Dominion Nuclear Connecticut, Inc.
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Dominion®

October 4, 2007

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

Serial No.	06-0841B
MPS Lic/WDB	R1
Docket No.	50-336
License No.	DPR-65

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2
RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION
REGARDING INSTRUMENTATION TECHNICAL SPECIFICATION CHANGES

Dominion Nuclear Connecticut, Inc. (DNC) submitted a proposed license amendment to modify the Technical Specification Action and Surveillance Requirements for instrumentation identified in Millstone Power Station Unit 2 Technical Specifications 3.3.1 and 3.3.2 on November 8, 2006 (Serial No. 06-0841). DNC responded to a request for additional information (RAI) regarding this proposed change on May 4, 2007 (Serial No. 06-0841A). During a conference call on August 21, 2007, the NRC requested additional information. The response to this RAI is provided in Attachment 1 to this letter. Attachment 2 to the letter contains a calculation requested in the conference call. The signatures of the individuals who prepared, reviewed, and approved the calculation have been removed for this docketed submittal. Attachment 3 provides revised marked up Technical Specification pages as discussed in the conference call.

The additional information provided in this letter does not affect the conclusions of the significant hazards consideration discussion in DNC's original submittal dated November 8, 2006.

In accordance with 10 CFR 50.91(b), a copy of this response is being provided to the State of Connecticut.

Should you have any questions about the information provided or require additional information, please contact Ms. Margaret A. Earle at (804) 273-2768.

Sincerely,

Gerald T. Bischof
Vice President – Nuclear Engineering

COMMONWEALTH OF VIRGINIA)
)
COUNTY OF HENRICO)

The foregoing document was acknowledged before me, in and for the County and Commonwealth aforesaid, today by Gerald T. Bischof, who is Vice President – Nuclear Engineering, of Dominion Nuclear Connecticut, Inc. He has affirmed before me that he is duly authorized to execute and file the foregoing document in behalf of that Company, and that the statements in the document are true to the best of his knowledge and belief.

Acknowledged before me this 4TH day of October, 2007.

My Commission Expires: May 31, 2010.

VICKI L. HULL
Notary Public
Commonwealth of Virginia
140642
My Commission Expires May 31, 2010

Vicki L. Hull
Notary Public

Attachments:
1. Response to Request for Additional Information
2. Calculation ZPM_Drift-0426012, Rev 0, dated 9/14/07, "Zero Power Mode Drift Analysis in Support of LBDCR 06-MP2-036"
3. Marked up Technical Specification Pages

Enclosure: CD Containing MP2 Instrumentation Schematic Diagrams

Document Components:

001 Schematic Diagram 25203-39047-Sh 1.pdf; 1,869,277 bytes; publicly available
002 Schematic Diagram 25203-39047-Sh 2.pdf; 2,036,912 bytes; publicly available
003 Schematic Diagram 25203-39047-Sh 10.pdf; 1,989,574 bytes; publicly available
004 Schematic Diagram 25203-39069-Sh 18.pdf; 1,175,779 bytes; publicly available
005 Schematic Diagram 25203-39069-Sh 19.pdf; 1,322,495 bytes; publicly available
006 Schematic Diagram 25203-39069-Sh 23C.pdf; 250,303 bytes; publicly available
007 Schematic Diagram 25203-39256-Sh 32.pdf; 201,156 bytes; publicly available
008 Schematic Diagram 25203-39256-Sh 58.pdf; 725,435 bytes; publicly available

Commitments made in this letter: None.

cc: U.S. Nuclear Regulatory Commission
Region I Regional Administrator
475 Allendale Road
King of Prussia, PA 19406-1415

Mr. J. D. Hughey
NRC Project Manager Millstone Units 2 and 3
U.S. Nuclear Regulatory Commission
One White Flint North
11555 Rockville Pike
Mail Stop O-8B3
Rockville, MD 20852-2738

NRC Senior Resident Inspector
Millstone Power Station

Director
Bureau of Air Management
Monitoring & Radiation Division
Department of Environmental Protection
79 Elm Street
Hartford, CT 06106-5127

ATTACHMENT 1

INSTRUMENTATION TECHNICAL SPECIFICATION CHANGES

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

During a conference call on August 21, 2007, the NRC requested additional information from Dominion Nuclear Connecticut, Inc. (DNC) regarding a proposed change to the Millstone Power Station Unit 2 (MPS2) instrumentation technical specifications. The requested information is necessary in order for the NRC staff to complete its review.

The information requested is provided below.

NRC Question No. 1.

The License Amendment Request (LAR), dated November 8, 2006, proposes to change the first sentence in Millstone 2 Technical Specification (TS), Surveillance Requirements (SR) 4.3.1.1.2 for Reactor Protective (RPS) Instrumentation and SR 4.3.2.1.2 for Engineered Safety Feature Actuation System (ESFAS) Instrumentation from "The logic for the bypass shall be demonstrated OPERABLE during the at power CHANNEL FUNCTIONAL TEST of channels affected by bypass operation" to "The bypass function and automatic bypass removal function shall be demonstrated OPERABLE during a CHANNEL FUNCTIONAL TEST once within 92 days prior to each reactor startup."

The Millstone 2, TS Table 4.3-1, Reactor Protective Instrumentation Surveillance Requirements, and TS Table 4.3-2 Engineered Safety Feature Actuation System Instrumentation Surveillance Requirements, specify monthly CHANNEL FUNCTIONAL TEST for each Functional Unit. Thus, the current wordings of SR 4.3.1.1.2 and SR 4.3.2.1.2 require monthly demonstration of the operability of the bypass channel logic. The proposed TS change will effectively replace the bypass channel monthly CHANNEL FUNCTIONAL TEST by CHANNEL FUNCTIONAL TEST once within 92 days prior to each reactor startup.

It is stated in the LAR that the bases for the similar requirements contained in NUREG 1432 were reviewed and determined to be applicable to MPS2. NUREG 1432, SR 3.3.1.7, specifies, "Once within 92 days prior to each reactor startup" for automatic bypass removal functions but not for bypass channels. Provide justifications for extending SR for bypass channels from monthly to once within 92 days prior to each reactor startup.

It is also stated in the LAR, "The allowance to conduct this test within 92 days of startup is based on the reliability analysis presented in topical report CEN-327, "RPS/ESFAS Extended Test Interval Evaluation," which is referenced in NUREG 1432 and is applicable to MPS2." Provide justifications why this portion of NUREG CEN-327 is applicable to MPS2 and if necessary provide the schematic diagrams of the bypass and automatic bypass removal circuits.

