SUMMARY OF CHANGES
ITS SECTION 3.3

Change Description	Affected Pages
A self-identified change for ITS 3.3.1 has been made. CTS Amendments 281 (Unit 1) and 265 (Unit 2) have been incorporated into the ITS submittal. This CTS change adopted the allowances of TSTF-359 and affects CTS Table 3.3-1 Functional Units 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18.A, and 18.B Actions and Note #.	Pages 7, 8, 9, 10, 26, 27, 28, 29, and 46 of 827.
The change described in the response to Question 200405101038 for ITS 3.3.1 has been made. This change deletes the ITS 3.3.1 ACTION Note that allowed separate Condition entry on a "per ..." basis; revises the titles of ITS Table 3.3.1-1 Function 10 to add "(per loop)," Functions 14 and 15 to add "(per SG)," and Function 16.b to add "(per train);" and deletes the "per ..." words from the Required Channels column.	Pages 8, 9, 16, 17, 20, 21, 27, 28, 35, 36, 39, 40, 44, 45, 46, 51, 65, 68, 91, 92, 111, 112, 117, 119, 153, 154, 159, 160, 161, 162, 163, 164, 177, and 178 of 827.
The change described in the response to Question 200405101047 for ITS 3.3.1 has been made. This change revises NUREG-1431, Revision 2 Improved Standard Technical Specifications (ISTS) 3.3.1 Required Action D.2.2 (ITS 3.3.1 Required Action C.2) for an inoperable Power Range Neutron Flux - High channel to be consistent with the changes being proposed by other facilities.	Pages 10, 29, 48, 49, 93, 94, 116, 117, 181, 182, and 183 of 827.
The change described in the response to Question 200405121129 for ITS 3.3.1 has been made. This change deletes ITS 3.3.1 Discussion of Change (DOC) L.7 and revises ITS 3.3.1 DOC L.6 to justify the deletion of the CTS Table 3.3-1 Action 7 Completion Time of "until performance of the next required CHANNEL FUNCTIONAL TEST" and the addition of the ITS 3.3.1 Required Action D.1 Note.	Pages 11, 30, 79, and 80 of 827.
The change described in the response to Question 200409291347 for ITS 3.3.1 has been made. This change revises the Required Channels for ITS Table 3.3.1-1 Functions 18.a, 18.c, 18.d, and 18.e to delete the "per train" designations and replaces each entry with the appropriate number of channels (2, 4, 4, and 2, respectively); deletes the originally included ITS SR 3.3.1.5 for these Functions; changes ITS Table 3.3.1-1, Function 18.b based on TSTF-347 adding SR 3.3.1.5 and deleting SR 3.3.1.14 and SR 3.3.1.16; and adds the bracketed CHANNEL CHECK requirement for ITS Table 3.3.1-1 Function 18.e (SR 3.3.1.1).	Pages 12, 13, 31, 32, 52, 65, 113, 117, 119, 165, 166, 167, 168, 169, 170, 171, 172, 173, 174, 175, and 176 of 827.
The change described in the response to Question 200410141808 (Beyond Scope Issue 3.a) for ITS 3.3.1 has been made. This change revises the Surveillance Frequency of ITS SR 3.3.1.10, a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) for ITS Table 3.3.1-1 Functions 12 and 13, from the originally proposed 184 days to 92 days.	Pages 16, 17, 18, 35, 36, 37, 44, 59, 86, 87, 105, 110, 111, 112, 117, 118, 120, 200, 203, and 204 of 827.

Change Description	Affected Pages
The change described in the response to Question 200409291332 for ITS 3.3.1 has been made. This change moves ITS SR 3.3.1.3, a requirement to compare results of incore detector measurements to Nuclear Instrumentation System (NIS) AXIAL FLUX DIFFERENCE (AFD) every 31 effective full power days (EFPD), from ITS Table 3.3.1-1 Function 2.a to Function 6.	Pages 16, 35, 53, 54, 85, 110, 111, and 118 of 827.
The change described in the response to Question 200405101440 for ITS 3.3.1 has been made. This change revises the Note for ITS SR 3.3.1.8 to not require performance of the Surveillance Requirement until 12 hours after THERMAL POWER is below the P-10 interlock.	Pages 16, 35, 89, 104, 117, 118, 200, and 201 of 827.
The change described in the response to Question 200405121654 for ITS 3.3.1 has been made. This change deletes the Note to ITS SR 3.3.1.6 and the Note to ITS SR 3.3.1.17, and revises ITS Table 3.3.1-1 Function 17 Surveillance Requirements column by deleting the ITS SR 3.3.1.17 reference.	Pages 17, 18, 36, 37, 62, 82, 83, 103, 107, 108, 112, 119, 199, 207, 209, and 210 of 827.
The change described in the response to Question 200409291336 for ITS 3.3.1 has been made. This change revises the Allowable Value for ITS Table 3.3.1-1, Function 13, Underfrequency RCPs, from 58.22 Hz for Unit 1 and 57.02 Hz for Unit 2 to 57.01 Hz for both Units.	Pages 21, 40, 61, 88, and 112 of 827.
The change described in the response to Question 200405100828 for ITS 3.3.1 has been made. This change revises ITS 3.3.1 DOC A.5 to justify changing the channel basis for Function 14, Steam Generator (SG) Water Level - Low Low, from a "per loop" basis to a "per SG" basis, and for Function 11, Reactor Coolant Pump (RCP) Breaker Position Function, from a "per breaker" basis to a "per RCP" basis.	Pages 45 and 46 of 827.
The change described in the response to Question 200405100912 for ITS 3.3.1 has been made. This change revises ITS 3.3.1 DOC A.20 to delete the sentence "In addition, the change to the CHANNEL FUNCTIONAL TEST definition is also described in the Discussion of Changes for ITS 1.0."	Page 52 of 827.
The change described in the response to Question 200405071448 for ITS 3.3.1 has been made. This change revises the second paragraph of ITS 3.3.1 DOC M.10 to clarify why the normalization of the deltaT portion of the CHANNEL CALIBRATION on the Overtemperature deltaT and Overpower deltaT channels is not performed prior to entering MODES 1 and 2.	Pages 58, 117, and 118 of 827.
The change described in the response to Question 200405101614 for ITS 3.3.1 has been made. This change revises the second paragraph of ITS 3.3.1 DOC M.12 to provide additional justification for deleting the CTS Table 4.3-1, Functional Unit 5 Surveillance Frequency of "S/U(17)."	Page 59 of 827.

Change Description	Affected Pages
The change described in the response to Question 200405071502 for ITS 3.3.1 has been made. This change revises the first sentence of the second paragraph of ITS 3.3.1 DOC M.14 to provide additional justification for the Frequency of 24 months for ITS SR 3.3.1.13 (a CHANNEL CALIBRATION) that has been added for ITS Table 3.3.1-1, Functions 16.a and 16.b (Turbine Trip).	Page 60 of 827.
The change described in the response to Question 200405111022 for ITS 3.3.1 has been made. This change revises ITS 3.3.1 DOC L.2 to replace "ITS SRs 3.3.1.12, 3.3.1.13, and 3.3.1.14" with "ITS SRs 3.3.1.13, 3.3.1.14, and 3.3.1.15."	Page 69 of 827.
The change described in the response to Question 200405141530 for ITS 3.3.1 Bases has been made. This change revises the ITS 3.3.1 Bases in response to various NRC Reviewer editorial comments.	Pages 133, 139, 145, 147, 151, 157, 159, 160, 161, 166, 187, 197, 198, 205, and 214 of 827.
A self-identified change for ITS 3.3.1 Bases has been made. This change revises the ITS 3.3.1 Bases for Required Action D.1 to add two additional reactor trip Functions that Required Action D.1 applies to.	Pages 184 and 185 of 827.
The change described in the response to Question 200408191543 (Beyond Scope Issue 23) for ITS 3.3.1 Bases has been made. This change revises the ITS SR 3.3.1.15 Bases to clarify the intent of Note 2 for ITS SR 3.3.1.15 that provides for a 72 hour delay in the requirement to perform a normalization of the deltaT channels after THERMAL POWER is greater than or equal to 98% RATED THERMAL POWER (RTP).	Page 208 of 827.
A self-identified change for ITS 3.3.1 Bases has been made. This change revises the ITS 3.3.1 Bases for SR 3.3.1.19 to correct a grammatical error in the ISTS Bases in the second to last sentence of the fifth paragraph, replacing the phrase "may re replaced" with "may be replaced."	Page 211 of 827.
The change described in the response to Question 200407301652 (Beyond Scope Issue 34) for ITS 3.3.1 Bases has been made. This change revises the ITS 3.3.1 Bases Reference 8 to WCAP-12741, "Westinghouse Menu Driven Setpoint Calculation Program (STEPIT)," as approved in Unit 1 and Unit 2 License Amendments 175 and 160, dated May 13, 1994.	Page 213 of 827.
The change described in the response to Question 200405141418 for ITS 3.3.2 has not been made, since the change described in the response to Question 200405241125 for ITS 3.3.2 supersedes Question 200405141418.	None

Change Description	Affected Pages
The change described in the response to Question 200409301152 for ITS 3.3.2 has been made. This change adds a new ITS 3.3.2 Condition F to apply to ITS Table 3.3.2-1 Function 6.e to decrease the allowed time to trip this channel from the originally proposed 1 hour to 6 hours to be consistent with the same instrumentation in ITS 3.3.5 (with the ITS 3.3.5 change addressed by Beyond Scope Issue 33).	Pages 219, 222, 223, 224, 226, 227, 228, 229, 230, 245, 246, 247, 248, 249, 250, 251, 252, 253, 254, 255, 256, 272, 275, 280, 282, 296, 297, 298, 301, 304, 310, 312, 313, 314, 315, 327, 328, 332, 402, 406, 407, 412, and 413 of 827.
The change described in the response to Question 200405141335 for ITS 3.3.2 has been made. This change revises the Required Channels for ITS Table 3.3.2-1 Functions 8.b and 8.c to delete the "per train" designations and replaces each entry with the appropriate number of channels (3 and 1 per loop, respectively); deletes the originally included ITS SR 3.3.2.2 for these Functions; adds a CHANNEL OPERATIONAL TEST (COT) specified in the ITS for other channels (ITS SR 3.3.2.5) for these two interlock Functions, which is performed on a 184 day Frequency, in lieu of the 24 month COT (ITS SR 3.3.2.12); deletes ITS SR 3.3.2.12 since it was only specified for these two interlock Functions; and adds the CHANNEL CHECK requirement (ITS SR 3.3.2.1) for these two interlock Functions.	Pages 219, 230, 246, 256, 284, 286, 327, 332, 392, 393, 394, 395, 396, 397, 420, and 421 of 827.
The change described in the response to Question 200410141808 (Beyond Scope Issue 3.b) for ITS 3.3.2 has been made. This change revises the Surveillance Frequency of ITS SR 3.3.2.2, a TADOT for ITS Table 3.3.2-1 Function 6.b, from the originally proposed 184 days to 31 days, and for ITS SR 3.3.2.5, a TADOT for ITS Table 3.3.2-1 Function 6.f, from the originally proposed 184 days to 92 days, and renumbers the remaining Surveillance Requirements as necessary.	Pages 219, 240, 241, 242, 243, 244, 245, 246, 266, 267, 268, 269, 270, 271, 274, 278, 279, 281, 284, 287, 292, 303, 316, 317, 318, 319, 320, 321, 322, 323, 324, 325, 326, 327, 329, 330, 332, 414, 416, 417, 418, 420, and 421 of 827.
The change described in the response to Question 200405261218 for ITS 3.3.2 has been made. CTS Amendments 281 (Unit 1) and 265 (Unit 2) have been incorporated into the ITS submittal. This CTS change adopted the allowances of TSTF-359 and affects CTS Table 3.3-3 Note *.	Pages 220, 221, 224, 225, 226, 227, 228, 247, 250, 251, 252, 253, 254, 272, 304, 307, 308, 328, and 402 of 827.
The change described in the response to Question 200405170832 for ITS 3.3.2 has been made. This change deletes the ITS 3.3.2 ACTION Note that allowed separate Condition entry on a "per ..." basis; revises the titles of ITS Table 3.3.2-1 Functions 1.e.(2) and 4.e to add "(per steam line)," Functions 5.b and 6.c to add "(per SG)," and Function 6.e to add "(per bus);" and deletes the "per ..." words from the Required Channels column.	Pages 220, 224, 225, 226, 227, 231, 233, 234, 240, 242, 247, 250, 251, 257, 259, 260, 266, 267, 270, 307, 308, 319, 323, 324, 325, 328, 329, 350, 351, 372, 374, 377, 378, 381, 382, 384, and 400 of 827.

Change Description	Affected Pages
The change described in the response to Question 200405241125 for ITS 3.3.2 has been made. This change deletes the Required Channels, Conditions, Surveillance Requirements, and Allowable Value column entries for ITS Table 3.3.2-1 Functions 3.a.(3), 5.c, and 6.d and replaces the entries with the statement "Refer to Function 1 (Safety Injection) for all initiation functions and requirements." In addition, since ITS SR 3.3.2.3 was only associated with these three Functions, ITS SR 3.3.2.3 has been deleted and subsequent SRs renumbered as necessary. Furthermore, the references to these three Functions in ITS 3.3.2 Conditions H and J have been deleted.	Pages 223, 225, 226, 227, 229, 232, 234, 235, 241, 242, 244, 245, 249, 251, 252, 255, 258, 260, 261, 266, 267, 268, 269, 273, 277, 278, 281, 282, 293, 294, 297, 298, 300, 301, 315, 317, 322, 325, 326, 330, 332, 365, 366, 367, 379, 380, 381, 382, 404, 405, 415, 416, 419, and 420 of 827.
The change described in the response to Question 200409301157 for ITS 3.3.2 has been made. This change revises the number of Required Channels for ITS Table 3.3.2-1, Function 6.g, Trip of all Main Feedwater Pumps, from "2" to "2 per pump" for Unit 1 and "1 per pump" for Unit 2.	Pages 226, 251, 276, 277, 325, 384, and 385 of 827.
The change described in the response to Question 200405140907 for ITS 3.3.2 has been made. This change revises the number of Required Channels for ITS Table 3.3.1-1 Function 4.a, Steam Line Isolation, Manual Initiation, from "1 per steam line per train" to "2," and the title of the Function has been changed to "Manual Initiation (per steam line)."	Pages 227, 235, 244, 252, 261, 268, 270, 271, 272, 285, 322, 328, 330, 367, 369, and 370 of 827.
The change described in the response to Question 200409301156 for ITS 3.3.2 has been made. This change revises the Allowable Values for ITS Table 3.3.2-1 Function 6.e, Auxiliary Feedwater, Loss of Voltage, to be greater than or equal to 3238.9 V (Unit 1) and 3207.2 (Unit 2) and less than or equal to 3332.6 V (Unit 1) and 3302.7 V (Unit 2) with greater than or equal to 1.8 sec and less than or equal to 2.2 sec time delay. The new Allowable Values are consistent with the most current setpoint calculations to support the proposed 184 day CHANNEL CALIBRATION Frequency.	Pages 234, 260, 304, and 325 of 827.
The change described in the response to Question 200409301155 for ITS 3.3.2 has been made. This change revises the ITS SR 3.3.2.2 and ITS SR 3.3.2.5 Note from "Verification of setpoint not required" to "Verification of relay setpoints not required" to be consistent with a similar change made to the Note in ITS SR 3.3.5.2 in response to Question 200406090948, since these are the same relays.	Pages 274 and 316 of 827.
The change described in the response to Question 200405171405 for ITS 3.3.2 has been made. This change deletes the sentence "In addition, the change to the CHANNEL FUNCTIONAL TEST definition is also described in the Discussion of Changes for ITS 1.0" from ITS 3.3.2 DOC A.10 to provide clarity.	Page 274 of 827.

