIBRATION Refueling Water Storage Tank Level	FOXBORO	N-E11GM	-55 - 835 INWC
SR 3.3.3.2	Table 3.3.3-1, Function 17	Perform CHANNEL CALIBRATION Steam Generator Water Level (Narrow Range)	ROSEMOUNT	3152ND-2-A-2-F3-E-3-Q8-W2	32.40 - 138.90 INWC
SR 3.3.3.2	Table 3.3.3-1, Function 2	Perform CHANNEL CALIBRATION Source Range Neutron Flux (Logarithmic Scale)	WESTINGHOUSE	6052D22G01	0 - 0.8 V
SR 3.3.3.2	Table 3.3.3-1, Function 3	Perform CHANNEL CALIBRATION Reactor Coolant System (RCS) Hot Leg Temperature	FOXBORO	N-2AI-P2V	50.000 - 700.00 DEG F
SR 3.3.3.2	Table 3.3.3-1, Function 4	Perform CHANNEL CALIBRATION RCS Cold Leg Temperature	FOXBORO	N-2AI-P2V	50.000 - 700.00 DEG F

Applicable Instrumentation

Surveillance Requirement	Tech Spec Section/Function	Description	Manufacturer	Model Number	Range
SR 3.3.3.2	Table 3.3.3-1, Function 5	Perform CHANNEL CALIBRATION RCS Pressure (Wide Range)	ROSEMOUNT	3154	0 - 3000 PSIG
SR 3.3.3.2	Table 3.3.3-1, Function 6	Perform CHANNEL CALIBRATION Reactor Vessel Water Level	BARTON INSTRUMENT SYSTEMS	764	-479.16 - 0 INWC
SR 3.3.3.2	Table 3.3.3-1, Function 6	Perform CHANNEL CALIBRATION Reactor Vessel Water Level	BARTON INSTRUMENT SYSTEMS	764	-479.16 - 1043.0 INWC
SR 3.3.3.2	Table 3.3.3-1, Function 7	Perform CHANNEL CALIBRATION Containment Sump Water Level (Wide Range)	GEMS SENSORS	XM-54854	0 - 78 INWC
SR 3.3.3.2	Table 3.3.3-1, Function 8	Perform CHANNEL CALIBRATION Containment Pressure (Wide Range)	FOXBORO	N-E11GM-IIB1A	-15 - 350 PSI
SR 3.4.12.5	Section 3.4.12 - LTOP - RCSCLT Temp > SI Pump Disable Temp	Perform CHANNEL CALIBRATION for each OPPS actuation channel.	RDF	21451	50 - 700 DEG F (208.00 - 480.00 OHMs)
SR 3.4.12.5	Section 3.4.12 - LTOP - RCSCLT Temp > SI Pump Disable Temp	Perform CHANNEL CALIBRATION for each OPPS actuation channel.	ROSEMOUNT / EMERSON ELEC	1154GP9RC	0 - 3000 PSIG
SR 3.4.13.6	Section 3.4.13 - LTOP - RCSCLT Temp ≤ SI Pump Disable Temp	Perform CHANNEL CALIBRATION for each OPPS actuation channel.	RDF	21451	50 - 700 DEG F (208.00 - 480.00 OHMs)
SR 3.4.13.6	Section 3.4.13 - LTOP - RCSCLT Temp ≤ SI Pump Disable Temp	Perform CHANNEL CALIBRATION for each OPPS actuation channel.	ROSEMOUNT / EMERSON ELEC	1154GP9RC	0 - 3000 PSIG
SR 3.4.16.3	Section 3.4.16 - RCS Leakage Detection Instrumentation Operable: Containment Sump Monitor	Perform CHANNEL CALIBRATION of the required containment sump monitor.	MAGNETROL	103FEP-VPXVT	ON/OFF
SR 3.4.16.4	Section 3.4.16 - RCS Leakage Detection Instrumentation Operable: Containment Radionuclide Monitor	Perform CHANNEL CALIBRATION of the required containment radionuclide monitor.	APANTEC	AM200PGM	1E2 - 1E6 CPM
SR 3.6.8.2	Section 3.6.8 - Vacuum Breaker System: Channel Calibration	Perform CHANNEL CALIBRATION.	BARTON INSTRUMENT SYSTEMS	288A	0 - 1.0 PSID
SR 3.9.3.2	Section 3.9.3 - Nuclear Instrumentation: Channel Calibration	Perform CHANNEL CALIBRATION of required channels.	WESTINGHOUSE	3359C39G01	SOURCE RANGE: 1E0 - 1E6 CPS INTERMEDIATE RANGE: 1E-11 - 1.301E-10 A POWER RANGE: 0 - 120% RTP

Attachment 1

Listing of Technical Specifications

The following SR with 24-month intervals in the PI STI have limitations on application of grace and will be revised to allow grace of up to six months or 30 months total:

TS 3.3.1, Reactor Trip System (RTS) Instrumentation

SR 3.3.1.10	Perform CHANNEL CALIBRATION
SR 3.3.1.11	Perform CHANNEL CALIBRATION
SR 3.3.1.12	Perform CHANNEL CALIBRATION
SR 3.3.1.13	Perform COT
SR 3.3.1.14	Perform TADOT