DNC Response

As discussed in the conference call on August 21, 2007, the Reactor Protective System (RPS) Instrumentation and Engineered Safety Feature Actuation System (ESFAS) Instrumentation contain both trip channel bypasses as well as operating bypasses. The trip channel bypasses will continue to be demonstrated operable through performance of the channel monthly CHANNEL FUNCTIONAL TEST required by SR 4.3.1.1.1 and SR 4.3.2.1.1. The operating bypass function and automatic bypass removal function of the operating bypasses will be demonstrated operable during a CHANNEL FUNCTIONAL TEST once within 92 days prior to each reactor startup. Also as discussed in the conference call, the justification for extending the surveillance test interval for the operating bypasses from monthly to once within 92 days prior to each reactor startup is provided in the response to Question 2.

Copies of the applicable schematic diagrams of the operating bypasses and the automatic bypass removal circuits are provided on the enclosed compact disc. These schematics show that the logic of the operating bypasses and the automatic bypass removal circuits are directly related to the RPS and ESFAS channels evaluated under CEN-327.

NRC Question No. 2.

Attachment 1 to the LAR letter dated May 4, 2007, refers to the Calculation PA79-219-00767GE, Rev 01. This calculation does not provide the necessary information to conclude that the proposed changes to SR 4.3.1.1.2 and SR 4.3.2.1.2 will not have any adverse effect on plant safety, specifically the drift evaluation related to increasing the operability check for bypass channels from monthly to 92 days prior to each reactor startup. The NRC letter dated November 6, 1989, "NRC Evaluation of CEOG Topical Report CEN-327, "RPS/ESFS Extended Test Interval Evaluation" states, "The licensees must confirm that they have reviewed instrument drift information for each instrument channel involved and have determined that drift occurring in that channel over the period of extended STI will not cause the setpoint value to exceed the allowable value as calculated for that channel by their setpoint methodology. Each licensee should have onsite records of the as-found and as-left values showing actual calculations and supporting data for planned future staff audits. The records should consist of monthly data over a period of 2 to 3 years with the current plant-specific setpoint methodology used to derive the safety margins." Provide the drift evaluation to justify changing the CHANNEL FUNCTIONAL TEST frequency for the bypass channels from monthly to 92 days prior to each reactor startup.

DNC Response

DNC Calculation ZPM_Drift-0426012, Rev 0, dated 9/14/07, "Zero Power Mode Drift Analysis in Support of LBDCR 06-MP2-036," is provided as Attachment 2. This calculation confirms that the wide range neutron flux instrument rack drift occurring over the period of extended STI will not cause the Zero Power Mode (ZPM) operating bypass channel setpoint value to exceed the allowable value. Accordingly, the wide range neutron flux ZPM bypass bistable trip upper limit will be set at less than or equal to 7.413E-05%. This calculation concludes that the change of the CHANNEL FUNCTIONAL TEST frequency for the ZPM operating bypass channels from monthly to 92 days prior to each reactor startup is acceptable. Onsite records of the as-found and as-left values showing actual calculations and supporting data are available for staff audits. The records consist of monthly data over the period from January 2005 through July 2007.

The operating bypasses and their setpoints are not modeled in the plant safety analysis and are not considered analytical limits. The instrument uncertainty is used as a basis for establishing the setpoint value such that the setpoint value will remain below the allowable value over the period of the surveillance interval.

NRC Question No. 3.

Does the Millstone Unit 2 control room currently have logarithmic displays or are they being added as a modification associated with this TS submittal?

DNC Response

The Millstone Unit 2 control room currently has logarithmic displays.

NRC Question No. 4.

Proposed ACTION 8.a appears to be internally inconsistent. The word "channel" should be "channels" as this ACTION applies to the condition of two inoperable automatic bypass removal channels.

DNC Response

DNC concurs that proposed ACTION 8.a should read as follows:

a. disable the bypass channels within 1 hour, or

A revised insert reflecting this change is included in Attachment 3.

Question No. 5.

Table 3.3-1, Table Notation (f) should be revised similar to the proposed change to Table Notation (a) to accurately reflect the parameter being measured by referring to logarithmic power instead of 'THERMAL POWER' and replacing '%RTP' with '%' where appropriate.

DNC Response

DNC proposes changing Table 3.3-1, Table Notation (f) as follows:

Current

(f) ΔT Power input to trip may be bypassed below 5% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is ≥ 5% of RATED THERMAL POWER.

Proposed

(f) ΔT Power input to trip may be bypassed when logarithmic power is < 1E-04% and the bypass shall be capable of automatic removal whenever logarithmic power is < 1E-04%. Bypass shall be removed prior to raising logarithmic power to a value ≥ 1E-04%.

The parameter used for the input to the ΔT trip input to the operating bypass for the affected functional unit (i.e., Power Level – High) is the associated wide range logarithmic nuclear instrumentation channel. Accordingly, the discussion related to proposed changes 4 and 5, in Section 4.0, 'Technical Analysis,' of Attachment 1 to the November 8, 2006 submittal is also applicable to the above proposed change.

A revised marked up Technical Specification page and associated insert is included in Attachment 3.

ATTACHMENT 2

INSTRUMENTATION TECHNICAL SPECIFICATION CHANGES

CALCULATION ZPM DRIFT-0426012, REV 0, DATED 9/14/07
ZERO POWER MODE DRIFT ANALYSIS IN SUPPORT OF LBDCR 06-MP2-036

DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2

Approved 11/17/03 Effective 11/21/03

CALCULATION TITLE PAGE

Total Number of Pages: 22

TITLE

ZPM_DRIFT-04260I2	0	Zero Power Mode Drift Analysis in Support of LBDCR 06-MP2-036
CALCULATION No.	**Revision No.**	
NA	N/A	
VENDOR CALCULATION No.	**Revision No.**	
N/A		
VENDOR NAME		

NUCLEAR INDICATOR:	50.59 Evaluation or Screen Attached	Calc. Supports DCR/MMOD/EE?	Calc. Supports Other Process?
☒CAT1 ☐RWQA ☐SBOQA ☐FPQA ☐ATWSQA ☐NON-QA	☐YES ☒NO	☐YES ☒NO	☒YES ☐NO
		↓	↓
			LBDCR 06-MP2-036
		Ref. No.	Reference

INCORPORATES:

CCN NO: AGAINST REV.

Executive Summary

LBDCR 06-MP2-036 is proposing extending the surveillance requirement for the auto removal of the Zero Power Mode Bypass function from a monthly interval to once within 92 days of a reactor startup. To support the proposed surveillance extension for the auto removal of the Zero Power Mode Bypass function, a detailed drift analysis is required to be performed. Existing calculation PA79-219-00767GE used a drift value of .08 decades for an assumed calibration interval of 24 months. The drift analysis will verify that extending the existing monthly functional check to once within 92 days of a reactor startup will not result in actual equipment drift beyond the assumed values within calculation PA79-219-00767GE. Also, this calculation determines the upper trip setpoint limit for the auto removal of the Zero Power Mode Bypass function.