Change Description	Affected Pages
The change described in the response to Question 200405171105 for ITS 3.3.2 has been made. This change revises ITS 3.3.2 DOC L.6 to provide additional justification by adding a new sentence stating "In addition, the SGSVs are not required to be OPERABLE in MODES 2 and 3 when the valves are closed, thus there is no purpose in requiring the instrumentation that closes the valves to be OPERABLE."	Page 295 of 827.
The change described in the response to Question 200409301147 for ITS 3.3.2 and ITS 3.3.2 Bases has been made. This change adds the words "or train" to ITS 3.3.2 Condition B and Required Action B.1, to be consistent with the ISTS. In addition, the ITS 3.3.2 Bases for ACTION B.1 has been revised to add in the words "or train"' in the second paragraph, consistent with the ISTS.	Pages 307 and 401 of 827.
The change described in the response to Question 200405190827 for ITS 3.3.2 has been made. This change revises ITS 3.3.2 Justification for Deviations (JFD) 9 to provide additional justification for deleting the Note for ISTS SR 3.3.2.9 which states "This Surveillance shall include verification that the time constants are adjusted to the prescribed values."	Pages 329 and 330 of 827.
The change described in the response to Question 200406040626 for ITS 3.3.2 Bases has been made. This change revises the ITS 3.3.2 Bases in response to various NRC Reviewer editorial comments.	Pages 342, 347, 350, 352, 356, 379, 381, 383, 392, 405, 418, and 419 of 827.
A self-identified change for ITS 3.3.2 Bases has been made. This change revises the ITS 3.3.2 Bases for APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY for Function 4.e High Steam Flow in Two Steam Lines coincident with T_{avg} - Low Low, to clarify that, in MODE 3 above P-12, it is possible to operate with one RCP out of service, and to explain that in this condition, the T_{avg} - Low Low channel associated with non-operating RCP loop is considered inoperable.	Page 374 of 827.
A self-identified change for ITS 3.3.2 Bases has been made. This change revises the ITS 3.3.2 Bases for APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY for Function 5.a, Turbine Trip and Feedwater Isolation - Automatic Actuation Logic and Actuation Relays, to clarify that either train of the actuation logic will trip the tiurbine and isolate all of the main feedwater regulating valves (MFRVs), but each train only actuates two of the four main feedwater isolation valves (MFIVs).	Page 378 of 827.
A self-identified change for ITS 3.3.2 Bases has been made. This change revises the ITS 3.3.2 Bases for APPLICABLE SAFETY ANALYSES, LCO, AND APPLICABILITY for Function 8.c, Engineered Safety Features Actuation System Interlocks - T_{avg} - Low Low, P-12, to clarify that the Function is only required to be OPERABLE in MODE 3 when above the P-12 setpoint value.	Page 399 of 827.

Change Description	Affected Pages
A self-identified change for ITS 3.3.2 Bases has been made. This change revises the ITS 3.3.2 Bases for ITS SR 3.3.2.12 (ESF RESPONSE TIMES), to clarify that by the ITS definition of STAGGERED TEST BASIS, each train of final actuated devices will be tested once every 48 months.	Page 423 of 827.
The change described in the response to Question 200407301652 (Beyond Scope Issue 34) for ITS 3.3.2 Bases has been made. This change revises the ITS 3.3.2 Bases Reference 6 to WCAP-12741, "Westinghouse Menu Driven Setpoint Calculation Program (STEPIT)," as approved in Unit 1 and Unit 2 License Amendments 175 and 160, dated May 13, 1994.	Page 424 of 827.
The change described in the response to Question 200406041043 for ITS 3.3.3 has been made. This change adds a new ITS 3.3.3 ACTION C to cover an inoperable channel for those Post Accident Monitoring (PAM) Functions that have only one required channel (this includes ITS Table 3.3.3-1 Functions 14 and 23), with ITS 3.3.3 Required Action C.1 stating "Restore required channel to OPERABLE status" with a Completion Time of "30 days."	Pages 433, 434, 436, 438, 440, 441, 442, 444, 446, 448, 450, 451, 452, 454, 456, 458, 470, 471, 472, 474, 475, 476, 500, 501, 502, and 503, of 827.
A self-identified change for ITS 3.3.3 has been made. CTS Amendments 281 (Unit 1) and 265 (Unit 2) have been incorporated into the ITS submittal. This CTS change adopted the allowances of TSTF-359 and affects CTS 3.3.3.1 Action c, Unit 1 CTS 3.3.3.8 Action c, Unit 1 CTS Table 3.3-4 Action 22A, Unit 2 CTS 3.3.3.6 Action c, and Unit 2 CTS Table 3.3-6.	Pages 433, 436, 438, 441, 444, 446, 449, 466, 470, 497, 500, and 501 of 827.
The change described in the response to Question 200406041246 for ITS 3.3.3 has been made. This change revises ITS Table 3.3.3-1 to combine the original Functions 19 and 22 into a new Function 19, Secondary Heat Sink Indication (per SG), with a new footnote (d) which states "Any combination of two instruments per steam generator, including Steam Generator Water Level (Narrow Range) and Auxiliary Feedwater Flow, can be used to satisfy Function 19 OPERABILITY requirements."	Pages 434, 435, 442, 443, 449, 450, 459, 474, 475, 495, 496, and 498 of 827.
The change described in the response to Question 200410061622 for ITS 3.3.3 has been made. This change revises ITS Table 3.3.3-1 to combine the original Functions 20, 21, 27, and 28 into a new Function 20, Emergency Core Cooling System Flow (per train), with a new footnote (e) which states "Any combination of two instruments per train, including Centrifugal Charging Pump Flow, Safety Injection Pump Flow, Centrifugal Charging Pump Circuit Breaker Status, and Safety Injection Pump Circuit Breaker Status, can be used to satisfy Function 20 OPERABILITY requirements." Subsequent ITS Table 3.3.3-1 Functions have been renumbered as a result.	Pages 434, 435, 442, 443, 451, 459, 475, 498, 499, and 506 of 827.

Change Description	Affected Pages
The change described in the response to Question 200406040645 for ITS 3.3.3 has been made. This change deletes the ITS 3.3.3 ACTION Note that allowed separate Condition entry on a "per ..." basis; revises the titles of ITS Table 3.3.3-1 Functions 2 and 19 to add "(per SG)" and Function 20 to add "(per train);" and deletes the "per steam generator" words from the Required Channels column for Functions 2 and 19.	Pages 434, 442, 449, 451, 470, 471, 474, 475, 484, 495, 498, 500, and 501 of 827.
The change described in the response to Question 200410061625 for ITS 3.3.3 has been made. This change revises the number of Required Channels for ITS Table 3.3.3-1, Function 13 from "1 per steam generator" to "4" and, since this channel now includes more than 2 required channels, ITS 3.3.3 Condition D has been revised to state "One or more Functions with two or more required channels inoperable" and Required Action D.1 has been changed to state "Restore all but one channel to OPERABLE status."	Pages 451, 470, 474, 476, 477, 492, 500, and 502 of 827.
The change described in the response to Question 200406041123 for ITS 3.3.3 has been made. This change revises the Table 3.3.3-1 Function 14, Condensate Storage Tank Level, Condition in the CONDITION REFERENCED FROM REQUIRED ACTION F.1 column to "H," which will allow a report to be submitted in lieu of a unit shutdown.	Pages 451, 474, 477, and 503 of 827.
A self-identified change for ITS 3.3.3 Bases has been made. This change revises the ITS 3.3.3 Bases for the LCO Section to add specific instrument number references for the PAM Functions, and to reference the Updated Final Safety Analysis Report for identifying the applicable valves for the Containment Isolation Valve PAM Function, to clearly identify the applicable PAM instrumentation.	Pages 483, 484, 486, 488, 489, 490, 492, 493, 496, 498, and 499 of 827.
A self-identified change for ITS 3.3.4 has been made. CTS Amendments 281 (Unit 1) and 265 (Unit 2) have been incorporated into the ITS submittal. This CTS change adopted the allowances of TSTF-359 and affects CTS 3.3.3.5 Action b.	Pages 512, 515, 518, 525, and 533 of 827.
The change described in the response to Question 200406100956 for ITS 3.3.4 Bases has been made. This change revises the ITS 3.3.4 Bases in response to various NRC Reviewer editorial comments.	Page 532 and 536 of 827.
A self-identified change for ITS 3.3.4 Bases has been made. This change revises the ITS 3.3.4 Bases Table B 3.3.4-1 for Function 4, Steam Generator Pressure, and Function 5, Steam Generator Level, to move the phrase "per steam generator" from the REQUIRED NUMBER OF CHANNELS column to the FUNCTION column, consistent with other ITS Sections.	Page 538 of 827.
The change described in the response to Question 200406091337 for ITS 3.3.5 has not been made, since the self-identified change for ITS 3.3.5 that incorporates CTS Amendments 281 (Unit 1) and 265 (Unit 2) into the ITS submittal supersedes Question 200406091337.	None

Change Description	Affected Pages
The change described in the response to Question 200407301619 (Beyond Scope Issue 1.c) for ITS 3.3.5 has not been made, since the change described in the response to Question 200409301058 (Beyond Scope Issue 1.c) for ITS 3.3.5 supersedes Question 200407301619.	None
The change described in the response to Question 200407301630 (Beyond Scope Issue 3.c) for ITS 3.3.5 has not been made, since the change described in the response to Question 200410141808 (Beyond Scope Issue 3) for ITS 3.3.5 supersedes Question 200407301630.	None
The change described in the response to Question 200409301102 (Beyond Scope Issue 3.c) for ITS 3.3.5 has not been made, since the change described in the response to Question 200410141808 (Beyond Scope Issue 3) for ITS 3.3.5 supersedes Question 200409301102.	None
The change described in the response to Question 200409301058 (Beyond Scope Issue 1.c) for ITS 3.3.5 has been made. This change revises the Surveillance Frequency for performing CHANNEL CALIBRATION of the Degraded Voltage Function from the originally requested 31 days to 184 days, and revises the Allowable Value for both the Loss of Voltage and Degraded Voltage Functions as the result of additional drift analyses performed since the original ITS submittal was made (new Beyond Scope Issues 2.e and 2.f, respectively).	Pages 544, 547, 548, 549, 552, 553, 557, 558, 561, 562, 565, 566, and 578 of 827.
A self-identified change for ITS 3.3.5 has been made. CTS Amendments 281 (Unit 1) and 265 (Unit 2) have been incorporated into the ITS submittal. This CTS change adopted the allowances of TSTF-359 and affects CTS Table 3.3-3 Functional Units 8.a and 8.b Actions and Note *.	Pages 545, 546, 550, and 551 of 827.
The change described in the response to Question 200407301556 (Beyond Scope Issue 33) for ITS 3.3.5 has been made. This change withdraws Beyond Scope Issue 33 by restoring ITS 3.3.5 Condition A to the current licensing basis Completion Time of 1 hour.	Pages 546, 551, 560, 564, and 574 of 827.
The change described in the response to Question 200410141808 (Beyond Scope Issue 3.c) for ITS 3.3.5 has been made. This change withdraws Beyond Scope Issue 3.c by restoring the Surveillance Frequencies for performing a TADOT to 31 days from the originally proposed 184 days for both the Loss of Voltage and Degraded Voltage Functions.	Pages 547, 548, 553, 561, 567, and 576 of 827.
The change described in the response to Question 200406090841 for ITS 3.3.5 has been made. This change revises ITS 3.3.5 DOC A.4 to clarify the similarities between a CFT and a TADOT for the 4 kV Bus Loss of Voltage and 4 kV Bus Degraded Voltage Functions.	Pages 554 and 555 of 827.

Change Description	Affected Pages
The change described in the response to Question 200406090948 for ITS 3.3.5 has been made. This change revises ITS SR 3.3.5.2 Note from "Verification of setpoint not required" to "Verification of relay setpoints not required."	Pages 556 and 566 of 827.
The change described in the response to Question 200406140829 for ITS 3.3.5 Bases has been made. This change revises the ITS 3.3.5 Bases in response to various NRC Reviewer editorial comments.	Pages 569, 571, 574 and 575 of 827.
The change described in the response to Question 200406091144 for ITS 3.3.5 Bases has been made. This change revises the ITS 3.3.5 Bases Applicability Section to clarify why the Degraded Voltage Function is not required to be OPERABLE in MODES or other specified conditions other than MODES 1, 2, 3, and 4.	Pages 572 and 573 of 827.
The change described in the response to Question 200407301652 (Beyond Scope Issue 34) for ITS 3.3.5 Bases has been made. This change revises the ITS 3.3.5 Bases Reference 4 to WCAP-12741, "Westinghouse Menu Driven Setpoint Calculation Program (STEPIT)," as approved in Unit 1 and Unit 2 License Amendments 175 and 160, dated May 13, 1994.	Page 579 of 827.
The change described in the response to Questions 200406140907, 200406140921, 200406151345, and 200406151553 for ITS 3.3.6 has been made. This change revises the REQUIRED CHANNELS for ITS Table 3.3.6-1 Function 3, "Containment Radiation," from "2 per train" to "3" for the Applicability requirements of MODES 1, 2, 3 and 4. As a result, Applicability Footnote (c) has been revised from "When any Containment Purge Supply and Exhaust System isolation valve is open" to "When any Containment Purge Supply and Exhaust System penetration flow path is open," Applicability Footnote (b) has been changed to add the words "during movement of irradiated fuel assemblies within containment," and the ITS 3.3.6 ACTIONS have been revised accordingly.	Pages 585, 586, 587, 588, 592, 593, 594, 596, 597, 598, 599, 600, 601, 602, 603, 606, 607, 608, 610, 611, 612, 613, 614, 615, 616, 617, 619, 621, 622, 623, 624, 626, 627, 629, 631, 632, 633, 634, 635, 636, 637, 638, 639, 640, 641, 644, 647, 648, 649, 650, 651, 652, 653, 654, 655, and 656 of 827.
A self-identified change for ITS 3.3.6 has been made. CTS Amendments 281 (Unit 1) and 265 (Unit 2) have been incorporated into the ITS submittal. This CTS change adopted the allowances of TSTF-359 and affects CTS Table 3.3-3 Note *, CTS 3.3.3.1 Action c, and CTS Table 3.3-6 Action 22B.	Pages 587, 594, 597, 602, 608, 611, 616, and 651 of 827.
The change described in the response to Question 200410141808 (Beyond Scope Issue 3.d) for ITS 3.3.6 has been made. This change revises the Surveillance Frequency of ITS SR 3.3.6.4, a COT for ITS Table 3.3.6-1 Containment Radiation Functions, from the originally proposed 184 days to 92 days.	Pages 592, 598, 599, 606, 612, 613, 615, 627, 635, 640, and 655 of 827.