TS 3.3.2, Engineered Safety Feature Actuation System (ESFAS) Instrumentation

SR 3.3.2.6 Perform CHANNEL CALIBRATION
SR 3.3.2.7 Perform MASTER RELAY TEST

TS 3.3.3, Event Monitoring (EM) Instrumentation

SR 3.3.3.2 Perform CHANNEL CALIBRATION

TS 3.3.6, Control Room Special Ventilation System (CRSVS) Actuation Instrumentation

SR 3.3.6.3 Perform TADOT
SR 3.3.6.4 Perform CHANNEL CALIBRATION

TS 3.4.1, RCS Pressure, Temperature, and Flow – Departure from Nucleate Boiling (DNB) Limit

SR 3.4.1.3 Verify RCS total flow rate is within the limit specified in the COLR

TS 3.4.9, Pressurizer

SR 3.4.9.2	Verify capacity of each required group of pressurizer heaters is ≥ 100 kW
SR 3.4.9.3	Verify required pressurizer heaters are capable of being powered from an emergency power supply

TS 3.4.11, Pressurizer Power Operated Relief Valves (PORVs)

SR 3.4.11.2	Perform a complete cycle of each Power Operated Relief Valve (PORV)

<u>TS 3.4.12, Low Temperature Overpressure Protection (LTOP) – Reactor Coolant System Cold Leg Temperature (RCSPT) > Safety Injection (SI) Pump Disable Temperature</u>

SR 3.4.12.5	Perform CHANNEL CALIBRATION for each OPPS actuation channel

<u>TS 3.4.13, Low Temperature Overpressure Protection (LTOP) – Reactor Coolant System Cold Leg Temperature (RCSPT) ≤ Safety Injection (SI) Pump Disable Temperature</u>

SR 3.4.13.6	Perform CHANNEL CALIBRATION for each OPPS actuation channel

<u>TS 3.4.16, RCS Leakage Detection Instrumentation</u>

SR 3.4.16.3	Perform CHANNEL CALIBRATION of the required containment sump monitor
SR 3.4.16.4	Perform CHANNEL CALIBRATION of the required containment radionuclide monitor

<u>TS 3.5.2, ECCS - Operating</u>

SR 3.5.2.9	Verify each ECCS throttle valve listed in SR 3.5.2.9 is in the correct position
SR 3.5.2.10	Verify, by visual inspection, each ECCS train containment sump suction inlet is not restricted by debris and the suction inlet strainers show no evidence of structural distress or abnormal corrosion

<u>TS 3.6.5, Containment Spray and Cooling Systems</u>

SR 3.6.5.4	Verify cooling water flow rate to each containment fan coil unit is ≥ 900 gpm

<u>TS 3.6.8, Vacuum Breaker System</u>

SR 3.6.8.2 Perform CHANNEL CALIBRATION

<u>TS 3.7.3, Main Feedwater Regulation Valves (MFRVs) and MFRV Bypass Valves</u>

SR 3.7.3.2	Verify each Main Feedwater Regulation Valve (MFRV) and MFRV bypass valve actuates to the isolation position on an actual or simulated actuation signal

<u>TS 3.7.4, Steam Generator (SG) Power Operated Relief Valves (PORVs)</u>

SR 3.7.4.2 Verify one complete manual cycle of each SG PORV block valve

<u>TS 3.7.10, Control Room Special Ventilation System (CRSVS)</u>

SR 3.7.10.4 Verify each CRSVS train in the Emergency Mode delivers 3600 to 4400 cfm through the associated CRSVS filters

<u>TS 3.8.1, AC Sources - Operating</u>

SR 3.8.1.11 Verify on an actual or simulated loss of offsite power that the DG auto-starts from standby condition

<u>TS 3.9.3, Nuclear Instrumentation</u>

SR 3.9.3.2 Perform CHANNEL CALIBRATION of required channels

ENCLOSURE 3

PRAIRIE ISLAND NUCLEAR GENERATING PLANT, UNITS 1 AND 2

License Amendment Request

Application for License Amendment to Implement 24-Month Operating Cycle

PRAIRIE ISLAND INSTRUMENT DRIFT ANALYSIS SUMMARY

(1 Page Follows)

EM 3.3.4.2 Drift Analysis Summary

The drift analysis procedure at Prairie Island is provided in Engineering Manual section 3.3.4.2 (EM 3.3.4.2) The procedure follows guidance as provided in EPRI Test Report TR-103335 rev 2, Jan 2014, and provides procedural guidance to: Determine appropriate drift analysis grouping, retrieve as found as left (AFAL) calibration data, calculate statistical parameters, determine outliers, and verify data is statistically normal. For instruments without calculated setpoints, complete a qualitative (impact assessment) analysis. The procedural steps are summarized as follows:

1. Determine appropriate sample size to ensure data is of appropriate confidence level for statistical rigor necessary to meet the requirements of GL 91-04.
2. Retrieve appropriate calibration data required to ensure normal distributions and note instrument make and model number and equipment IDs, and other data required for drift analysis.
3. Enter data into analysis spreadsheet and extract drift data from AFAL information.
4. Determine statistical parameters for the data set (sample mean, standard deviation, drift values, and number of samples).
5. Determine and resolve any outliers and bin outliers in appropriate outlier categories according to evaluation of data.
6. Determine data 'normalcy' using W-test and D-Prime tests.
7. Test for time dependency using scatter plots and regression analysis.
8. Determine 'Bounding Drift' term for normal or non-normal distributions.

Evaluate drift terms against applicable setpoint calculation existing values and determine appropriate setpoints.