Approvals (Print & Sign Name)		
Preparer: [redacted]		Date: 9/14/07
Interdiscipline Reviewer: N/A	Discipline:	Date:
Interdiscipline Reviewer : N/A	Discipline:	Date:
Independent Reviewer: [redacted]		Date: 9/14/07
Engineering Approver: [redacted]		Date: 9/14/07

Installation Verification

☐ Calculation represents the installed configuration and approved licensing condition (Calculation of Record)

☐ N/A does not affect plant configuration (e.g., study, hypothetical analysis, etc.)

Preparer/Designer Engineer: (Print and Sign) Date:

Approved 9/22/04 Effective 9/27/04

PassPort DATABASE INPUTs

Calculation Number: ZPM_DRIFT-04260I2 Revision: 0

Vendor Calculation Number/Other: N/A Revision: N/A

CCN # N/A Calc Voided: ☐ Yes ☒ No

Superseded By: N/A Supersedes Calc: N/A

Discipline (Up to 10) I, N

Unit (M1, M2, M3)	Project Reference (EWA, DCR or MMOD)	Component Id	Computer Code	Rev. No./ Level No.
M2	N/A	WR-LOG-A	Microsoft Excel	9.0
		WR-LOG-B		
		WR-LOG-C		
		WR-LOG-D		

MEL CODES*

Structure	System	Component	Reference Calculation	Rev No.	CCN
AB	RPS	LOP	PA79-219-00767GE	1	N/A

*The codes required must be alpha codes designed for structure, system and component.

NOTE: Avoid multiple item references on a line, e.g., LT 1210 A-D requires four separate lines.

Reference Drawing	Sheet	Rev. No.
N/A		

Comments:

Referenced By Calculation	Impact Y	Impact N	AR Reference/Calc Change Ref.
N/A			

TABLE OF CONTENTS

1.0 PURPOSE

The purpose of this calculation is to estimate 92 day drift values for the auto removal of the Zero Power Mode Bypass function. LBDCR 06-MP2-036 is proposing extending the surveillance requirement for the auto removal of the Zero Power Mode Bypass function from a monthly interval to once within 92 days of a plant startup. To support the proposed surveillance extension for the auto removal of the Zero Power Mode Bypass function, a detailed drift analysis is required to be performed. Existing calculation PA79-219-00767GE used a drift value of .08 decades for an assumed calibration interval of 24 months. The drift analysis will verify that extending the existing monthly functional check to once within 92 days of a plant startup will not result in actual equipment drift beyond the assumed values within calculation PA79-219-00767GE. This calculation shall also determine the upper trip setpoint limit for the auto removal of the Zero Power Mode Bypass function.

2.0 SUMMARY OF RESULTS

The bounding values of drift for a 92 day surveillance requirement, derived from historical calibration data for Wide Range Nuclear Instrumentation WR-LOG-A, WR-LOG-B, WR-LOG-C and WR-LOG-D is

Bound = ± 0.0269 decades

This value is less than the ± 0.08 decades drift term used in calculation PA79-219-00767GE Revision 1. This value is conservative given none of the four instruments required any readjustment during the period of time between January 2005 and July of 2007.

The upper trip setpoint limit is $7.413X10^{-5}$ % power. The setpoint must be left below this value based on the Technical Specification Allowable Value of $1.0X10^{-4}$ % power.

3.0 DESIGN INPUTS & REFERENCES

3.1 Design Inputs

3.1.1 SP-M2-EE-0003, Rev 0, *Guidelines for Impact Evaluation of 24-Month Fuel Cycle on Technical Specification Surveillances for Millstone Unit 2*

3.1.2 Surveillance Procedure SP2403GA *"RPS Channel "A" Bistable Trip Test"* Rev 2 Chg 5

3.1.3 Surveillance Procedure SP2403GB *"RPS Channel "B" Bistable Trip Test"* Rev 2 Chg 5

3.1.4 Surveillance Procedure SP2403GC *"RPS Channel "C" Bistable Trip Test"* Rev 2 Chg 6

3.1.5 Surveillance Procedure SP2403GD *"RPS Channel "D" Bistable Trip Test"* Rev 2 Chg 6

3.1.6 Surveillance Procedure SP2401BB1 *"Channel "A" Wide Range Monitor Start-up Functional Test"* Rev 1 Chg 3.

3.1.7 Surveillance Procedure SP2401BB2 *"Channel "B" Wide Range Monitor Start-up Functional Test"* Rev 1 Chg 4.

3.1.8 Surveillance Procedure SP2401BB3 *"Channel "C" Wide Range Monitor Start-up Functional Test"* Rev 1 Chg 4.

3.1.9 Surveillance Procedure SP2401BB4 *"Channel "D" Wide Range Monitor Start-up Functional Test"* Rev 1 Chg 5.

3.1.10 Surveillance Procedure SP2401BC1 *"Channel "A" Wide Range Monitor Calibration"* Rev 1 Chg 3.

3.1.11 Surveillance Procedure SP2401BC2 *"Channel "B" Wide Range Monitor Calibration"* Rev 1 Chg 4.

3.1.12 Surveillance Procedure SP2401BC3 *"Channel "C" Wide Range Monitor Calibration"* Rev 1 Chg 3.

3.1.13 Surveillance Procedure SP2401BC4 *"Channel "D" Wide Range Monitor Calibration"* Rev 1 Chg 6.

3.1.14 Calculation PA97-219-00676GE Rev 1, *Millstone Unit 2 Wide Range Neutron Flux Channel Loop Uncertainty.*

3.1.15 DOE Research and Development Report No. *WAPD-TM-1292, February 1981, Statistics for Nuclear Engineers and Scientists Part 1: Basic Statistical Inference.*

3.1.16 American National Standard N15.15-1974, *Assessment of the Assumption of Normality (Employing Individual Observed Values)*

4.0 ASSUMPTIONS

4.1.1 The data derived from the surveillance procedures constitute a random sample of the population of possible values of drift from like instruments.

4.1.2 The electronics installed in the Wide Range Monitors are typical of all electronics of the same manufacturer and model numbers. Therefore, data may be pooled without further analysis.

4.1.3 It is important to note that none of the instruments required recalibration. In terms of real drift, none of the affected instrument channels drifted beyond 0.0269 decades from the period of January 2005 to July of 2007. However, for purposes of added conservatism, each successive calibration interval was assumed as a unique data point with no credit for non-adjustment of the instrument setpoint.

5.0 METHOD OF CALCULATION

In order to calculate bounding drift values for a 92 day surveillance interval, the methods of Reference 3.1.1 were employed. Plant historical data were tabulated and analyzed. Historical surveillance test and calibration data was collected for the applicable instrumentation and entered into an Excel™ spreadsheet. Statistical analysis of the data was performed using various functions within Excel™.

A linear regression analysis of the data was performed to determine if drift is time dependent. The data were tested for normality, and estimates of the bounding values of drift were determined using the methods for normal distributions. Scatter plots and histograms were prepared to assist in visualization of the data.