Change Description	Affected Pages
A self-identified change for ITS 3.3.6 has been made. This change revises the ITS by simply referencing ITS 3.3.2 for the Safety Injection (SI) Input from Engineered Safety Features Actuation System (ESFAS) Function for all initiation Functions and requirements.	Pages 593, 594, 599, 600, 607, 608, 613, 614, 618, 627, 633, 635, 637, 638, 639, 640, 650, 651, 652, 653, 654, 655, and 657 of 827.
A self-identified change for ITS 3.3.6 has been made. This changes the ITS by revising the Frequency for the SLAVE RELAY TEST to 24 months consistent with other ITS sections, and reordering Surveillance Requirements (SRs).	Pages 593, 599, 600, 607, 613, 614, 616, 618, 619, 635, 637, 639, 640, 655, and 657 of 827.
A self-identified change for ITS 3.3.6 has been made. This changes the ITS to add a Note to ITS SR 3.3.6.6 for performance of a TADOT for the Manual Initiation Function stating "Verification of setpoint not required," consistent with ISTS SR 3.3.6.6.	Pages 594, 608, 617, 637, and 641 of 827.
A self-identified change for ITS 3.3.6 has been made. This changes the ITS to add "(per train)" to the name of the Containment Radiation Function, consistent with other ITS sections.	Pages 614, 638, 640, 649, 650, and 651 of 827.
A self-identified change for ITS 3.3.6 has been made. This changes the ITS by revising the Frequency for the ACTUATION LOGIC TEST and MASTER RELAY TEST to 92 days on a STAGGERED TEST BASIS, consistent with other ITS sections.	Pages 618, 635, 637, 656, and 657 of 827.
A self-identified change for ITS 3.3.7 has been made, including changes described in response to Question 200410080721. This changes the ITS to adopt the format of ITS Table 3.3.7-1 consistent with NUREG-1431, Revision 2, including separate Functions for the Automatic Actuation Logic and Actuation Relays and for SI Input from ESFAS.	Pages 665, 666, 667, 668, 669, 670, 671, 675, 676, 677, 678, 679, 681, 683, 684, 685, 686, 687, 688, 689, 690, and 691 of 827.
The change described in the response to Question 200406220749 for ITS 3.3.8 has been made. This change revises ITS LCO 3.3.8 to require two source range neutron flux monitoring channels to be OPERABLE.	Pages 697, 698, 702, 703, 707, 708, 709, 710, 714, 715, 716, 717, 718, 719, 721, 722, 723, 724, 725, 726, 727, and 731 of 827.
A self-identified change for ITS 3.3.8 has been made. CTS Amendments 281 (Unit 1) and 265 (Unit 2) have been incorporated into the ITS submittal. This CTS change adopted the allowances of TSTF-359 and affects CTS Table 3.3-1 Functional Units 2, 3, 4, 7, and 8 Actions and Note #.	Pages 697 and 702 of 827.
The change described in the response to Question 200406221412 for ITS 3.3.8 has been made. This change revises ITS 3.3.8 Required Action B.1 Note 2 to replace the phrase "greater than or equal to required limits" to "≥ 2400 ppm."	Pages 698, 703, 707, 709, 710, 715, 718, and 727 of 827.
The change described in the response to Question 200406221427 for ITS 3.3.8 has been made. This change revises ITS 3.3.8 JFD 7 to be consistent with changes made in response to Questions 200406220749 and 200406221412.	Page 718 of 827.

Change Description	Affected Pages
A self-identified change for ITS 3.3.8 Bases has been made. This change corrects a typographical error in the ISTS.	Page 728 of 827.
A self-identified change for Relocated/Deleted Current Technical Specifications CTS 3/4.3.3.1, CTS 3/4.3.3.2, CTS 3/4.3.3.3, CTS 3/4.3.3.4, CTS 3/4.3.3.5.1, and CTS 3/4.3.3.9 has been made. CTS Amendments 281 (Unit 1) and 265 (Unit 2) have been incorporated into the ITS submittal. This CTS change adopted the allowances of TSTF-359. This change does not affect the ITS.	Pages 737, 740, 743, 746, 755, 756, 763, 766, 775, 778, 787, 791, 801, and 804 of 827.

VOLUME 8

CNP UNITS 1 AND 2
IMPROVED TECHNICAL
SPECIFICATIONS CONVERSION

ITS SECTION 3.3
INSTRUMENTATION

Revision 1

LIST OF ATTACHMENTS

1. ITS 3.3.1
2. ITS 3.3.2
3. ITS 3.3.3
4. ITS 3.3.4
5. ITS 3.3.5
6. ITS 3.3.6
7. ITS 3.3.7
8. ITS 3.3.8
9. Relocated/Deleted Current Technical Specifications (CTS)
10. Improved Standard Technical Specifications (ISTS) not adopted in the CNP ITS

ATTACHMENT 1

ITS 3.3.1, Reactor Trip System (RTS) Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

(A.1) ITS 3.3.1

3/4 - LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.1 3.3.1.1 As a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

Add proposed ACTIONS Note (A.2)

ACTION A As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

SR Table Note 4.3.1.1.1 Each reactor trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1. (A.20) [92 days on a STAGGERED TEST BASIS] (M.8)

SR 3.3.1.5 4.3.1.1.2 The logic for the interlocks shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. (L.1) SR 3.3.1.13, SR 3.3.1.14, SR 3.3.1.16 The total interlock function shall be demonstrated OPERABLE at least once per 18 [24] months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. (L.2)

SR 3.3.1.19 4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 [24] months. (L.3) Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1." (A.17)

[on a STAGGERED TEST BASIS] (A.4)

SR 3.3.1.19 Note * Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel. (LA.1)

A.1

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Table 3.3.1-1

TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

ITS		FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	~~MINIMUM~~ CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1	1.	Manual Reactor Trip	2	1	2 [4]	1, 2 and * Note a	12 B, P, Q
2.a 2.b	2.	Power Range, Neutron Flux	4	2	3	[1] 2 and *	2 C, D
3.a	3.	Power Range, Neutron Flux, High Positive Rate	4	2	3	1, 2	2 D
3.b	4.	Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	2 D
4	5.	Intermediate Range, Neutron Flux	2	1	2	[1] [2] and *	3 E, F
5	6.	Source Range, Neutron Flux A. Startup	2	1	2	2## and * Note a	4 G, I, Q
		B. Shutdown	2	0	1	3, 4 and 5	5
6	7.	Overtemperature ΔT Four Loop Operation	4	2	3	1, 2	6 D
7	8.	Overpower ΔT Four Loop Operation	4	2	3	1, 2	6 D

REQUIRED

LA.2 A.5 A.7 L.5 A.7 L.5 A.8 A.9 A.1 A.5 LA.2 [4] [4]

See ITS 3.3.8

COOK NUCLEAR PLANT-UNIT 1

Page 3/4 3-3

AMENDMENT ~~74, 120~~ 281

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ITS

Table 3.3.1-1

COOK NUCLEAR PLANT-UNIT 1

TABLE 3.3-1 (Continue)
REACTOR TRIP SYSTEM INSTRUMENTATION

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM [REQUIRED] CHANNELS OPERABLE	APPLICABLE MODES	ACTION
8.a	9. Pressurizer Pressure - Low	4	2	3 [4]	1, 2	6 D
8.b	10. Pressurizer Pressure – High	4	2	3 [4]	1, 2	6 D
9	11. Pressurizer Water Level – High	3	2	2 [3]	1, 2	7 D
10	12. Loss of Flow - Single Loop (Above P-8) (per loop)	3/loop	2/loop in any operating loop	2/loop in each operating loop [3]	1	7 D
10 Footnote (e)	13. Loss of Flow - Two Loops (Above P-7 and below P-8)	3/loop	2/loop in two operating loops	2/loop in each operating loop [3]	1	7 D
14	14. Steam Generator Water Level -- Low-Low (per SG)	3/loop	2/loop in any operating loop	2/loop in each operating loop [2]	1, 2	7 D
15	15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	2/loop-level and 2/loop-flow mismatch in same loop	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop-level and 2/loop-flow mismatch or 2/loop-level and 1/loop-flow mismatch	1, 2	7 D

LA.2

A.5

A.10

A.5

A.5

A.2

LA.6

A.1

Page 3/4 3-4

AMENDMENT ~~74, 120,~~ 274, 281

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ITS

COOK NUCLEAR PLANT-UNIT 1

Table 3.3.1-1

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

ITS		FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
12	16.	Undervoltage-Reactor Coolant Pumps	4-1/bus	2	3 (1 per bus)	1	6D
13	17.	Underfrequency-Reactor Coolant Pumps	4-1/bus	2	3	1	6D
	18.	Turbine Trip (per train)					
16.a		A. Low Fluid Oil Pressure	3	2	2 (3)	1	7 D
16.b		B. Turbine Stop Valve Closure	4	4	4	1	7 D
17	19.	Safety Injection Input from ESF	2	1	2	1, 2	1 J, P
11	20.	Reactor Coolant Pump Breaker Position Trip					
Footnote (e)		Above P-7	1/breaker	2	1/breaker per operating loop	1	11 D
19, 20	21.	Reactor Trip Breakers	2	1	2	1, 2	M, P 13 15 K, P
						3*, 4*, 5*	14 B, Q
21	22.	Automatic Trip Logic	2	1	2	1, 2	1 J, P
						3*, 4*, 5*	14 B, Q

LA.2 A.5 A.5 A.10 A.2 A.5 A.10 A.5 A.1 A.12

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AMENDMENT 99, 120, 140, 277, 281

ITS 3.3.1

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(A.1)

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

(A.18)

Table 3.3.1-1 — TABLE 3.3-1 (Continued)

(LA.3)

TABLE NOTATION

MODES 3, 4, and 5

or one or more rods not fully inserted (M.1)

Footnote (a) — * With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal.

(A.9)

Footnote (d) — ## High voltage to detector may be de-energized above P-6.

(LA.4)

ACTION STATEMENTS

Add proposed Required Action J.1 (L.6)

ACTION J / ACTION D / ACTION J Note — ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.1.1.1.

ACTIONS C and D — ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied.

4 (L.6)

Required Actions C.1 and D.1 — a. The inoperable channel is placed in tripped condition within 6 hours.

ACTIONS C and D Note — b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of the other channels per Specification 4.3.1.1.1.

Required Action C.2 — c. Either THERMAL POWER is restricted to less than or equal to 75% of RATED THERMAL POWER and the Power Range, Neutron Flux trip setpoint is reduced to less than or equal to 85% of RATED THERMAL POWER within 4 hours; or the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.c.

(A.11) (L.4) (A.11)

Add proposed ACTION P (M.4)

ACTION E — ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

A.1

ITS 3.3.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-1 (Continued)

Function 4 Applicability — a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint. (A.8)

ACTION E — b. Above P-6 but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER. (M.5) (L.9) Add proposed Required Actions E.1 and E.2

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue. (M.5)

Add proposed ACTION F (M.11)

ACTIONS G, I, Q — ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level: (M.2)

Add proposed Required Action G.1 for MODE 2 below P-6

Add proposed Required Actions I.1, Q.1, and Q.2 for MODES 3[(a)], 4[(a)], 5[(a)]

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

Add proposed ACTION H (M.6)

Function 5 Applicability — b. Above P-6, operation may continue.

ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement:

a. Immediately suspend operations involving positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.8.b.2 (MODES 3 or 4) or 3.1.2.7.b.2 (MODE 5), and

b. Verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter, and

c. Close the isolation valves for unborated water sources to the chemical and volume control system within 1 hour. In MODE 5, if the RWST boron concentration is less than the reactor coolant system boron concentration and less than the boron concentration required by Specification 3.1.2.7.b.2, isolate the RWST from the reactor coolant system within 1 hour.

{See ITS 3.3.8}

ACTION D — ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied: (L.6)

a. The inoperable channel is placed in the tripped condition within [1] hour. [6]

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to [2] hours for surveillance testing of the other channels per Specification 4.3.1.1.1. [4]

Add proposed ACTIONS N and P (M.7)

ACTION D — ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed [until performance of the next required CHANNEL FUNCTIONAL TEST] provided the inoperable channel is placed in the tripped condition within [1] hour. (L.6) [6]

Add proposed ACTIONS N and P (M.7)

Add proposed NOTE to ACTION D (L.6)

(A.1)

ITS 3.3.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-1 (Continued)

ACTION 8 - (Deleted.)

ACTION 9 - (Deleted.)

ACTION 10 - (Deleted.)

ACTION D — ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within [1] hour. [6] (L.6)

Add proposed ACTION O (M.7)

ACTION B / ACTION P / ACTION Q — ACTION 12 - 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 6 hours and/or open the reactor trip breakers. (L.12)

Add proposed Required Actions Q.1 and Q.2

ACTION M / ACTION P — ACTION 13 - With one of the diverse trip features (Undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply ACTION 1. The breaker shall not be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status. (M.9)

ACTION B / ACTION Q — ACTION 14 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

Add proposed Required Actions Q.1 and Q.2 (L.13)

ACTION K / ACTION P / ACTION K Note — ACTION 15 - With the number of OPERABLE Reactor Trip Breaker channels one less than required by the Minimum Channels OPERABLE requirement for reasons other than an inoperable diverse trip feature, restore the inoperable channel to OPERABLE status within 24 hours or be in HOT STANDBY within the following 6 hours. One channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1.1, provided the other channel is OPERABLE.

REACTOR TRIP SYSTEM INTERLOCKS

	DESIGNATION	CONDITION AND SETPOINT	FUNCTION
Table 3.3.1-1 Function 18.a	P-6	With 2 of [2] Intermediate Range Neutron Flux Channels less than $6x10^{-11}$ amps.	P-6 prevents or defeats the manual block of source range reactor trip.

(LA.5)

Add proposed Applicability (A.19)

Add proposed ACTIONS L, P, and Q (L.8)

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(A.1)

ITS 3.3.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

(A.21)

TABLE 3.3-1 (Continued)

1 per train

(LA.5)

ITS	DESIGNATION	CONDITION AND SETPOINT	FUNCTION
Table 3.3.1-1 Functions 18.b, 18.d, 18.e	P-7	With 2 of 4 Power Range Neutron Flux Channels greater than or equal to 11% of RATED THERMAL POWER or 1 of 2 Turbine First Stage Pressure channels greater than or equal to 37 psig.	P-7 prevents or defeats the automatic block of reactor trip on: Low flow in more than one primary coolant loop, reactor coolant pump under-voltage and under-frequency, turbine trip, pressurizer low pressure, and pressurizer high level. Low flow in a particular loop can be evidenced by either a detected low flow or by the opening of the reactor coolant pump breaker.
Table 3.3.1-1 Function 18.c	P-8	With 2 of 4 Power Range Neutron Flux channels greater than or equal to 31% of RATED THERMAL POWER	P-8 prevents or defeats the automatic block of reactor trip caused by a low coolant flow condition in a single loop.
Table 3.3.1-1 Function 18.d	P-10	With 3 of 4 Power range neutron flux channels less than 9% of RATED THERMAL POWER.	P-10 prevents or defeats the manual block of: Power range low setpoint reactor trip, Intermediate range reactor trip, and intermediate range rod stops. Provides input to P-7.