5.1 Instrument Block Diagram

Figure 1 is a diagram of a typical Wide Range Nuclear Instrumentation channel. The scope of drift analysis in this calculation pertains to the Zero Power Mode Bypass bistable. The current setpoint for the Zero Power Mode Bypass removal function is 9.4×10^{-5} % reactor power.

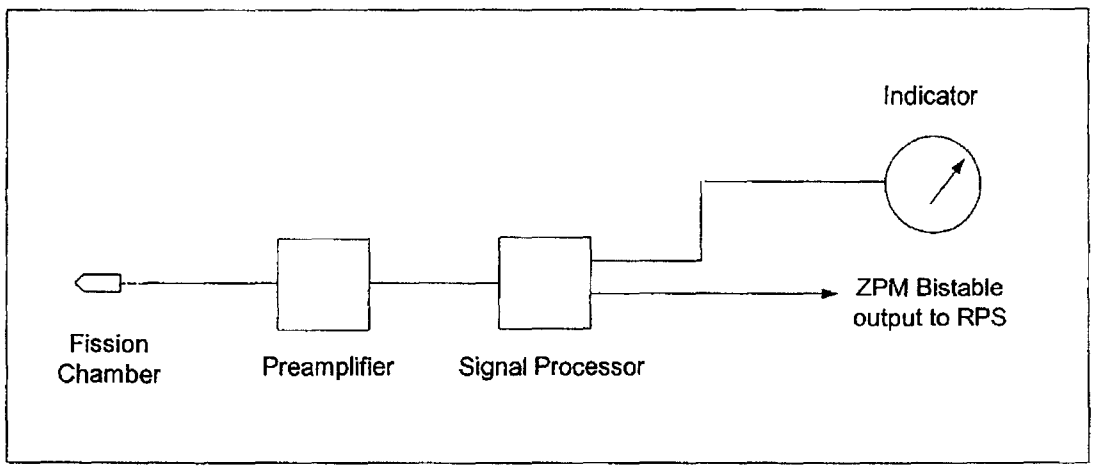

Figure 1: Wide Range Instrumentation Channel Block Diagram

5.2 Zero Power Mode Bistable Calibration/Functional Check

The identified surveillance procedures (References 3.1.2 through 3.1.13) verify the bistable trip setting of the Zero Power Mode Bypass. The setpoint is verified to fall within an acceptance range of 7.1×10^{-5} to 1.2×10^{-4} % reactor power.

From the completed surveillance tests, drift values can be typically obtained by subtracting "as-found" surveillance values from the "as-left" values from the preceding surveillance test. The drift values obtained are for the period of time between the two surveillance dates. The twelve surveillance procedures effectively verify the Zero Power

Mode Bypass bistable setting using the same methodology. As a result, the calibration interval for each channel will be based on the period of time between each successive instrument check, whether it was verified through the calibration surveillance, functional test surveillance or the bistable trip test surveillance procedure.

5.3 Input Data

The historical calibration data in the Appendix constitute the input data for this calculation. The data was derived from surveillance records which were completed over the period from January of 2005 to July of 2007. The associated workorders have been identified for each completed surveillance.

5.4 Spreadsheet Calculations

Microsoft Excel™, version 9.0, for Windows 2000 was used to perform the statistical calculations and prepare the scatter plots and histograms for this calculation. The function, AVERAGE, was used to calculate the sample mean, the function, STDEV, was used to calculated the sample standard deviation and the functions, SLOPE and INTERCEPT, were used to calculate the slope and intercept of the best-fit straight line for the regression analyses.

The computations performed to the full precision of Excel™ are presented in this calculation rounded to two decimal places in most cases. Verification by hand calculator using the rounded values may result in slightly different results due to round-off errors.

6.0 BODY OF CALCULATION

6.1 Drift Analysis

The identified surveillance procedures simulate an input signal through operation of a potentiometer on the Wide Range Nuclear Instrumentation drawers. The "as-found" and "as-left" were observed on the displays and recorded. The loop drift was then determined by subtracting the "as-left" values from the "as-found" values.

6.2 Historical Data Compilation

No	Days	Drift (Dec)	No	Days	Drift (Dec)	No	Days	Drift (Dec)	No	Days	Drift (Dec)
1	1	-0.0269	39	15	0.0000	77	28	0.0000	115	36	0.0000
2	3	-0.0269	40	15	0.0000	78	28	0.0000	116	37	0.0000
3	4	-0.0269	41	15	0.0000	79	28	0.0000	117	37	0.0000
4	7	-0.0269	42	16	0.0000	80	28	0.0000	118	38	0.0000
5	9	-0.0269	43	17	0.0000	81	28	0.0000	119	38	0.0000
6	13	-0.0269	44	17	0.0000	82	28	0.0000	120	38	0.0000
7	15	-0.0269	45	17	0.0000	83	28	0.0000	121	38	0.0000
8	15	-0.0269	46	17	0.0000	84	28	0.0000	122	38	0.0000
9	15	-0.0269	47	19	0.0000	85	28	0.0000	123	38	0.0000
10	19	-0.0269	48	19	0.0000	86	28	0.0000	124	38	0.0000
11	25	-0.0269	49	19	0.0000	87	28	0.0000	125	42	0.0000
12	28	-0.0269	50	19	0.0000	88	28	0.0000	126	42	0.0000
13	28	-0.0269	51	19	0.0000	89	28	0.0000	127	42	0.0000
14	34	-0.0269	52	19	0.0000	90	28	0.0000	128	42	0.0000
15	0	0.0000	53	19	0.0000	91	28	0.0000	129	51	0.0000
16	1	0.0000	54	19	0.0000	92	28	0.0000	130	51	0.0000
17	1	0.0000	55	19	0.0000	93	29	0.0000	131	51	0.0000
18	1	0.0000	56	20	0.0000	94	29	0.0000	132	55	0.0000
19	1	0.0000	57	21	0.0000	95	29	0.0000	133	64	0.0000
20	1	0.0000	58	21	0.0000	96	31	0.0000	134	64	0.0000
21	2	0.0000	59	21	0.0000	97	31	0.0000	135	64	0.0000
22	2	0.0000	60	21	0.0000	98	31	0.0000	136	64	0.0000
23	3	0.0000	61	22	0.0000	99	31	0.0000	137	1	0.0269
24	4	0.0000	62	22	0.0000	100	31	0.0000	138	4	0.0269
25	7	0.0000	63	23	0.0000	101	31	0.0000	139	7	0.0269
26	7	0.0000	64	23	0.0000	102	31	0.0000	140	15	0.0269
27	7	0.0000	65	23	0.0000	103	31	0.0000	141	18	0.0269
28	7	0.0000	66	23	0.0000	104	31	0.0000	142	20	0.0269
29	9	0.0000	67	25	0.0000	105	31	0.0000	143	21	0.0269
30	11	0.0000	68	27	0.0000	106	31	0.0000	144	28	0.0269
31	11	0.0000	69	27	0.0000	107	33	0.0000	145	28	0.0269
32	11	0.0000	70	27	0.0000	108	33	0.0000	146	33	0.0269
33	13	0.0000	71	27	0.0000	109	33	0.0000	147	33	0.0269
34	15	0.0000	72	27	0.0000	110	33	0.0000	148	37	0.0269
35	15	0.0000	73	27	0.0000	111	33	0.0000	149	37	0.0269
36	15	0.0000	74	27	0.0000	112	34	0.0000	150	41	0.0269
37	15	0.0000	75	28	0.0000	113	34	0.0000			
38	15	0.0000	76	28	0.0000	114	34	0.0000			

Table 1: WR-Log A/D Drift Data

Table 1 presents the results of the drift determination, described above. The drift data are in order of increasing values of drift.

6.3 Tests for Outliers

There were no suspected outliers in the results. Therefore, this test was not performed and no data points were removed from the sample population.

6.4 Data Plots

The scatter plots and histograms, Figures 2 and 3, provide a graphical presentation of the drift data. These graphs were created using Excel™.

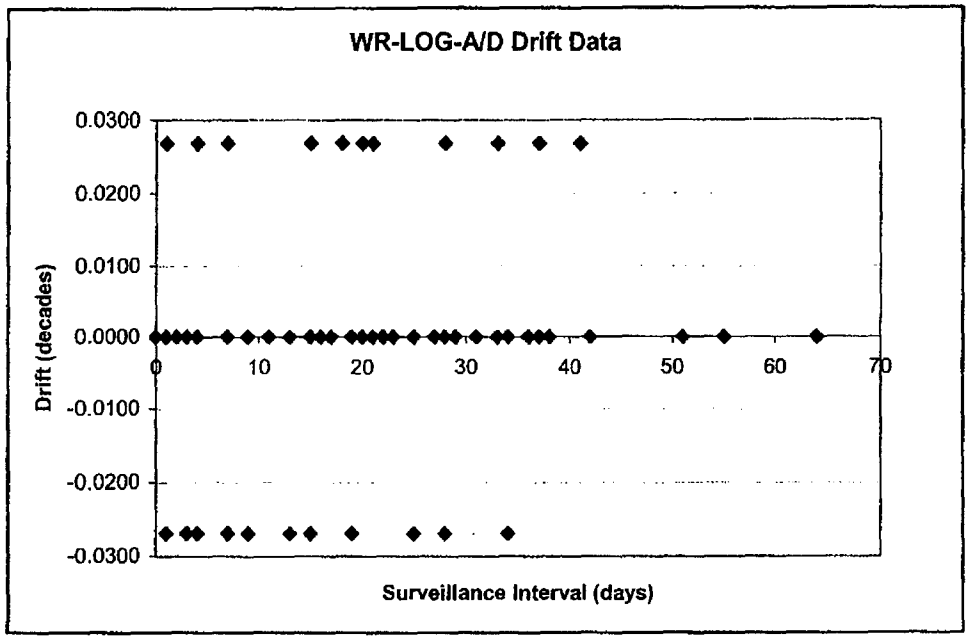

Figure 2: Scatter Plot – WR-LOG-A/D Drift Data

A visual inspection of the scatter plot indicates no apparent connection between the magnitude and the duration of the surveillance interval. A linear regression analysis of the data will confirm or deny the visual observation that the magnitude of drift is not dependent on the duration between surveillances.

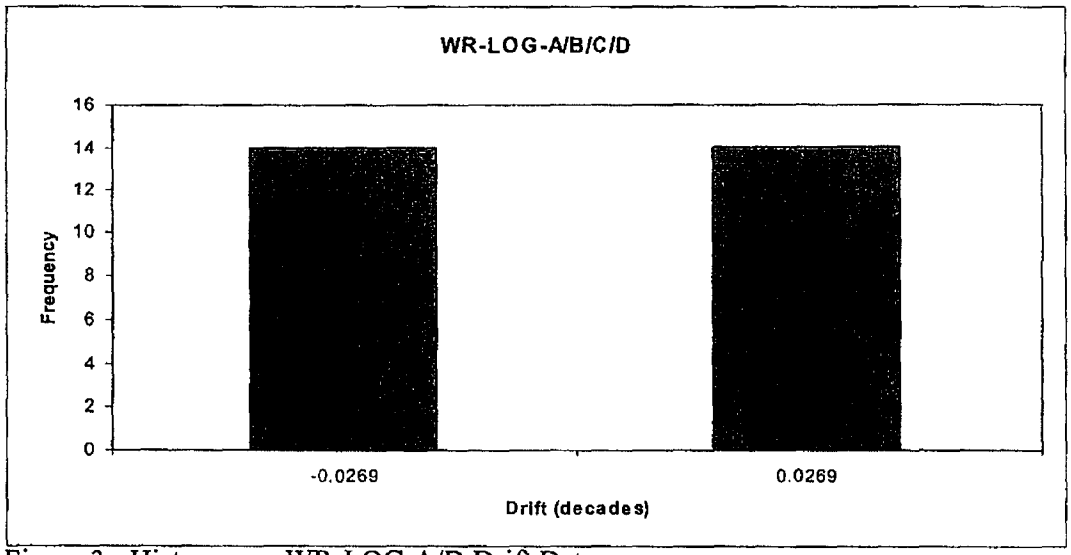

Figure 3: Histogram – WR-LOG-A/D Drift Data

The histogram does not appear to be from a normal distribution. A D' Test shall confirm or deny the normality of the drift data.

6.5 Tests for Normality

Due to the sample population being greater than 50 data points, the D' Test was performed. (Reference 3.1.16).

D' Test

First, T was computed using the following formula:

$$T = \sum_{i=1}^{n} \left[i - \frac{n+1}{2} \right] X_i$$

where:

n is the number of values in the sample

x_i represents the values in the sample arranged in increasing order

Then the D' test statistic was calculated:

$$D' = \frac{T}{S}$$

where:

$S^2 = (n-1)s^2$ and s^2 is the unbiased estimate of the population variance

The mean and standard deviation calculate as follows:

Mean $\bar{X} = \frac{\sum x_i}{n}$ Standard deviation = $s = \sqrt{\frac{(x_i - \bar{X})}{(n-1)}}$

where:

x_i represents the values in the sample arranged in increasing order

n is the number of values in the sample

Using Excel, the standard deviation, s, calculates to 0.01166 and the mean is 0.0.

Therefore, the variance s^2 calculates to 1.3596E-4.

Using the above formula, with n is equal to150 data samples,

$S^2 = (150\text{-}1)1.3596E\text{-}4 = 0.0203$

The test statistic, D' was then compared to the critical values from Table 5 of Reference 3.1.16 at a significance level, $\alpha = 0.02$ (P = 0.01 and 0.99).