Add proposed Applicability (A.19)

Add proposed Applicability (A.19)

Add proposed ACTIONS L, O, and P (L.8)

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A.1

ITS 3.3.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-2

Table Intentionally Deleted

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A.1

ITS 3.3.1

TABLE 3.3-2 (Continued)

Table Intentionally Deleted

A.1

ITS 3.3.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.1-1

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ITS	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODE IN WHICH SURVEILLANCE REQUIRED
1	1. Manual Reactor Trip	SR 3.3.1.1	SR 3.3.1.2, SR 3.3.1.3, SR 3.3.1.9, SR 3.3.1.13, SR 3.3.1.14, SR 3.3.1.15	SR 3.3.1.8, SR 3.3.1.11, SR 3.3.1.17	
	A. Shunt Trip Function	N.A.	N.A.	S/U(1)(10) -17	1, 2, 3*, 4*, 5*
	B. Undervoltage Trip Function	N.A.	N.A.	S/U(1)(10) -17	1, 2, 3*, 4*, 5*
2.a 2.b	2. Power Range, Neutron Flux	S -1	2- D(2,8), M(3,8), -3 and Q(6)(I) -9	Q and S/U(1) -8	1, 2 and *
3.a	3. Power Range, Neutron Flux, High Positive Rate	N.A.	R(6) -14	Q -8	1, 2
3.b	4. Power Range, Neutron Flux, High Negative Rate	N.A.	R(6) -14	Q -8	1, 2
4	5. Intermediate Range, Neutron Flux	S -1	R(6,8) -14	S/U(1) -11	1, 2 and *
5	6. Source Range, Neutron Flux	S -1	R(6,8) -14	11 M(14) and S/U(1)	2(7), 3(7), 4 and 5
6	7. Overtemperature delta T	S -1	R(9) -15	SA -11	1, 2
7	8. Overpower delta T	S -1	R(9) -15	SA -11	1, 2
8.a	9. Pressurizer Pressure -- Low	S -1	R -13	SA -11	1, 2
8.b	10. Pressurizer Pressure -- High	S -1	R -13	SA -11	1, 2
9	11. Pressurizer Water Level -- High	S -1	R -13	SA -11	1, 2
10	12. Loss of Flow-Single Loop	S -1	R(8) -13	SA -11	1

Annotations: L.15; A.20; L.14; LA.9; 24 months; L.20; Add proposed Note to SR 3.3.1.8; L.16; L.5; 31 effective full power days; A.23; A.7; L.2; M.12; 24 months; Add proposed SR 3.3.1.11 Note 1; 184 days; L.5; A.8; L.2; M.15; 24 months; L.16; 184 days; A.18; M.13; Add proposed SR 3.3.1.7; L.18; Add proposed Note 1 to SR 3.3.1.15; A.16; 24 months; L.2; 24 months; A.10; M.15; L.2; (per loop); A.2; A.22; LA.6

A.1

ITS 3.3.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.1-1

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ITS	FUNCTIONAL UNIT	SR 3.3.1.1 CHANNEL CHECK	SR 3.3.1.12, SR 3.3.1.13 CHANNEL CALIBRATION	SR 3.3.1.4, SR 3.3.1.5, SR 3.3.1.6, SR 3.3.1.10, SR 3.3.1.11, SR 3.3.1.17, SR 3.3.1.18 CHANNEL FUNCTIONAL TEST	MODE IN WHICH SURVEILLANCE REQUIRED
10	13. Loss of Flow-Two Loops (per loop)	S-1	R(B)-13	N.A. 24 months	1
14	14. Steam Generator Water Level -- Low-Low (per SG)	S-1	R-13	SA-11	1, 2
15	15. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	S-1	R-13	SA-11 92 days	1, 2
12	16. Undervoltage-Reactor Coolant Pumps	N.A.	R-12 184 days	M-10	1
13	17. Underfrequency-Reactor Coolant Pumps	N.A.	R-13	M-10	1
	18. Turbine Trip		Add proposed SR 3.3.1.13	Add proposed Note to SR 3.3.1.18	
16.a	A. Low Fluid Oil Pressure	N.A.	N/A	S/U(1)-18	1, 2
16.b	B. Turbine Stop Valve Closure (per train)	N.A.	N/A	S/U(1)-18	1, 2
17	19. Safety Injection Input from ESF	N.A.	N.A.	6- Q(4)(15)	1, 2
11	20. Reactor Coolant Pump Breaker Position Trip	N.A.	N.A.	R-17 24 months	N.A.
19	21. Reactor Trip Breaker				
19, 20	A. Shunt Trip Function	N.A.	N.A.	4- 2 Months (5)(7)(11) and S/U(1)(11)	1, 2, 3*, 4*, 5*
19, 20	B. Undervoltage Trip Function	N.A.	N.A.	4- 2 Months (5)(7)(11) and S/U(1)(11)	1, 2, 3*, 4*, 5*
21	22. Automatic Trip Logic	N.A	N.A.	Q(15)-5	1, 2, 3*, 4*, 5*
19 Footnote (g)	23. Reactor Trip Bypass Breaker	N.A.	N.A.	4- 2 Months (5)(12) 17- and S/U(1)(13) 24 months	1, 2, 3*, 4*, 5*

Annotations: A.2, LA.6, M.15, M.16, A.20, A.22, L.2, L.18, A.3 (Add proposed Note to SR 3.3.1.10), A.10, M.14, A.3, L.10, A.15, A.10, A.2, M.18, L.11, A.12, LA.9, L.16, LA.9, L.16, A.13, LA.9, L.14, A.13

A.1

ITS 3.3.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-1 (Continued)

NOTATION

ITS			
Table 3.3.1-1 Footnote (a)	*	-	With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal. [or one or more rods not fully inserted] (LA.3, M.1, L.10)
SR 3.3.1.18	(1)	-	If not performed in previous 7 [31] days. (L.16, L.14)
SR 3.3.1.2	(2)	-	Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference greater than 2 percent.
SR 3.3.1.3	(3)	-	Compare incore to excore axial imbalance above 15% of RATED THERMAL POWER. Recalibrate if absolute difference greater than or equal to 3 percent.
	(4)	-	Manual ESF functional input check every 18 months. (M.18)
SR 3.3.1.4	(5)	-	Each train tested at least every other 62 days. (M.15)
SR 3.3.1.9, SR 3.3.1.14	(6)	-	Neutron detectors may be excluded from CHANNEL CALIBRATION.
Table 3.3.1-1 Function 5 Applicability Footnote (d)	(7)	-	Below P-6 (BLOCK OF SOURCE RANGE REACTOR TRIP) setpoint. (M.3)
Note 2 for SR 3.3.1.2 and SR 3.3.1.3	(8)	-	The provisions of Specification 4.0.4 are not applicable. (M.13)
SR 3.3.1.15 Note 2	(9)	-	The provisions of Specification 4.0.4 are not applicable for f, (delta I) and f, (delta I) penalties, or for measurement of delta T. (See also Table 2.2-1). (A.14, M.10)
	(10)	-	The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the Manual Reactor Trip Function. The test shall also verify the OPERABILITY of the Bypass Breaker trip circuit(s). (LA.9)
	(11)	-	The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers. (LA.9)
SR 3.3.1.4	(12)	-	Local manual shunt trip prior to placing breaker in service. (LA.9)
	(13)	-	Automatic Undervoltage Trip.
SR 3.3.1.11 Note 2	(14)	-	The provisions of Specification 4.0.4 are not applicable when leaving MODE 1. In such an event, the calibration and/or functional test shall be performed within 24 hours after leaving MODE 1. (L.17, M.15)
SR 3.3.1.5 SR 3.3.1.6	(15)	-	Each train tested at least every other 92 days.
	(16)	-	Not Used.
SR 3.3.1.11	(17)	-	If not performed in previous 184 days. (M.12)

A.1

ITS 3.3.1

ITS

SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

2.2 LIMITING SAFETY SYSTEM SETTINGS

REACTOR TRIP SYSTEM INSTRUMENTATION SETPOINTS

LCO 3.3.1

2.2.1 The reactor trip system instrumentation setpoints shall be set consistent with the Trip Setpoint values shown in Table 2.2-1.

Allowable Value — LA.10

APPLICABILITY: As shown for each channel in Table 3.3-1.

ACTION:

ACTION A

With a reactor trip system instrumentation setpoint less conservative than the value shown in the Allowable Values column of Table 2.2-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1.1 until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the Trip Setpoint value.

Allowable Value — LA.10

A.1

ITS 3.3.1

ITS

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

Table 3.3.1-1

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

LA.10

ITS		FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1	1.	Manual Reactor Trip	Not Applicable	Not Applicable
2.a, 2.b	2.	Power Range, Neutron Flux	Low Setpoint - less than or equal to 25% of RATED THERMAL POWER High Setpoint - less than or equal to 109% of RATED THERMAL POWER	Low Setpoint - less than or equal to 26% of RATED THERMAL POWER High Setpoint - less than or equal to 110% of RATED THERMAL POWER
3.a	3.	Power Range, Neutron Flux, High Positive Rate	Less than or equal to 5% of RATED THERMAL POWER with a time constant greater than or equal to 2 seconds	Less than or equal to 5.5% of RATED THERMAL POWER with a time constant greater than or equal to 2 seconds
3.b	4.	Power Range, Neutron Flux, High Negative Rate	Less than or equal to 5% of RATED THERMAL POWER with a time constant greater than or equal to 2 seconds	Less than or equal to 5.5% of RATED THERMAL POWER with a time constant greater than or equal to 2 seconds
4	5.	Intermediate Range, Neutron Flux	Less than or equal to 25% of RATED THERMAL POWER	Less than or equal to 30% of RATED THERMAL POWER
5	6.	Source Range, Neutron Flux	Less than or equal to 10^5 counts per second	Less than or equal to 1.3 x 10^5 counts per second
6, including Note 1	7.	Overtemperature Delta T	See Note 1	See Note 3
7, including Note 2	8.	Overpower Delta T	See Note 2	See Note 4
8.a	9.	Pressurizer Pressure -- Low	Greater than or equal to 1875 psig	Greater than or equal to ~~1865~~ 1868 psig
8.b	10.	Pressurizer Pressure -- High	Less than or equal to 2385 psig	Less than or equal to ~~2395~~ 2398 psig
9	11.	Pressurizer Water Level - - High	Less than or equal to 92% of instrument span	Less than or equal to ~~93~~ 93.4 % ~~of instrument span~~
10	12.	Loss of Flow (per loop)	Greater than or equal to 90% of design flow per loop*	Greater than or equal to ~~89.1~~ 89.6 % ~~of design flow per loop*~~

M.17 L.19 LA.11 M.17 LA.11 A.2

LA.10 LA.11

~~*Design flow is 1/4 Reactor Coolant System total flow rate from Table 3.2.-1.~~

A.1

ITS 3.3.1

ITS

2.0 SAFETY LIMITS AND LIMITING SAFETY SYSTEM SETTINGS

TABLE 2.2-1 (Continued)

Table 3.3.1-1 (A.2)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS (LA.10)

ITS		FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
14	13.	Steam Generator Water Level -- Low-Low (per SG)	Greater than or equal to 17% of narrow range instrument span - each steam generator	Greater than or equal to ~~16%~~ 4.0 % ~~of narrow range instrument span - each steam generator~~ (L.19, LA.11)
15	14.	Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level (per SG)	Less than or equal to 0.71 x 10^6 lb/hr of steam flow at RATED THERMAL POWER coincident with steam generator water level greater than or equal to 25% of narrow range instrument span - each steam generator	Less than or equal to 0.73 x 10^6 lb/hr of steam flow at RATED THERMAL POWER coincident with steam generator water level greater than or equal to ~~24%~~ 9.7 % ~~of narrow range instrument span~~ - each steam generator (L.19, LA.11)
12	15.	Undervoltage - Reactor Coolant Pumps	Greater than or equal to 2750 volts - each bus	Greater than or equal to 2725 volts - each bus
13	16.	Underfrequency - Reactor Coolant Pumps	Greater than or equal to 57.5 Hz - each bus	Greater than or equal to ~~57.4~~ 57.01 Hz - each bus (L.19)
	17.	Turbine Trip		
16.a		A. Low Fluid Oil Pressure	Greater than or equal to 800 psig	Greater than or equal to 750 psig
16.b		B. Turbine Stop Valve Closure	Greater than or equal to 1% open	Greater than or equal to 1% open
17	18.	Safety Injection Input from ESF (per train)	Not Applicable	Not Applicable
11	19.	Reactor Coolant Pump Breaker Position Trip	Not Applicable	Not Applicable

(per train) A.2

Table 3.3.1-1
Note 1

COOK NUCLEAR PLANT-UNIT 1 | Page 2-7 | AMENDMENT 74, 126, 244, 273

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATION

Note 1: Overtemperature $\Delta T \leq \Delta T_o \left[K_1 - K_2 \left[\frac{1+\tau_1 s}{1+\tau_2 s}\right] (T-T') + K_3 (P-P') - f_1 (\Delta I)\right]$

Where:

ΔT_o	=	Indicated ΔT at RATED THERMAL POWER
T	=	Average temperature, °F
T'	=	Indicated T_{avg} at RATED THERMAL POWER (≤ 574.0 °F)
P	=	Pressurizer pressure, psig
P'	=	Indicated RCS nominal operating pressure (2235 psig or 2085 psig)
$\frac{1+\tau_1 s}{1+\tau_2 s}$	=	The function generated by the lead-lag controller for T_{avg} dynamic compensation
τ_1, τ_2	=	Time constants utilized in the lead-lag controller for T_{avg} τ_1 = 22 secs. τ_2 = [illegible] secs.
S	=	Laplace transform operator

LA.8

LA.8

LA.7

LA.8

A.1

ITS 3.3.1

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TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATIONS (Continued)

Table 3.3.1-1
Note 1

Operation with 4 Loops

K_1 = 1.17
K_2 = 0.0230
K_3 = 0.00110

LA.8

and $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers; with gains to be selected based on measured instrument response during plant startup tests such that:

(i) For $q_t - q_b$ between -37 percent and +3 percent, $f_1(\Delta I)=0$ (where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER). LA.8

(ii) For each percent that the magnitude of $(q_t - q_b)$ exceeds -37 percent, the ΔT trip setpoint shall be automatically reduced by 0.33 percent of its value at RATED THERMAL POWER. LA.8

(iii) For each percent that the magnitude of $(q_t - q_b)$ exceeds +3 percent, the ΔT trip setpoint shall be automatically reduced by 2.34 percent of its value at RATED THERMAL POWER.

A.1

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ITS

COOK NUCLEAR PLANT-UNIT 1

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATION (Continued)

Table 3.3.1-1 Note 2

Note 2: Overpower $\Delta T \leq \Delta T_0 \left[K_4 - K_5 \left[\frac{\tau_3 S}{1+\tau_3 S}\right] T - K_6 (T - T'') - f_2(\Delta I)\right]$.

Where:			
	ΔT_0	=	Indicated ΔT at RATED THERMAL POWER
	T	=	Average temperature, °F
	T''	=	Indicated T_{avg} at RATED THERMAL POWER (≤ [562.1] °F)
	K_4	=	[1.083]
	K_5	=	[0.0177]/°F for increasing average temperature and [0] for decreasing average temperature
	K_6	=	[0.0015] for T > T''; K_6 = [0] for T ≤ T''
	$\frac{\tau_3 S}{1+\tau_3 S}$	=	The function generated by the rate lag controller for T_{avg} dynamic compensation
	τ_3	=	Time constants utilized in the rate lag controller for T_{avg} τ_3 = [10] secs.
	S	=	Laplace transform operator
	$f_2(\Delta I)$	=	[0]

LA.8

LA.8

LA.7

LA.8

Table 3.3.1-1 Note 1

Note 3: The channel's maximum trip point shall not exceed its computed trip point by more than [3.4] percent ΔT span. (0.008)

Table 3.3.1-1 Note 2

Note 4: The channel's maximum trip point shall not exceed its computed trip point by more than [2.5] percent ΔT span. (0.037)

L.19

A.1

Page 2-9 AMENDMENT 74, 126, 214, 273

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A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.1 — 3.3.1.1 As a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE.