The results, calculated by Excel™, are:

T = 51.218

Therefore, $D' = \frac{51.218}{\sqrt{0.0203}} = 359.82$

From Reference 3.1.16, the critical values are 505.6 at P = 0.01 and 526.4 at P = 0.99. The test statistic, D', does not lie between the critical values, so the hypothesis of a normal distribution is rejected at $\alpha = 0.02$.

6.6 Bounding Values of Drift

For a non-normal distribution, the proportion of the population exceeding assumed bounds can be determined from Reference 3.1.1.

$$p_u = \frac{(x+1)F_{\alpha/2;2(x+1),2(n-x)}}{(n-x)+(x+1)F_{\alpha/2;2(x+1),2(n-x)}}$$

Assumed upper and lower bounds (pass/fail criterion) are selected as ± 0.0269 decades. Then, X = 0, and the above equation becomes:

$$p_u = \frac{F_{0.025;2,150}}{150+F_{0.025;2,300}} = \frac{3.781}{150+3.781} = 0.025$$

Thus, 97.5% of the population will lie within a bound of ± 0.269 decades.

It is important to note here that none of the instruments required recalibration. Therefore, in terms of real drift, none of the affected instrument channels drifted beyond 0.0269 decades from the period of January 2005 to July of 2007. However, for purposes of added conservatism, each successive calibration interval was assumed as a unique data point with no credit for non-adjustment of the instrument setpoint.

6.7 Linear Regression Analysis of Drift

As stated earlier, examination of the scatter plot shows no apparent time dependency in the drift. Linear regression analyses of the absolute values of the data, performed by Excel™ using the SLOPE and INTERCEPT functions, provide the slope and intercept of the best-fit straight line.

Slope = $-1.486X10^{-4}$

Intercept = 0.0086

The negative slope of the regression line for the drift data confirm that the drift does not increase with time. This is further supported by the fact that the instrument channels in question did not require any readjustment for the identified surveillances from January 2005 to July 2007. Further, the Zero Power Mode Bypass auto removal setpoint for instrument channels WR-LOG-C and WR-LOG-D did not move at all from the period of in question.

Therefore, based on the above results, the bounding values of drift for a 92 day surveillance interval for the Zero Power Mode bypass auto removal function is ± 0.0269 decades.

Bound = ± 0.0269 decades

This value is less than the ± 0.08 decades drift term assumed in calculation PA79-219-00767GE Revision 1 (Reference 3.1.14).

6.8 Setpoint Derivation

The $1X10^{-4}$ % reactor power Tech Spec value is considered an allowable value and not an analytical limit. The Zero Power Mode bypass setpoint is not modeled in the plant safety analysis and is not considered an analytical limit. For purposes of this calculation, the upper trip setpoint limit shall be calculated by subtracting from the allowable value of $1.0X10^{-4}$ % reactor power the root of the sum of the squares of the expected errors which would be seen during the calibration process. The expected uncertainty terms include Rack Drift (RD), Rack Calibration Accuracy (RCA_{ZP}) associated with the Zero Power Mode Function and Measurement and Test Equipment (MTE). These terms have been derived from calculation PA79-219-00767GE Revision 1 (Reference 3.1.14). They are as follow:

RCA_{ZP} = ± 0.10 decades

RD = ± 0.08 decades It is important to note this drift value is much more conservative that the expected drift term calculated within this calculation. (± 0.0269 decades).

MTE = ± 0.01 decades

Total Expected Uncertainty during performance of the Zero Power Mode Bypass function surveillance would be calculated as follows:

$$SV_{error} = \pm\sqrt{(RCA_{ZP})^2 + (RD)^2 + (MTE)^2}$$

$SV_{error} = \pm\sqrt{(.10)^2 + (.08)^2 + (.01)^2} = \pm 0.13$ decades

The Allowable Value for the Zero Power Mode Bypass function is again $1.0X10^{-4}$ % reactor power. In terms of decades, $1.0X10^{-4}$ equates to the following:

$Log(1.0X10^{-4}) = -4$

These instruments have 10 decades ranging from 10^{-8} to 10^{2}. In terms of logarithmic function:

$Log(10^{-8}) = -8$

$Log(10^{2}) = 2$

In terms of log, this span ranges from –8 to 2. To determine the upper trip setpoint limit, 0.13 decade must be subtracted from logarithmic value of $1.0X10^{-4}$ which is –4.

Upper trip setpoint limit equals –4 – 0.13 = -4.13 decades.

In terms of % reactor power, -4.13 decades equals $10^{-4.13}$ or $7.413X10^{-5}$ % power.

Figure 4 below provides a simplified diagram of the upper trip setpoint derivation.

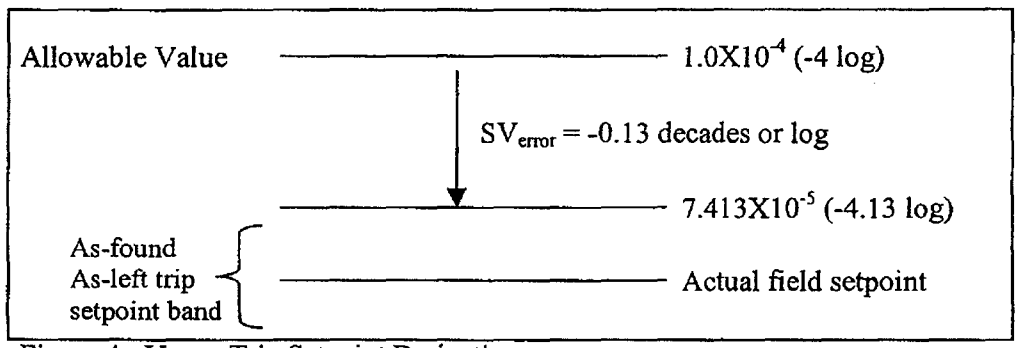

Figure 4: Upper Trip Setpoint Derivation

7.0 DESIGN VERIFICATION

Design verification was done by means of a full design review in accordance with Design Control Manual, Chapters 4 and 5. A copy of the Calculation Review Comment and Resolution Form is included as an attachment.