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

Add proposed ACTIONS Note — A.2

ACTION A — As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

SR Table Note — 4.3.1.1.1 Each reactor trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the MODES and at the frequencies shown in Table 4.3-1. [92 days on a STAGGERED TEST BASIS — A.20, M.8]

SR 3.3.1.5 — 4.3.1.1.2 The logic for the interlocks shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total interlock function shall be demonstrated OPERABLE at least once per 18 [24] months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. [L.1, L.2]

SR 3.3.1.13, SR 3.3.1.14, SR 3.3.1.16

SR 3.3.1.19 — 4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 [24] months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.* [L.3, A.17]

on a STAGGERED TEST BASIS — A.4

SR 3.3.1.19 Note — * Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel. — LA.1

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ITS 3.3.1

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.1-1

TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

LA.2 A.5 REQUIRED A.7

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1	1. Manual Reactor Trip	2	1	2	1, 2 and * Note a	12 B, P, Q
2.a 2.b	2. Power Range, Neutron Flux	4	2	3 4	1 2 and *	2 C, D
3.a	3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2 D
3.b	4. Power Range, Neutron Flux High Negative Rate	4	2	3	1, 2	2 D
4	5. Intermediate Range, Neutron Flux	2	1	2	1 2 and *	3 E, F
5	6. Source Range, Neutron Flux					
	A. Startup	2	1	2	2## and * Note a	4 G, I, Q
	B Shutdown	2	0	1	3, 4 and 5	5
6	7. Overtemperature ΔT Four Loop Operation	4	2	3	1, 2	6 D
7	8. Overpower ΔT Four Loop Operation	4	2	3 4	1, 2	6 D

L.5 A.7 L.5 A.8 A.9 See ITS 3.3.8 A.5 LA.2

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ITS 3.3.1

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.1-1

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

LA.2 A.5 A.2 A.10

ITS		FUNCTIONAL UNIT (per loop)	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM (REQUIRED) CHANNELS OPERABLE	APPLICABLE MODES	ACTION
8.a	9.	Pressurizer Pressure-Low	4	2	3 4	1, 2	6 D
8.b	10.	Pressurizer Pressure--High	4	2	3	1, 2	6 D
9	11.	Pressurizer Water Level--High	3	2	2 3	1, 2	7 D
10	12.	Loss of Flow - Single Loop (Above P-8)	3/loop	2/loop in any operating loop	2/loop in each operating loop 3	1	7 D
10 Footnote (e)	13.	Loss of Flow - Two Loops (Above P-7 and below P-8)	3/loop	2/loop in two operating loops	2/loop in each operating loop 3	1	7 D
14	14.	Steam Generator Water Level--Low-Low	3/loop	2/loop in any operating loop	2/loop in each operating loop 2	1, 2	7 D
15	15.	Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level (per SG)	2/loop-level and 2/loop-flow mismatch in same loop	1/loop-level coincident with 1/loop-flow mismatch in same loop	1/loop-level and 2/loop flow mismatch or 2/loop-level and 1/loop-flow mismatch	1, 2	7 D

A.5 A.2 LA.6

ITS 3.3.1

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.1-1

TABLE 3.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION

LA.2 A.2 (per train) A.5 REQUIRED 1 per bus

ITS		FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
12	16.	Undervoltage-Reactor Coolant Pumps	4-1/bus	2	3	1	6 D
13	17.	Underfrequency-Reactor Coolant Pumps	4-1/bus	2	3	1	6 D
	18.	Turbine Trip					
16.a		A. Low Fluid Oil Pressure	3	2	2 3	1	7 D
16.b		B. Turbine Stop Valve Closure	4	4	3 4	1	6 D
17	19.	Safety Injection Input from ESF	2	1	2	1, 2	1J, P
11	20.	Reactor Coolant Pump Breaker Position Trip					
Footnote (e)		Above P-7	1/breaker	2	1/breaker per operating loop	1	11 D
19, 20	21.	Reactor Trip Breakers	2	1	2	1, 2, 3*, 4*, 5*	M, P 13, 13 K, P; 14 B, Q
21	22.	Automatic Trip Logic	2	1	2	1, 2 3*, 4*, 5*	1 J, P; 14 B, Q

A.10 A.5 A.10 A.5 A.5 A.12

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ITS 3.3.1

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.1-1

TABLE 3.3-1 (Continued)

TABLE NOTATION

A.18 LA.3 M.1

MODES 3, 4, and 5 — or one or more rods not fully inserted

Footnote (a) * With the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal.

Footnote (d) ## High voltage to detector may be de-energized above P-6. A.9 LA.4

ACTION STATEMENTS

Add proposed Required Action J.1 — L.6

ACTION J / ACTION P / ACTION J Note — ACTION 1 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, be in HOT STANDBY within 6 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing PER Specification 4.3.1.1.1.

4 — L.6

ACTIONS C and D — ACTION 2 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

Required Actions C.1 and D.1 — a. The inoperable channel is placed in the tripped condition within 6 hours.

ACTIONS C and D Note — b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of the other channels per Specification 4.3.1.1.1.

Required Action C.2 — c. Either, THERMAL POWER is restricted to ≤ 75% of RATED THERMAL POWER and the Power Range, Neutron Flux trip setpoint is reduced to ≤ 85% of RATED THERMAL POWER within 4 hours; or, the QUADRANT POWER TILT RATIO is monitored at least once per 12 hours per Specification 4.2.4.c.

A.11 L.4 A.11

Add proposed ACTION P — M.4

ACTION E — ACTION 3 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

ITS 3.3.1

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

A.8

TABLE 3.3-1 (Continued)

Function 4 Applicability

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

Add proposed Required Actions E.1 and E.2

L.9

ACTION E

b. Above P-6 but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

M.5

M.11

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

Add proposed ACTION F

ACTIONS G, I, Q

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

Add proposed Required Action G.1 for MODE 2 below P-6

Add proposed Required Actions I.1, Q.1 and Q.2 for MODES 3[(a)], 4[(a)], 5[(a)]

M.2

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

Function 5 Applicability

b. Above P-6, operation may continue.

Add proposed ACTION H

M.6

ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement:

a. Immediately suspend operations involving positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than the minimum required by Specification 3.1.2.8.b.2 (MODES 3 or 4) or 3.1.2.7.b.2 (MODE 5), and

b. Verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, within 1 hour and at least once per 12 hours thereafter, and

c. Close the isolation valves for unborated water sources to the chemical and volume control system within 1 hour. In MODE 5, if the RWST boron concentration is less than the reactor coolant system boron concentration and less than the boron concentration required by Specification 3.1.2.7.b.2, isolate the RWST from the reactor coolant system within 1 hour.

See ITS 3.3.8

L.6

ACTION D

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

6

a. The inoperable channel is placed in the tripped condition within [1] hour.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable CHANNEL may be bypassed for up to [2] hours for surveillance testing of the other channels per Specification 4.3.1.1.1.

4

Add proposed ACTIONS N and P

M.7

ACTION D

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed [until performance of the next required CHANNEL FUNCTIONAL TEST] provided the inoperable channel is placed in the tripped condition within [1] hour.

L.6

6

Add proposed ACTIONS N and P

M.7

Add proposed Note to ACTION D

L.6

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-1(Continued)

L.6

ACTION D — ACTION 11 - With less than the Minimum Number of Channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within [1] [6] hours.

Add proposed ACTION O — M.7

ACTION B, ACTION P, ACTION Q — ACTION 12 - 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 6 hours and/or open the reactor trip breakers.

Add proposed Required Actions Q.1 and Q.2 — L.12

ACTION M, ACTION P — ACTION 13 - With one of the diverse trip features (Undervoltage or shunt trip attachment) inoperable, restore it to OPERABLE status within 48 hours or declare the breaker inoperable and apply ACTION 1. The breaker shall not be bypassed while one of the diverse trip features is inoperable except for the time required for performing maintenance to restore the breaker to OPERABLE status. — M.9

ACTION B, ACTION Q — ACTION 14 - With the number of OPERABLE channels one less than the Minimum Channels OPERABLE requirement, restore the inoperable channel to OPERABLE status within 48 hours or open the reactor trip breakers within the next hour.

Add proposed Required Actions Q.1 and Q.2 — L.13

ACTION K, ACTION P, ACTION K Note — ACTION 15 - With the number of OPERABLE Reactor Trip Breaker channels one less than required by the Minimum Channels OPERABLE requirement for reasons other than an inoperable diverse trip feature, restore the inoperable channel to OPERABLE status within 24 hours or be in HOT STANDBY within the following 6 hours. One channel may be bypassed for up to 4 hours for surveillance testing per Specification 4.3.1.1.1, provided the other channel is OPERABLE.

REACTOR TRIP SYSTEM INTERLOCKS

	DESIGNATION	CONDITION AND SETPOINT	FUNCTION
Table 3.3.1-1 Function 18.a	P-6	With 2 of 2 Intermediate Range Neutron Flux Channels $< 6 \times 10^{-11}$ amps.	P-6 prevents or defeats the manual block of source range reactor trip.

LA.5

Add proposed Applicability — A.19

Add proposed ACTIONS L, P, and Q — L.8

ITS 3.3.1

ITS

(A.1)

(A.21)

TABLE 3.3-1 (Continued)

ITS	DESIGNATION	CONDITION AND SETPOINT	FUNCTION
Table 3.3.1-1 Functions 18.b, 18.d, 18.e	P-7	With 2 of 4 Power Range Neutron Flux Channels ≥ 11% of RATED THERMAL POWER or 1 of 2 Pressure before the First Stage channels ≥ 51 psig.	P-7 prevents or defeats the automatic block of reactor trip on: Low flow in more than one primary coolant loop, reactor coolant pump under-voltage and under-frequency, turbine trip, pressurizer low pressure, and pressurizer high level. Low flow in a particular loop can be evidenced by either a detected low flow or by the opening of the reactor coolant pump breaker.
Table 3.3.1-1 Function 18.c	P-8	With 2 of 4 Power Range Neutron Flux channels ≥ 31% of RATED THERMAL POWER.	P-8 prevents or defeats the automatic block of reactor trip caused by a low coolant flow condition in a single loop.
Table 3.3.1-1 Function 18.d	P-10	With 3 of 4 Power Range Neutron Flux channels < 9% of RATED THERMAL POWER.	P-10 prevents or defeats the manual block of: Power range low setpoint reactor trip, Intermediate range reactor trip, and intermediate range rod stops. Provides input to P-7.

1 per train

(LA.5)

Add proposed Applicability (A.19)

Add proposed Applicability (A.19)

Add proposed ACTIONS L, O, and P (L.8)

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A.1

TABLE 3.3-2

Table Intentionally Deleted

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A.1

TABLE 3.3-2 (Continued)

Table Intentionally Deleted

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ITS

Table 3.3.1-1

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ITS	FUNCTIONAL UNIT	CHANNEL CHECK (SR 3.3.1.1)	CHANNEL CALIBRATION (SR 3.3.1.2, SR 3.3.1.3, SR 3.3.1.9, SR 3.3.1.13, SR 3.3.1.14, SR 3.3.1.15)	CHANNEL FUNCTIONAL TEST (SR 3.3.1.8, SR 3.3.1.11, SR 3.3.1.17)	MODES IN WHICH SURVEILLANCE REQUIRED
1	1. Manual Reactor Trip				
	A. Shunt Trip Function	N.A.	N.A.	S/U(1)(10) -17	1, 2, 3*, 4*, 5*
	B. Undervoltage Trip Function	N.A.	N.A.	S/U(1)(10) -17	1, 2, 3*, 4*, 5*
2.a, 2.b	2. Power Range, Neutron Flux	S -1	2-D(2,8), M(3,8), -3 and Q(6,8) -9	8 Q and S/U(1)	1, 2 and *
3.a	3. Power Range, Neutron Flux, High Positive Rate	N.A.	R(6) -14	Q -8	1, 2
3.b	4. Power Range, Neutron Flux, High Negative Rate	N.A.	R(6) -14	Q -8	1, 2
4	5. Intermediate Range, Neutron Flux	S -1	R(6,5) -14	11 S/U(17) -11	1, 2 and *
5	6. Source Range, Neutron Flux	S -1	R(6,14) -14	M(14) and S/U(1)	2(7), 3(7), 4 and 5
6	7. Overtemperature ΔT	S -1	R(9) -15	SA -11	1, 2
7	8. Overpower ΔT	S -1	R(9) -15	SA -11	1, 2
8.a	9. Pressurizer Pressure -- Low	S -1	R -13	SA -11	1, 2
8.b	10. Pressurizer Pressure -- High	S -1	R -13	SA -11	1, 2
9	11. Pressurizer Water Level -- High	S -1	R -13	SA -11	1, 2
10	12. Loss of Flow-Single Loop	S -1	R(8) -13	SA -11	1

Annotations: L.15; A.20; L.14; LA.9; L.20 — Add proposed Note to SR 3.3.1.8; 24 months; 31 effective full power days; L.5; A.7; A.23; Add proposed SR 3.3.1.11 Note 1; L.16; M.12; 184 days; L.5; A.8; M.13 — Add proposed SR 3.3.1.7; L.16; A.18; 184 days; L.18; M.15; A.10; A.22; Add proposed Note 1 to SR 3.3.1.15; A.16; 24 months; L.2; LA.6; (per loop); A.2; A.1

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ITS 3.3.1

Table 3.3.1-1

COOK NUCLEAR PLANT-UNIT 2

TABLE 4.3-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

SR 3.3.1.4, SR 3.3.1.5, SR 3.3.1.6, SR 3.3.1.10, SR 3.3.1.11, SR 3.3.1.17, SR 3.3.1.18

ITS		FUNCTIONAL UNIT	SR 3.3.1.1 CHANNEL CHECK	SR 3.3.1.12, SR 3.3.1.13 CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
10	13.	Loss of Flow-~~Two Loops~~ (per loop)	S -1	R(8) -13	N.A.	1
14	14.	Steam Generator Water Level -- Low-Low (per SG)	S -1	R -13	SA -11 (92 days)	1, 2
15	15.	Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level (per SG)	S -1	R -13	SA -11	1, 2
12	16.	Undervoltage-Reactor Coolant Pumps	N.A.	R -12 (184 days)	M -10	1
13	17.	Underfrequency-Reactor Coolant Pumps	N.A.	R -13	M -10	1
	18.	Turbine Trip				
16.a		A. Low Fluid Oil Pressure	N.A.	~~N.A.~~	S/U(1) -18	1, 2
16.b		B. Turbine Stop Valve Closure (per train)	N.A.	~~N.A.~~	S/U(1) -18	1, 2
17	19.	Safety Injection Input from EFS	N.A.	N.A.	6- Q(4)(15)	1, 2
11	20.	Reactor Coolant Pump Breaker Position Trip	N.A. (24 months)	N.A.	(24 months) R -17	N.A.
19	21.	Reactor Trip Breaker				
19, 20		A. Shunt Trip Function	N.A.	N.A.	4- 2 Months (5)(11) and S/U(1)(11)	1, 2, 3*, 4*, 5*
19, 20		B. Undervoltage Trip Function	N.A.	N.A.	4- 2 Months (5)(11) and S/U(1)(11)	1, 2, 3*, 4*, 5*
21	22.	Automatic Trip Logic	N.A	N.A.	Q (15) -5	1, 2, 3*, 4*, 5*
19 Footnote (g)	23.	Reactor Trip Bypass Breaker	N.A.	N.A.	4- 2 Months (5)(12) and 17- S/U(1)(12) (24 months)	1, 2, 3*, 4*, 5*

Annotations: LA.6, A.2, A.20, A.22, M.15, L.18, A.3, M.16, A.10, M.14, A.3, A.15, M.18, A.10, L.10, A.1, L.11, LA.9, A.12, L.16, A.13, A.13, LA.9, L.14, L.2

Add proposed Note to SR 3.3.1.10

Add proposed SR 3.3.1.13

Add proposed Note to SR 3.3.1.18

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AMENDMENT 86, 107, 260

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ITS (A.1) ITS 3.3.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-1 (Continued)

NOTATION

ITS			
Table 3.3.1-1 Footnote (a)	*	-	With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal. [or one or more rods not fully inserted]
SR 3.3.1.18	(1)	-	If not performed in previous 7 days. [31]
SR 3.3.1.2	(2)	-	Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference greater than 2 percent.
SR 3.3.1.3	(3)	-	Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Recalibrate if absolute difference greater than or equal to 3 percent.
	(4)	-	Manual ESF functional input check every 18 months.
SR 3.3.1.4	(5)	-	Each train tested at least every other 62 days.
SR 3.3.1.9, SR 3.3.1.14	(6)	-	Neutron detectors may be excluded from CHANNEL CALIBRATION.
Table 3.3.1-1 Function 5 Applicability Footnote (d)	(7)	-	Below P-6 (BLOCK OF SOURCE RANGE REACTOR TRIP) setpoint.
Note 2 for SR 3.3.1.2 and SR 3.3.1.3	(8)	-	The provisions of Specification 4.0.4 are not applicable.
SR 3.3.1.15 Note 2	(9)	-	The provisions of Specification 4.0.4 are not applicable for f_1 (delta I) and f_2 (delta I) penalties, or for measurement of delta T. (See also Table 2.2-1).
	(10)	-	The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the Manual Reactor Trip Function. The test shall also verify the OPERABILITY of the Bypass Breaker trip circuit(s).
	(11)	-	The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers.
SR 3.3.1.4	(12)	-	Local manual shunt trip prior to placing breaker in service.
	(13)	-	Automatic Undervoltage Trip.
SR 3.3.1.11 Note 2	(14)	-	The provisions of Specification 4.0.4 are not applicable when leaving MODE 1. In such an event, the calibration and/or functional test shall be performed within 24 hours after leaving MODE 1.
SR 3.3.1.5, SR 3.3.1.6	(15)	-	Each train tested at least every other 92 days.
	(16)	-	Not Used.
SR 3.3.1.11	(17)	-	If not performed in previous 184 days.

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A.1

ITS 3.3.1

ITS

2.2 LIMITING SAFETY SYSTEM SETTINGS

REACTOR TRIP SYSTEM INSTRUMENTATION SETPOINTS

LCO 3.3.1 2.2.1 The reactor trip system instrumentation setpoints shall be set consistent with the ~~Trip Setpoint~~ Allowable Value values shown in Table 2.2-1. LA.10

APPLICABILITY: As shown for each channel in Table 3.3-1.

ACTION:

ACTION A With a reactor trip system instrumentation setpoint less conservative than the value shown in the Allowable Values column of Table 2.2-1, declare the channel inoperable and apply the applicable ACTION statement requirement of Specification 3.3.1.1 until the channel is restored to OPERABLE status with its trip setpoint adjusted consistent with the ~~Trip Setpoint~~ Allowable Value value. LA.10

A.1

ITS

Table 3.3.1-1

TABLE 2.2-1

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

LA.10

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1	1. Manual Reactor Trip	Not Applicable	Not Applicable
2.a, 2.b	2. Power Range, Neutron Flux	Low Setpoint - Less than or equal to 25% of RATED THERMAL POWER	Low Setpoint - Less than or equal to 26% of RATED THERMAL POWER
		High Setpoint - Less than or equal to 109% of RATED THERMAL POWER	High Setpoint - Less than or equal to 110% of RATED THERMAL POWER
3.a	3. Power Range, Neutron Flux, High Positive Rate	Less than or equal to 5% of RATED THERMAL POWER with a time constant greater than or equal to 2 seconds	Less than or equal to 5.5% of RATED THERMAL POWER with a time constant greater than or equal to 2 seconds
3.b	4. Power Range, Neutron Flux, High Negative Rate	Less than or equal to 5% of RATED THERMAL POWER with a time constant greater than or equal to 2 seconds	Less than or equal to 5.5% of RATED THERMAL POWER with a time constant greater than or equal to 2 seconds
4	5. Intermediate Range, Neutron Flux	Less than or equal to 25% of RATED THERMAL POWER	Less than or equal to 30% of RATED THERMAL POWER
5	6. Source Range, Neutron Flux	Less than or equal to 10^5 counts per second	Less than or equal to 1.3 x 10^5 counts per second
6, including Note 1	7. Overtemperature Delta T	See Note 1	See Note 3
7, including Note 2	8. Overpower Delta T	See Note 2	See Note 4
8.a	9. Pressurizer Pressure -- Low	Greater than or equal to 1950 psig	Greater than or equal to 1940 psig [1930]
8.b	10. Pressurizer Pressure -- High	Less than or equal to 2385 psig	Less than or equal to 2395 psig [2406]
9	11. Pressurizer Water Level -- High	Less than or equal to 92% of instrument span	Less than or equal to 93% [93.3] of instrument span
10	12. Loss of Flow (per loop)	Greater than or equal to 90% of design flow per loop*	Greater than or equal to 89.1% [89.6] of design flow per loop*

A.2

* Design flow is 91,600 gpm per loop.

L.19 LA.11 M.17 LA.11 LA.10 LA.11

COOK NUCLEAR PLANT - UNIT 2 2-5 AMENDMENT NO. 82, 134

ITS (A.1) ITS 3.3.1

Table 3.3.1-1

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
14	13. Steam Generator Water Level-Low-Low (per SG) (A.2)	Greater than or equal to 21% of narrow range instrument span - each steam generator	Greater than or equal to 19.2% [20.8] (M.17) of narrow range instrument span - each steam generator (LA.11)
15	14. Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level	Less than or equal to 1.47 x 10⁶ lbs/hr of steam flow at RATED THERMAL POWER coincident with steam generator water level greater than or equal to 25% of narrow range instrument span - each steam generator	Less than or equal to 1.56 x 10⁶ lbs/hr of steam flow at RATED THERMAL POWER coincident with steam generator water level greater than or equal to 24% [25.0] (M.17) of narrow range instrument span - each steam generator (LA.11)
12	15. Undervoltage - Reactor Coolant Pumps	Greater than or equal to 2905 volts - each bus	Greater than or equal to 2870 volts - each bus
13	16. Underfrequency - Reactor Coolant Pumps	Greater than or equal to 57.5 Hz - each bus	Greater than or equal to 57.4 [57.01] (L.19) Hz - each bus
	17. Turbine Trip		
16.a	A. Low Fluid Oil Pressure	Greater than or equal to 58 psig	Greater than or equal to 57 psig
16.b	B. Turbine Stop Valve Closure	Greater than or equal to 1% open	Greater than or equal to 1% open
17	18. Safety Injection Input from ESF	Not Applicable	Not Applicable
11	19. Reactor Coolant Pump Breaker Position Trip (per train) (A.2)	Not Applicable	Not Applicable

(LA.10)

A.1

ITS 3.3.1

ITS

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATION

Table 3.3.1-1 Note 1

Note 1:
Overtemperature $\Delta T \leq \Delta T_o [K_1 - K_2[(1 + \tau_1 S)/(1 + \tau_2 S)](T - T') + K_3(P - P') - f_1(\Delta I)]$

Where: ΔT_o = Indicated ΔT at RATED THERMAL POWER

T = Average temperature, °F

T' = Indicated T_{avg} at RATED THERMAL POWER less than or equal to 576.0 °F

P = Pressurizer Pressure, psig

P' = 2235 psig (indicated RCS nominal operating pressure)

$\frac{1 + \tau_1 S}{1 + \tau_2 S}$ = The function generated by the lead-lag controller for T_{avg} dynamic compensation

τ_1, τ_2 = Time constants utilized in the lead-lag controller for T_{avg}; τ_1 = 22 secs, τ_2 = 4 secs.

S = Laplace transform operator

LA.8

LA.7

LA.8

ITS

A.1

ITS 3.3.1

Table 3.3.1-1
Note 1

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATION (Continued)

4 Loops in Operation

K1 = [1.09]

K2 = [0.01331]

K3 = [0.00038]

LA.8

and $f_1(\Delta I)$ is a function of the indicated difference between top and bottom detectors of the power-range nuclear ion chambers; with gains to be selected based on measured instrument response during plant startup tests such that:

LA.8

(i) for $q_t - q_b$ between -[33] percent and +[8] percent, $f_1(\Delta I)=0$ (where q_t and q_b are percent RATED THERMAL POWER in the top and bottom halves of the core respectively, and $q_t + q_b$ is total THERMAL POWER in percent of RATED THERMAL POWER).

LA.8

(ii) for each percent that the magnitude of $(q_t - q_b)$ exceeds -[33] percent, the ΔT trip setpoint shall be automatically reduced by [3.3] percent of its value at RATED THERMAL POWER.

LA.8

(iii) For each percent that the magnitude of $(q_t - q_b)$ exceeds [+8] percent, the ΔT trip setpoint shall be automatically reduced by [1.0] percent of its value at RATED THERMAL POWER.

(A.1)

ITS

TABLE 2.2-1 (Continued)

REACTOR TRIP SYSTEM INSTRUMENTATION TRIP SETPOINTS

NOTATIONS (Continued)

Table 3.3.1-1 Note 2

Note 2: Overpower $\Delta T \leq \Delta T_o \,[K_4 - K_5[\tau_3 S/(1+\tau_3 S)]T - K_6[T - T''] - f_2(\Delta I)]$

Where:

ΔT_o	= Indicated ΔT at rated power
T	= Average temperature, °F
T''	= Indicated T_{avg} at RATED THERMAL POWER less than or equal to [578.0] °F
K_4	= [1.08]
K_5	= [0.02]/°F for increasing average temperature and [0] for decreasing average temperature
K_6	= [0.00197] for T greater than T''; K_6 = [0] for T less than or equal to T''
$\tau_3 S/(1+\tau_3 S)$	= The function generated by the rate lag controller for T_{avg} dynamic compensation
τ_3	= Time constant utilized in the rate lag controller for T_{avg}; τ_3 = [10] secs.
S	= Laplace transform operator
$f_2(\Delta I)$	= [0.0]

LA.8

LA.8

LA.7

LA.8

Table 3.3.1-1 Note 2

Note 3: The channel's maximum trip point shall not exceed its computed trip point by more than [1.3] percent ΔT span.

0.012

L.19

Table 3.3.1-1 Note 2

Note 4: The channel's maximum trip point shall not exceed its computed trip point by more than [3.0] percent ΔT span.

0.038

M.17

DISCUSSION OF CHANGES
ITS 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.3.1.1 Action and CTS Table 3.3-1 provide the compensatory actions to take when RTS instrumentation is inoperable. ITS 3.3.1 ACTIONS provide the compensatory actions for inoperable RTS Instrumentation. The ITS 3.3.1 ACTIONS includes a Note that allows separate Condition entry for each Function. In addition, due to the manner in which the titles of Functions 10, 14, 15, and 16.b are presented, separate Condition entry is allowed within a Function as follows: (a) for Function 10 (Reactor Coolant Flow - Low (per loop)) on a loop basis; (b) for Function 14 (Steam Generator (SG) Water Level - Low Low (per SG)) and Function 15 (SG Water Level Low Coincident with Steam Flow/Feedwater Flow Mismatch (per SG)) on a steam generator basis; and (c) for Function 16.b (Turbine Trip, Turbine Stop Valve Closure (per train)) on a per train basis. This modifies the CTS by providing a specific allowance to enter the Action for each inoperable RTS instrumentation Function and for certain Functions on a loop, steam generator, or train basis.

This change is acceptable because it clearly states the current requirement. The CTS considers each RTS instrumentation Function to be separate and independent from the others. In addition, the channels associated with Functions 10, 14, 15, and 16.b are allowed separate Condition entry on the specified basis (i.e., loop, SG, or train) since the channels associated with each loop or steam generator, as applicable, will provide the associated RTS trip based on the logic associated with the channels on the specified basis. This change is designated as administrative because it does not result in technical changes to the CTS.

A.3 CTS Table 4.3-1 requires a CHANNEL FUNCTIONAL TEST be performed for the Functional Units 16 (Undervoltage - Reactor Coolant Pumps) and 17 (Underfrequency - Reactor Coolant Pumps) channels. CTS Table 4.3-1 requires a CHANNEL FUNCTIONAL TEST be performed for the Functional Units 18.A (Turbine Trip - Low Fluid Oil Pressure) and 18.B (Turbine Trip - Turbine Stop Valve Closure) channels. ITS Table 3.3.1-1, for Functions 12 and 13, requires performance of SR 3.3.1.10, a TADOT, and for Functions 16.a and 16.b, requires performance of SR 3.3.1.18, a TADOT. However, the Surveillances are modified by a Note that states that a verification of the setpoint is not required. This changes the CTS by explicitly stating that setpoint verification is not part of the TADOT. The change from a CHANNEL FUNCTIONAL TEST to a TADOT is discussed in DOC A.20.

The CTS definition of CHANNEL FUNCTIONAL TEST does not require a setpoint verification. However, the ITS definition of TADOT does include a

DISCUSSION OF CHANGES
ITS 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

setpoint verification. Therefore, to be consistent with the current requirements and with current practice, the Note has been added. Since a setpoint verification is not currently required during performance of this test, this change is acceptable. This change is designated as administrative because it does not result in a technical change to the CTS.

A.4 CTS 4.3.1.1.3 states, in part, that the RTS RESPONSE TIME of each trip function shall be demonstrated to be within its limit at least once per 18 months. The requirement specifies that each test shall include at least one logic train such that both logic trains are tested at least once per 36 months, and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1. ITS SR 3.3.1.19 requires the verification of RTS RESPONSE TIME every 24 months "on a STAGGERED TEST BASIS." The ITS definition of STAGGERED TEST BASIS is consistent with the CTS testing Frequency. This changes the CTS by utilizing the ITS definition of STAGGERED TEST BASIS. The extension in the Surveillance Frequency from 18 months to 24 months is discussed in DOC L.4.

This change is acceptable because the requirements for RESPONSE TIME testing for the RTS channels remain unchanged. The ITS definition of STAGGERED TEST BASIS and its application in this requirement do not change the current testing frequency requirements. This change is designated as administrative because it does not result in technical changes to the CTS.