Appendix

Historical Surveillance Data

WR-LOG-A, WR-LOG-B, WR-LOG-C & WR-LOG-D

WR-LOG-A Surveillance Data

Surveillance Procedure	Work Order	Completion Date	AS FOUND % Power	AS LEFT % Power	DRIFT (Log)	AS FOUND Decades	AS LEFT Decades	DRIFT Decades	DAYS	Absoulte Drift
SP2401GA	M20702383	07/19/2007	1.00E-04	1.00E-04		-4.0000	-4.0000			
SP2401BC1	M20600025	07/16/2007	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	3	0.0269
SP2401GA	M20701671	06/28/2007	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	18	0.0269
SP2401GA	M20700842	06/07/2007	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	21	0.0000
SP2401GA	M20700061	05/04/2007	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	34	0.0000
SP2401GA	M20609438	03/27/2007	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	38	0.0000
SP2401GA	M20607927	02/27/2007	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	28	0.0000
SP2401GA	M20607014	02/02/2007	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	25	0.0000
SP2401GA	M20606247	01/16/2007	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	17	0.0000
SP2401GA	M20605502	12/05/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	42	0.0000
SP2401BB1	M20504175	11/16/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	19	0.0000
SP2401GA	M20604755	11/15/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	1	0.0000
SP2401GA	M20603026	09/12/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	64	0.0000
SP2401GA	M20602006	08/15/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	28	0.0000
SP2401GA	M20601062	07/18/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	28	0.0000
SP2401GA	M20600096	06/20/2006	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	28	0.0269
SP2401GA	M20512070	06/05/2006	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	15	0.0269
SP2401GA	M20511380	05/08/2006	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	28	0.0269
SP2401BB1	M20602053	04/05/2006	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	33	0.0269
SP2401GA	M20510621	03/29/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	7	0.0000
SP2401GA	M20509769	03/06/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	23	0.0000
SP2401BB1	M20402580	02/23/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	11	0.0000
SP2401BC1	M20406730	02/14/2006	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	9	0.0269
SP2401GA	M20509024	02/07/2006	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	7	0.0269
SP2401GA	M20508223	01/05/2006	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	33	0.0000
SP2401GA	M20507476	12/09/2005	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	27	0.0000
SP2401GA	M20506707	11/08/2005	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	31	0.0000
SP2401GA	M20505140	10/20/2005	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	19	0.0269
SP2401GA	M20503476	09/13/2005	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	37	0.0269
SP2401GA	M20502597	08/29/2005	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	15	0.0269
SP2401GA	M20501552	08/01/2005	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	28	0.0269
SP2401GA	M20500102	06/24/2005	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	38	0.0000
SP2401GA	M20412412	05/24/2005	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	31	0.0000
SP2401GA	M20411407	05/23/2005	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	1	0.0269
SP2401BB1	M20314121	05/19/2005	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	4	0.0269
SP2401GA	M20410435	03/29/2005	1.00E-04	1.00E-04	0.00E+00	-4.0000	-4.0000	0.0000	51	0.0000
SP2401GA	M20409365	03/14/2005	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	15	0.0269
SP2401GA	M20408330	02/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GA	M20407340	01/04/2005	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	41	0.0269

WR-LOG-B Surveillance Data

Surveillance Procedure	Work Order	Completion Date	AS FOUND % Power	AS LEFT % Power	DRIFT (Log)	AS FOUND Decades	AS LEFT Decades	DRIFT Decades	DAYS	Absoulte Drift
SP2401GB	M20702384	07/19/2007	9.40E-05	9.40E-05		-4.0269	-4.0269			
SP2401BC2	M20512632	06/28/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	21	0.0000
SP2401GB	M20701672	06/28/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	0	0.0000
SP2401GB	M20700843	06/07/2007	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	21	0.0269
SP2401GB	M20700062	05/04/2007	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	34	0.0269
SP2401GB	M20609439	03/27/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	38	0.0000
SP2401GB	M20607928	02/27/2007	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	28	0.0269
SP2401GB	M20607015	02/02/2007	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	25	0.0269
SP2401GB	M20606248	01/16/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	17	0.0000
SP2401GB	M20605503	12/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	42	0.0000
SP2401BB2	M20504176	11/16/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	19	0.0000
SP2401GB	M20604756	11/15/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	1	0.0000
SP2401GB	M20603027	09/12/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	64	0.0000
SP2401GB	M20602007	08/15/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GB	M20601063	07/18/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GB	M20600097	06/20/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GB	M20512071	06/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	15	0.0000
SP2401GB	M20511381	05/08/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401BB2	M20602052	04/05/2006	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	33	0.0269
SP2401GB	M20510622	03/29/2006	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	7	0.0269
SP2401GB	M20509770	03/06/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	23	0.0000
SP2401BB2	M20402581	02/23/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	11	0.0000
SP2401GB	M20509025	02/07/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	16	0.0000
SP2401BC2	M20406595	01/18/2006	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	20	0.0269
SP2401GB	M20508224	01/05/2006	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	13	0.0269
SP2401GB	M20507477	12/09/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	27	0.0000
SP2401GB	M20506708	11/08/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	31	0.0000
SP2401GB	M20505141	10/20/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	19	0.0000
SP2401GB	M20503477	09/13/2005	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	37	0.0269
SP2401GB	M20502598	08/29/2005	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	15	0.0269
SP2401GB	M20501553	08/01/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GB	M20500103	06/29/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	33	0.0000
SP2401GB	M20412413	05/24/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	36	0.0000
SP2401GB	M20411408	05/23/2005	1.00E-04	1.00E-04	6.00E-06	-4.0000	-4.0000	0.0269	1	0.0269
SP2401BB2	M20314122	05/19/2005	9.40E-05	9.40E-05	-6.00E-06	-4.0269	-4.0269	-0.0269	4	0.0269
SP2401GB	M20410436	03/29/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	51	0.0000
SP2401GB	M20409366	03/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	15	0.0000
SP2401GB	M20408331	02/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GB	M20407341	01/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	31	0.0000

WR-LOG-C Surveillance Data

Surveillance Procedure	Work Order	Completion Date	AS FOUND % Power	AS LEFT % Power	DRIFT (Log)	AS FOUND Decades	AS LEFT Decades	DRIFT Decades	DAYS	Absoulte Drift
SP2401GC	M20702385	07/19/2007	9.40E-05	9.40E-05		-4.0269	-4.0269			
SP2401BC3	M20600413	07/17/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	2	0.0000
SP2401GC	M20701673	06/28/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	19	0.0000
SP2401GC	M20700844	06/07/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	21	0.0000
SP2401GC	M20700063	05/04/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	34	0.0000
SP2401GC	M20609440	03/27/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	38	0.0000
SP2401GC	M20607929	03/05/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	22	0.0000
SP2401GC	M20607016	02/02/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	31	0.0000
SP2401GC	M20606249	01/16/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	17	0.0000
SP2401GC	M20605504	12/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	42	0.0000
SP2401BB3	M20504177	11/16/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	19	0.0000
SP2401GC	M20604757	11/15/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	1	0.0000
SP2401GC	M20603028	09/12/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	64	0.0000
SP2401GC	M20602008	08/14/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	29	0.0000
SP2401GC	M20601064	07/18/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	27	0.0000
SP2401GC	M20600098	06/20/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GC	M20512072	06/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	15	0.0000
SP2401GC	M20511382	05/08/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401BB3	M20602051	04/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	33	0.0000
SP2401GC	M20510623	03/29/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	7	0.0000
SP2401GC	M20509771	03/06/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	23	0.0000
SP2401BB3	M20402582	02/23/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	11	0.0000
SP2401BC3	M20407114	02/14/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	9	0.0000
SP2401GC	M20509026	02/07/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	7	0.0000
SP2401GC	M20508225	01/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	33	0.0000
SP2401GC	M20507478	12/09/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	27	0.0000
SP2401GC	M20506709	11/08/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	31	0.0000
SP2401GC	M20505142	10/20/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	19	0.0000
SP2401GC	M20503478	09/13/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	37	0.0000
SP2401GC	M20502599	08/29/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	15	0.0000
SP2401GC	M20501554	08/01/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GC	M20500104	06/24/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	38	0.0000
SP2401GC	M20412414	05/24/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	31	0.0000
SP2401GC	M20411409	05/23/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	1	0.0000
SP2401BB3	M20314123	05/19/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	4	0.0000
SP2401GC	M20410437	03/29/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	51	0.0000
SP2401GC	M20409367	03/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	15	0.0000
SP2401GC	M20408332	02/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GC	M20407342	01/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	31	0.0000