A.5 CTS Table 3.3-1 specifies the "TOTAL NO. OF CHANNELS" and the "MINIMUM CHANNELS OPERABLE" associated with each RTS Functional Unit. For CTS Table 3.3-1 Functional Units 2, 3, 4, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18.A, and for Unit 2 only, 18.B, the number of channels listed in the "TOTAL NO. OF CHANNELS" column is greater than that listed in the "MINIMUM OPERABLE CHANNELS" column. CTS Table 3.3-1 Actions 2, 6, and 7 specify the actions to take with the number of channels OPERABLE one less than required by the "TOTAL NO. OF CHANNELS" column. CTS Table 3.3-1 Actions 1, 3, 4, 11, 12, 14, and 15 specify the actions to take with the number of channels OPERABLE, one less than required by the "MINIMUM CHANNELS OPERABLE" column. ITS LCO 3.3.1 requires the RTS instrumentation for each Function in ITS Table 3.3.1-1 to be OPERABLE, and includes only one column titled "REQUIRED CHANNELS." For the associated ITS Table 3.3.1-1 Functions, the number of channels listed in the "REQUIRED CHANNELS" column is equal to the number of channels listed in the CTS "TOTAL NO. OF CHANNELS" column. The ITS 3.3.1 ACTIONS require entry when the OPERABLE channels are one less than required by the "REQUIRED CHANNELS" column. For CTS Table 3.3-1 Functional Units 12, 13, 14, and 20, the description in the "CHANNELS TO TRIP" (Functional Units 12, 13, and 14 only) and "MINIMUM CHANNELS OPERABLE" columns includes the phrase "in each operating loop." This description is not included in ITS Table 3.3.1-1 Functions 10, 11, and 14. In addition, the channel requirements for CTS Table 3.3-1 Functional Unit 14 are specified on a "loop" basis and for CTS Table 3.3-1 Functional Unit 20 are specified on a "breaker" basis, while the channel requirements for ITS Table 3.3.1-1 Functions 14 and 11 are specified on a "SG" basis and "RCP" basis,

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respectively. For Function 14, this is shown in the title of the Function, as described in DOC A.2. Also, CTS Table 3.3-1 Functional Unit 18.B (Turbine Stop Valve Closure) specifies there are 4 channels in the "TOTAL NO. OF CHANNELS" column while the "MINIMUM CHANNELS OPERABLE" column specifies "4" for Unit 1 and "3" for Unit 2. ITS Table 3.3.1-1 Function 16.b specifies 4 channels in the "REQUIRED CHANNELS" column. This changes the CTS by a) changing the title of the "MINIMUM CHANNELS OPERABLE" column to "REQUIRED CHANNELS," b) increasing the number of channels listed to match the number listed in the "TOTAL NO. OF CHANNELS" column, c) deleting the description "in each operating loop" and adding the words "per train," as shown in the title of the Function as described in DOC A.2, d) replacing the "loop" basis with "SG" basis for the Steam Generator (SG) Water Level - Low Low Function, as shown in the title of the Function (see DOC A.2), and e) replacing the "breaker" basis with "RCP" basis for the RCP Breaker Position Function.

This change is acceptable because the requirements for when actions must be taken remain unchanged. The "REQUIRED CHANNELS" column reflects the current requirements in the CTS Actions for when actions are required to be taken. The "MINIMUM CHANNELS OPERABLE" column for CTS Table 3.3-1 Functional Units 2, 3, 4, 7 through 17, and 18.A have changed to correspond to the number of channels in the "TOTAL NO. OF CHANNELS" column as reflected in ITS Table 3.3.1-1 Functions 2.a, 2.b, 3.a, 3.b, 6, 7, 8.a, 8.b, 9, 10.a, 10.b, 12, 13, 14, 15, and 16.a. For CTS Table 3.3-1 Functional Units 12, 13, 14, and 20, the description "in each operating loop" is not necessary since all loops are required to be operating in MODE 1. For Unit 1 CTS Table 3.3-1 Functional Unit 18.B, there are two contacts per turbine stop valve limit switch, with both contacts required to be OPERABLE, and for Unit 2 CTS Table 3.3-1 Functional Unit 18.B, there are two limit switches per turbine stop valve, with both limit switches required to be OPERABLE. In the ITS, each Unit 1 contact and each Unit 2 limit switch is considered a channel. In addition, the design of each unit includes one SG per RCS loop and one channel of breaker position for each RCP breaker. Therefore, the changes to the Steam Generator Water Level - Low Low channel requirements from a "loop" basis to a "SG" basis and the change to the RCP Breaker Position channel requirements from a "breaker" basis to a "RCP" basis are equivalent. This change is designated as administrative because it does not result in technical changes to the CTS.

A.6 Not used.

A.7 CTS Table 3.3-1 Functional Unit 2 requires the Power Range Neutron Flux channels to be OPERABLE in MODES 1 and 2. CTS Table 3.3-1 specifies that the P-10 interlock prevents or defeats the manual block of the Power Range Neutron Flux Low setpoint reactor trip. CTS Table 4.3-1 Functional Unit 2 specifies the Surveillance Requirements for the Power Range Neutron Flux channels in MODES 1 and 2. ITS Table 3.3.1-1 Function 2.a requires the Power Range Neutron Flux - High channels to be OPERABLE in MODES 1 and 2 and ITS Table 3.3.1-1 Function 2.b requires the Power Range Neutron Flux - Low channels to be OPERABLE in MODE 1 below the P-10 interlock (as indicated in ITS Table 3.3.1-1 Footnote (b)) and MODE 2. This changes the CTS by splitting CTS Table 3.3-1 Functional Unit 2 into two distinct functions, Power Range

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Neutron Flux - High and Power Range Neutron Flux - Low, and placing the allowances of the P-10 Function requirements associated with the Power Range Neutron Flux - Low channels into the Applicability statement.

This change is considered acceptable because the P-10 interlock prevents the block of the Power Range Neutron Flux reactor trip function below the P-10 interlock. The Power Range Neutron Flux - Low channels are not required to trip the unit when the thermal power is above the P-10 interlock. The Power Range Neutron Flux - High channels provide the appropriate protection in this thermal power range. This change is designated as administrative because it does not result in a technical change to the CTS.

A.8 CTS Tables 3.3-1 and 4.3-1 Functional Unit 5 require the Intermediate Range Neutron Flux channels to be OPERABLE in MODES 1 and 2. CTS Table 3.3-1 Action 3.a specifies that below P-6 an inoperable Intermediate Range Neutron Flux channel must be restored to OPERABLE status prior to increasing THERMAL POWER above the P-6 setpoint. CTS Table 3.3-1 specifies that the P-10 interlock prevents or defeats the manual block of the Intermediate Range Neutron Flux reactor trip when the Power Range Neutron Flux channels are < 9% RTP. ITS Table 3.3.1-1, including Footnotes (b) and (c), requires Function 4, the Intermediate Range Neutron Flux channels, to be OPERABLE in MODE 1 below the P-10 interlocks and MODE 2 above the P-6 interlocks. This changes the CTS by placing the allowances of CTS Table 3.3-1 Action 3.a and the P-10 reactor trip system interlock into the Applicability statement.

This change is considered acceptable because the P-10 interlock only prevents the block of the Intermediate Range Neutron Flux reactor trip function below the P-10 setpoint. The Intermediate Range Neutron Flux channels are not required to trip the unit when the thermal power is above the P-10 interlock. The Power Range Neutron Flux channels provide the appropriate protection in this thermal power range. During thermal power levels below the P-6 interlock, the Source Range Neutron Flux channels provide the appropriate protection in this thermal power range. The change is administrative since the CTS Actions and interlocks do not require the channels to be OPERABLE outside of the specified Applicability. This change is designated as administrative because it does not result in a technical change to the CTS.

A.9 CTS Table 3.3-1 Functional Unit 6 requires the Source Range Neutron Flux channels to be OPERABLE in MODE 2, as modified by CTS Table 3.3-1 Note ##. CTS Table 3.3-1 Note ## specifies that the high voltage to the Source Range Neutron Flux detectors may be de-energized above P-6. ITS Table 3.3.1-1, including Footnote (d), requires Function 5, the Source Range Neutron Flux channels, to be OPERABLE in MODE 2 below the P-6 interlock. This changes the CTS by specifically stating that the Source Range Neutron Flux channels are only required in MODE 2 below the P-6 interlock.

This change is considered acceptable because the P-6 interlock prevents the block of the Source Range Neutron Flux reactor trip function below the P-6 interlock. CTS Table 3.3-1 Note ## specifically states that the high voltage to the detectors can be deenergized, which renders the Source Range Neutron Flux channels inoperable. In addition, the CTS Table 4.3-1 Applicability, including

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Note (7), for the Source Range Neutron Flux channels states the channels are only required in MODE 2 below P-6. This change is designated as administrative because it does not result in a technical change to the CTS.

A.10 CTS Table 3.3-1 Functional Units 9, 11, 16, 17, 18.A, and 18.B specify the requirements for Pressurizer Pressure - Low, Pressurizer Water Level - High, Undervoltage - Reactor Coolant Pumps, Underfrequency - Reactor Coolant Pumps, Turbine Trip - Low Fluid Oil Pressure, and Turbine Trip - Turbine Stop Valve Closure. The Applicability of Functional Units 9 and 11 in CTS Table 3.3-1 is MODES 1 and 2, while the Applicability of Functional Units 16, 17, 18.A, and 18.B in CTS Table 3.3-1 is MODE 1. In addition, the Applicability for the Surveillances in CTS Table 4.3-1 for Functional Units 9, 11, 16, and 17 are identical to the Applicability of the associated Function in CTS Table 3.3-1. CTS Table 3.3-1 also specifies that the P-7 interlock function prevents or defeats the automatic block of reactor trip on these channels. ITS Table 3.3.1-1 Functions 8.a, 9, 10, 12, 13, 16.a, and 16.b require the same Functions to be OPERABLE in MODE 1 above the P-7 interlock. This changes the CTS by placing the allowances of P-7 Reactor Trip System interlock into the Applicability statement for the applicable Functions. The change to the Surveillance Applicability for CTS Functional Units 18.A and 18.B is discussed in DOC A.15.

This change is considered acceptable because the P-7 interlock prevents or defeats the automatic block of the reactor trip on Pressurizer Pressure - Low, Pressurizer Water Level - High, Undervoltage - Reactor Coolant Pumps, Underfrequency – Reactor Coolant Pumps, Turbine Trip - Low Fluid Oil Pressure, and Turbine Trip - Turbine Stop Valve Closure above the P-7 interlock. Below the P-7 interlock, the reactor trips associated with these functions are blocked. This change is designated as administrative because it does not result in a technical change to the CTS.

A.11 CTS Table 3.3-1 Action 2 provides the actions when a Power Range Neutron Flux - High channel is inoperable. The Action, in part, requires either reducing reactor power to ≤ 75% RTP within 4 hours or monitoring the QPTR every 12 hours per Specification 4.2.4.c. This specific requirement is not included in the ITS 3.3.1 ACTIONS. ITS 3.3.1 Required Action C.2 requires performance of SR 3.2.4.2 12 hours from discovery of THERMAL POWER > 75% RTP and every 12 hours thereafter. In addition, the Required Action is only required if the Power Range Neutron Flux input to QPTR is inoperable. This changes the CTS by placing the 75% RTP restriction into the Completion Time and by explicitly stating that the Surveillance Requirement is only to be performed when the QPTR input is inoperable.

The purpose of these CTS Actions is related to QPTR, not the RTS Instrumentation. This change is acceptable because the specific actions are duplicative of requirements located in the QPTR Specification, thus the requirements of the QPTR Specification should be the governing requirements. CTS 4.2.4.c (ITS SR 3.2.4.2) requires the QPTR to be verified using the incore movable detectors every 12 hours when a Power Range Neutron Flux channel input is inoperable and reactor power is ≥ 75% RTP. CTS 4.2.4.a (ITS SR 3.2.4.1), the normal 7 day QPTR verification, can only be performed if all Power Range Neutron Flux channels are OPERABLE, or if three of the channels are

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OPERABLE (as allowed by the CTS 1.18 QPTR definition and ITS SR 3.2.4.1 Note) and reactor power is ≤ 75% RTP (i.e., when one Power Range Neutron Flux channel is inoperable, reactor power must be ≤ 75% RTP to perform SR 3.2.4.1). In addition, while CTS Table 3.3-1 Action 2 requires reactor power to be reduced within 4 hours, the alternate option in Action 2 is to perform the Surveillance every 12 hours. Thus, in actuality, 12 hours is allowed to reduce reactor power. This change is designated as administrative because it is a presentation preference only and it does not result in any technical changes to the CTS.

A.12 CTS Table 3.3-1 Functional Unit 21 requires two Reactor Trip Breakers to be OPERABLE, while CTS Table 4.3-1 Functional Unit 21 specifies the Surveillance Requirements for the Reactor Trip Breakers as well as the Shunt Trip and Undervoltage Trip Functions. CTS 3.3-1 Action 13 provides compensatory actions for when the undervoltage or shunt trip feature is inoperable, while Action 15 specifies the compensatory actions for when the Reactor Trip Breakers are inoperable for reasons other than an inoperable diverse trip feature. ITS 3.3.1-1 Function 19 specifies the requirements for the Reactor Trip Breakers (2 trains are required to be OPERABLE), while Function 20 specifies the requirements for the Reactor Trip Breaker Shunt Trip and Undervoltage Functions (one of each trip feature per Reactor Trip Breaker is required to be OPERABLE). This changes the CTS by splitting the Reactor Trip Breaker Functional Unit into two separate Functions, the Reactor Trip Breaker Function (Function 19) and Reactor Trip Breaker Undervoltage and Shunt Trip Mechanism Function (Function 20).

This change is considered acceptable since the proposed requirements are consistent with current requirements. The CTS currently provides different compensatory actions for when an Undervoltage or Shunt Trip Mechanism is inoperable and when a Reactor Trip Breaker is inoperable for other reasons than Undervoltage and Shunt Trip Mechanism inoperabilities. Therefore, the divided requirements are consistent with the CTS. This change is designated as administrative because it does not result in a technical change to the CTS.

A.13 CTS Table 3.3-1 does not include any LCO requirements for the reactor trip bypass breakers. However, CTS Table 4.3-1 Functional Unit 23 includes Surveillance Requirements for these breakers, and requires them to be performed in MODES consistent with the Surveillances for the reactor trip breakers. ITS Table 3.3.1-1 Function 19 (Reactor Trip Breakers Function) includes Footnote (f), which states the Reactor Trip Breakers Function includes any reactor trip bypass breakers that are racked in and closed for bypassing a reactor trip breaker. This changes the CTS by explicitly stating when the reactor trip bypass breakers are required to be OPERABLE.

The reactor trip bypass breakers are used during testing of the associated reactor trip breaker, and at all other times they are not racked in or closed. This change is acceptable since CTS LCO 3.3.1 does not require the reactor trip bypass breakers to be OPERABLE as they are not listed in CTS Table 3.3-1. The only time they could be considered as being required is when they are replacing the reactor trip breakers. Thus, even though they are listed in CTS Table 4.3-1, the breakers are not required to meet the Surveillance

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Requirements when not racked in and closed, since they are not replacing the reactor trip breakers. This change is designated as administrative because it does not result in any technical changes to the CTS.

A.14 CTS Table 4.3-1 requires a CHANNEL CALIBRATION of Functional Unit 8, the Overpower ΔT channels. CTS Table 4.3-1 Note 9 modifies the CHANNEL CALIBRATION requirement by specifying that the provisions of Specification 4.0.4 are not applicable for the f_2 (delta I) penalty. ITS Table 3.3.1-1 Function 7 requires the performance of a CHANNEL CALIBRATION (ITS SR 3.3.1.15) for the Overpower ΔT channels, and does not include an ITS SR 3.0.4 exception. This changes the CTS by deleting the CTS 4.0.4 allowance associated with the f_2 (delta I) penalty.