WR-LOG-D Surveillance Data

Surveillance Procedure	Work Order	Completion Date	AS FOUND % Power	AS LEFT % Power	DRIFT (Log)	AS FOUND Decades	AS LEFT Decades	DRIFT Decades	DAYS	Absoulte Drift
SP2401GD	M20702386	07/19/2007	9.40E-05	9.40E-05		-4.0269	-4.0269			
SP2401GD	M20701674	06/28/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	21	0.0000
SP2401BC4	M20512601	06/26/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	2	0.0000
SP2401GD	M20700845	06/07/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	19	0.0000
SP2401GD	M20700064	05/04/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	34	0.0000
SP2401GD	M20611796	03/27/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	38	0.0000
SP2401GD	M20610679	03/05/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	22	0.0000
SP2401GD	M20609441	02/02/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	31	0.0000
SP2401GD	M20607930	01/16/2007	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	17	0.0000
SP2401GD	M20607017	12/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	42	0.0000
SP2401BB4	M20504178	11/16/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	19	0.0000
SP2401GD	M20606250	11/15/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	1	0.0000
SP2401GD	M20604758	09/12/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	64	0.0000
SP2401GD	M20603946	08/14/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	29	0.0000
SP2401GD	M20603029	07/18/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	27	0.0000
SP2401GD	M20602009	06/20/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GD	M20601065	06/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	15	0.0000
SP2401GD	M20600099	05/08/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401BB4	M20602049	04/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	33	0.0000
SP2401GD	M20512073	03/29/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	7	0.0000
SP2401GD	M20511383	03/06/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	23	0.0000
SP2401GD	M20510624	02/07/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	27	0.0000
SP2401BC4	M20406567	01/18/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	20	0.0000
SP2401GD	M20509772	01/05/2006	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	13	0.0000
SP2401GD	M20509027	12/09/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	27	0.0000
SP2401GD	M20508226	11/08/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	31	0.0000
SP2401GD	M20505143	10/20/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	19	0.0000
SP2401GD	M20503479	09/13/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	37	0.0000
SP2401GD	M20502600	08/29/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	15	0.0000
SP2401GD	M20501555	08/01/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GD	M20500105	06/24/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	38	0.0000
SP2401GD	M20412415	05/26/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	29	0.0000
SP2401GD	M20411410	05/23/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	3	0.0000
SP2401GD	M20410438	03/29/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	55	0.0000
SP2401GD	M20409368	03/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	15	0.0000
SP2401GD	M20408333	02/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	28	0.0000
SP2401GD	M20407343	01/14/2005	9.40E-05	9.40E-05	0.00E+00	-4.0269	-4.0269	0.0000	31	0.0000

ATTACHMENT 3

INSTRUMENTATION TECHNICAL SPECIFICATION CHANGES

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DOMINION NUCLEAR CONNECTICUT, INC.
MILLSTONE POWER STATION UNIT 2

March 16, 2006

TABLE 3.3-1 (Continued)

TABLE NOTATION

* With the protective system trip breakers in the closed position and the CEA drive system capable of CEA withdrawal.

(a) Trip may be bypassed below 5% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is ≥ 5% of RATED THERMAL POWER.

Insert C

(b) Trip may be manually bypassed when steam generator pressure is < 800 psia and all CEAs are fully inserted; bypass shall be automatically removed when steam generator pressure is ≥ 800 psia.

(c) Trip may be bypassed below 15% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is ≥ 15% of RATED THERMAL POWER.

(d) Trip does not need to be OPERABLE if all the control rod drive mechanisms are de-energized or if the RCS boron concentration is greater than or equal to the refueling concentration of Specification 3.9.1.

(e) DELETED

(f) ΔT Power input to trip may be bypassed below 5% of RATED THERMAL POWER; bypass shall be automatically removed when THERMAL POWER is ≥ 5% of RATED THERMAL POWER.

Insert G

ACTION STATEMENTS

ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in HOT STANDBY within the next 4 hours and/or open the protective system trip breakers.

ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, operation may continue provided the following conditions are satisfied:

a. The inoperable channel is placed in either the bypassed or tripped condition within 1 hour. The inoperable channel shall either be restored to OPERABLE status, or placed in the tripped condition, within 48 hours.

b. Within 1 hour, all functional units receiving an input from the inoperable channel are also declared inoperable, and the appropriate actions are taken for the affected functional units.

c. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be removed from service for up to 48 hours, provided one of the inoperable channels is placed in the tripped condition.

Insert C

Trip may be bypassed when logarithmic power is < 1E-04% and the bypass shall be capable of automatic removal whenever logarithmic power is < 1E-04%. Bypass shall be removed prior to raising logarithmic power to a value ≥ 1E-04%.

Insert G

ΔT Power input to trip may be bypassed when logarithmic power is < 1E-04% and the bypass shall be capable of automatic removal whenever logarithmic power is < 1E-04%. Bypass shall be removed prior to raising logarithmic power to a value ≥ 1E-04%.

March 16, 2006

TABLE 3.3-1 (Continued)

ACTION STATEMENTS

ACTION 3 - NOT USED

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, immediately verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1, and at least once per 4 hours thereafter.

ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or be in at least HOT STANDBY within the next 6 hours.

ACTION 6 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in at least HOT STANDBY within 6 hours.

Insert D

Insert D

ACTION 7 – With one automatic bypass removal channel inoperable for one or more functions, either

a. disable the bypass channel within 1 hour, or
b. place the affected trip units in bypass or trip within 1 hour, and either
   1. restore the bypass removal channel and affected trip units to OPERABLE status within 48 hours, or
   2. place the affected trip units in trip within 48 hours.

ACTION 8 – With two automatic bypass removal channels inoperable for one or more functions, either

a. disable the bypass channels within 1 hour, or
b. place one affected trip unit in bypass and place the other in trip for each affected trip function, within 1 hour, and
   restore one automatic bypass removal channel and the associated trip unit to OPERABLE status for each affected trip function, within 48 hours.