This change is acceptable because it results in no technical change to the Technical Specifications. The f_2 (delta I) penalty is associated with the Overpower ΔT Function. Per CTS Table 2.2-1, the f_2 (delta I) penalty is always zero. Since the f_2 (delta I) penalty is always zero, there is no need to include a CTS 4.0.4 allowance for the calibration of f_2 (delta I) penalty portion of the channel when the unit is operating in MODE 1 or 2, which are the MODES the Overpower ΔT Function is required to be OPERABLE. This change is designated as administrative because it does not result in a technical change to the CTS.

A.15 CTS Table 4.3-1 specifies that Surveillance Requirements for Functional Units 18.A (Turbine Trip - Low Fluid Oil Pressure) and 18.B (Turbine Trip - Turbine Stop Valve Closure) channels are to be performed in MODES 1 and 2. ITS 3.3.1 does not include any Surveillance Requirements for these Functions in MODE 2. This changes the CTS by deleting Surveillance Requirements for these Functional Units in MODE 2.

This change is considered acceptable since the specified channels do not include any LCO requirements in MODE 2. CTS Table 3.3-1 Functional Units 18.A and 18.B, which specifies LCO requirements for these channels, include requirements for the channels only in MODE 1. Therefore, when in MODE 2, in accordance with CTS 4.0.1 (ITS SR 3.0.1), Surveillances are not required. This change is designated as administrative because it does not result in a technical change to the CTS.

A.16 CTS Table 4.3-1, Functional Units 7 and 8 require the performance of a CHANNEL CALIBRATION of the Overtemperature ΔT and Overpower ΔT channels. ITS Table 3.3.1-1 Functions 6 and 7 also require the performance of a CHANNEL CALIBRATION (ITS SR 3.3.1.15) for the Overtemperature ΔT and Overpower ΔT channels; however, ITS SR 3.3.1.15 is modified by Note 1, which states that this Surveillance shall include verification of Reactor Coolant System (RCS) resistance temperature detector (RTD) bypass loop flow rate. This changes the CTS by adding a clarification Note to the Surveillance to ensure that RCS RTD bypass loop flow rate is verified.

This change is acceptable because the RCS RTD bypass loop flow rate verification is considered necessary to ensure the OPERABILITY of the associated Function channels. The Note is considered a clarification Note and is

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consistent with the current practice. This change is designated as administrative because it does not result in a technical change to the CTS.

A.17 CTS 4.3.1.1.3 requires REACTOR TRIP SYSTEM RESPONSE TIME testing of "each" reactor trip function. ITS SR 3.3.1.19 is the REACTOR TRIP SYSTEM RESPONSE TIME testing Surveillance, but in ITS Table 3.3.1-1, it is only required for Functions 2.a (Power Range Neutron Flux - High), 2.b (Power Range Neutron Flux - Low), 6 (Overtemperature ΔT), 7 (Overpower ΔT), 8.a (Pressurizer Pressure - Low), 8.b (Pressurizer Pressure - High), 9 (Pressurizer Water Level - High), 10 (Reactor Coolant Flow - Low (per loop)), 12 (Undervoltage RCPs), 13 (Underfrequency RCPs), 14 (Steam Generator Water Level - Low Low (per SG)), and 17 (SI input from ESFAS). This changes the CTS by specifically stating that the Surveillance is only applicable to certain Functions, not "each" function.

The purpose of CTS 4.3.1.1.3 is to ensure that the actuation response times are less than or equal to the maximum values assumed in the accident analysis. UFSAR Tables 7.2-6 and 7.2-7, which were previously in CTS 3.3.1 as Table 3.3-2 and in CTS 3.3.2 as Table 3.2-5, respectively, only specify response times for those RTS Functions assumed in the CNP safety analyses. These response times were removed from CTS 3.3.1 and 3.3.2 and placed under CNP control as documented in the NRC Safety Evaluation Report for License Amendments 202 (Unit 1) and 187 (Unit 2). This change is acceptable since ITS 3.3.1 requires REACTOR TRIP SYSTEM RESPONSE TIME testing (ITS SR 3.3.1.19) for only those Functions listed in UFSAR Tables 7.2-6 and 7.2-7. This change is designated as administrative because it does not result in technical changes to the CTS.

A.18 CTS Table 3.3-1, including Note *, requires Functional Units 1 (Manual Reactor Trip) and 6 (Source Range, Neutron Flux) channels to be OPERABLE with the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal. In addition, CTS Table 4.3-1 requires Functional Unit 6 (Source Range, Neutron Flux) channels to be tested in MODES 3 (below P-6), 4, and 5. ITS Table 3.3.1-1, including Footnote (a), requires Functions 1 (Manual Reactor Trip) and 5 (Source Range Neutron Flux) channels to be OPERABLE in MODES 3, 4, and 5 with the Rod Control System capable of rod withdrawal or with one or more rods not fully inserted. This changes the CTS by specifically stating that the CTS Table 3.3-1 Note Applicability applies in MODES 3, 4, and 5. In addition, this changes the CTS by matching the MODES the Source Range Neutron Flux channels are to be tested with the MODES in which the channels are required to be OPERABLE. The change concerning the details of the reactor trip breakers is discussed in DOC LA.3 and the change that adds the requirement concerning the position of the rods is discussed in DOC M.1.

The purpose of the RTS instrumentation is that it must be OPERABLE so that the rods can be inserted in response to a reactivity excursion. This change is acceptable since it is only clarifying the actual MODES, other than MODES 1 and 2, in which fuel is in the vessel. In addition, while CTS Table 4.3-1 lists MODES 3, 4, and 5 for the Applicability of the two Functional Units, the ITS clarifies that the channels are only required to be tested when they are required to be OPERABLE, consistent with CTS 4.0.1 (ITS SR 3.0.1). This change is designated as administrative because it does not result in a technical change to the CTS.

A.19 CTS LCO 3.3.1.1 states that the interlocks of Table 3.3-1 shall be OPERABLE. CTS Table 3.3-1 includes the logic description, setpoint, and functional description of the P-6, P-7, P-8, and P-10 interlocks. However, no specific Applicability requirements are provided. ITS Table 3.3.1-1 specifies the Applicable MODES or other specified conditions associated with the P-6, P-7, P-8, P-10 and P-13 interlocks (Functions 18.a, b, c, d, and e). This changes the CTS by adding specific applicable MODES or other specified conditions associated with the P-6, P-7, P-8, P-10, and P-13 interlocks.

This change is acceptable because the change provides more explicit conditions for when the interlocks are required to be OPERABLE, and are consistent with the RTS Functions they support (i.e., the RTS instruments described in the Functional Unit column of CTS Table 3.3-1). This change is designated as administrative because it does not result in a technical change to the CTS.

A.20 CTS 4.3.1.1.1 requires that the RTS instrumentation channels be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-1. ITS 3.3.1 requires the performance of either a CHANNEL OPERATIONAL TEST (COT), a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT), or, in the case of the Automatic Trip Logic, an ACTUATION LOGIC TEST. This changes the CTS by changing the CHANNEL FUNCTIONAL TEST requirements to either a COT, a TADOT, or an ACTUATION LOGIC TEST.

This change is acceptable because the COT, TADOT, and ACTUATION LOGIC TEST continue to perform tests similar to the current CHANNEL FUNCTIONAL TEST. The change is one of format only and any technical change to the requirements is specifically addressed in an individual Discussion of Change. This change is designated as administrative because it does not result in technical changes to the CTS.

A.21 CTS LCO 3.3.1.1 states that the interlocks of Table 3.3-1 shall be OPERABLE. CTS Table 3.3-1 includes the logic description, setpoint, and functional description of the P-7 interlock. ITS 3.3.1 breaks out the turbine first stage pressure portion of the P-7 interlock into its own line item, the P-13 interlock, and requires two channels to be OPERABLE. This changes the CTS by separating out the P-13 portion of the P-7 interlock.

This change is acceptable since the turbine first stage pressure input to the P-7 interlock is retained in the ITS. The change is one of format only, as the ITS continues to provide the requirements of the turbine first stage pressure, P-13 interlock. This change is designated as administrative because it does not result in technical changes to the CTS.

A.22 CTS Table 4.3-1 specifies that Surveillance Requirements for Functional Units 12 (Loss of Flow - Single Loop) and 13 (Loss of Flow - Two Loops) are to be performed in MODE 1. ITS 3.3.1 only requires Surveillances in MODE 1 above

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the P-7 interlock. This changes the CTS by deleting Surveillance Requirements for the specified Functional Units in MODE 1 below P-7.

This change is acceptable since the specified channels do not include any LCO requirements below P-7. CTS Table 3.3-1 Functional Units 12 and 13, which specify LCO requirements for these channels, do not include requirements for the channels in MODE 1 below P-7. Therefore, when in MODE 1 below P-7, in accordance with CTS 4.0.1 (ITS SR 3.0.1), Surveillances are not required. This change is designated as administrative because it does not result in a technical change to the CTS.

A.23 CTS Table 4.3-1, Functional Unit 2 requires a CHANNEL FUNCTIONAL TEST to be performed. CTS Table 4.3-1 Note 3 clarifies that this test is a comparison of incore to excore axial imbalance above 15% RTP and to recalibrate if the absolute difference is $\geq$ 3%. ITS SR 3.3.1.3 requires a similar test, however, the SR is required to be performed as part of the OPERABILITY of ITS Table 3.3.1-1 Function 6, Overtemperature ΔT, not as part of ITS Table 3.3.1-1 Function 2, Power Range Neutron Flux. This changes the CTS by applying this Surveillance to the Overtemperature ΔT Function in lieu of the Power Range Neutron Flux Function.

The purpose of this comparison is to ensure the $f(\Delta I)$ input to the Overtemperature ΔT Function is within 3% of the actual (ΔI). This is stated in the ITS SR 3.3.1.3 Bases. This change is acceptable because the comparison is still required to be performed, and is only being applied to the correct RTS Function. This change is designated as administrative because it does not result in any technical changes to the CTS.

<u>MORE RESTRICTIVE CHANGES</u>

M.1 CTS Table 3.3-1 requires Functional Units 1 (Manual Reactor Trip) and 6 (Source Range, Neutron Flux) channels to be OPERABLE with the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal, as stated in Table 3.3-1 Note *. CTS Table 4.3-1 specifies the Surveillance Requirements for Functional Unit 1 (Manual Reactor Trip) channels are applicable in MODES 3, 4, and 5 with the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal, as stated in CTS Table 4.3-1 Note *. CTS Table 4.3-1 specifies the Surveillance Requirements for the Source Range Neutron Flux channels in MODES 3, 4, 5; however there is no reference to CTS Table 4.3-1 Note *. ITS Table 3.3.1-1, including Footnote (a), requires the Functions 1 (Manual Reactor Trip) and 5 (Source Range Neutron Flux) channels to be OPERABLE in MODES 3, 4, and 5 with the Rod Control System capable of rod withdrawal or with one or more rods not fully inserted. This changes the CTS by requiring the Manual Reactor Trip and the Source Range Neutron Flux Functions to be OPERABLE when one or more rods are not fully inserted irrespective of the condition of the reactor trip breakers or the Control Rod Drive System. The change concerning the details of the reactor trip breakers are discussed in DOC LA.3 and the change that adds MODES 3, 4, and 5 is discussed in DOC A.18.

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The purpose of the RTS instrumentation is that it must be OPERABLE so that the rods can be inserted in response to a reactivity excursion. This change is acceptable because it provides appropriate requirements for when one or more control rods are not fully inserted. This change is designated as more restrictive because it requires the Manual Reactor Trip and the Source Range Neutron Flux Functions to be OPERABLE when one or more rods are not fully inserted irrespective of the condition of the reactor trip breakers or the Control Rod Drive System.

M.2 With one Source Range Neutron Flux channel inoperable in MODE 2 below P-6 or with the RTS breakers in the closed position and the Control Rod Drive System capable of rod withdrawal, CTS Table 3.3-1 Action 4 limits the THERMAL POWER to the P-6 setpoint value until the inoperable channel is restored to OPERABLE status. ITS 3.3.1 ACTION G, which provides the actions for when one Source Range Neutron Flux channel is inoperable in MODE 2 below P-6, requires all operation involving positive reactivity additions to be immediately suspended. The requirement is modified by a Note that states limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM. ITS 3.3.1 ACTION I, which provides the actions for when one Source Range Neutron Flux channel is inoperable during MODE 3, 4, or 5 with Rod Control System capable of rod withdrawal or one or more rods not fully inserted, requires the channel to be restored to OPERABLE status within 48 hours or ITS 3.3.1 ACTION Q must be entered and action must be taken immediately to fully insert all rods and to place the Rod Control System in a condition incapable of rod withdrawal within one hour. This changes the CTS requirements for an inoperable Source Range Neutron Flux channel by limiting operation involving positive reactivity additions during operations in MODE 2 below the P-6 limit and limits the time a channel can be inoperable during MODE 3, 4, or 5 operations.

This change is acceptable because in this condition the number of Source Range Neutron Flux channels, which are the only channels providing protection, has been reduced by 50% and additional restrictions are appropriate. Positive reactivity additions must be either prohibited or minimized to ensure reactor reactivity is maintained in a known and controlled condition. Limited positive reactivity additions, temperature decreases or boron dilutions, are reasonable restraints to place on unit operations when only one Source Range channel is OPERABLE. With one Source Range Neutron Flux channel inoperable in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted, the redundancy of the RTS Instrumentation is lost and therefore the time operation can continue in this condition is limited. This change is more restrictive because plant operations are more limited by the ITS requirements than the CTS.

M.3 CTS Table 4.3-1, Functional Unit 2 requires a daily and monthly CHANNEL CALIBRATION of the Power Range Neutron Flux channels. CTS Table 4.3-1 Note 8 specifies that the provision of Specification 4.0.4 are not applicable to these Surveillances. ITS Table 3.3.1-1 Function 2.a (Power Range Neutron Flux – High) requires the performance of SR 3.3.1.2 and ITS Table 3.3.1-1 Function 6 (Overtemperature ΔT) requires performance of SR 3.3.1.3. ITS SR 3.3.1.2 requires a comparison of the results of calorimetric heat balance calculation to

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Nuclear Instrumentation System (NIS) channel output every 24 hours. This Surveillance contains a Note (Note 2) that states that it is not required to be performed until 12 hours after THERMAL POWER is ≥ 15% RTP. ITS SR 3.3.1.3 requires a comparison of the results of the incore detector measurements to NIS AFD every 31 effective full power days (EFPD). This Surveillance contains a Note (Note 2) that states that it is not required to be performed until 24 hours after THERMAL POWER is ≥ 15% RTP. This changes the CTS by explicitly specifying the time required to perform the Surveillance after entering the specified Applicability.

The purpose of the CTS 4.0.4 exception is to allow the unit to enter the MODE of Applicability of the instrumentation without calibrating the associated equipment. This exception is necessary to allow a normal shutdown or startup to be completed and at the same time to allow time to perform the Surveillance. The proposed Surveillance Notes provide finite times in which the Surveillances must be performed after entering the specified condition and therefore this change is considered acceptable. This change is designated as more restrictive as it specifies an explicit time period to perform the tests.

M.4 CTS Table 3.3-1 Functional Units 2 (Power Range Neutron Flux), 3 (Power Range Neutron Flux High Positive Rate) and 4 (Power Range Neutron Flux High Negative Rate) require entry into Action 2 if one channel is inoperable. If the requirements of Action 2 are not met, entry into CTS 3.0.3 will be required since no further actions are specified. CTS 3.0.3 allows 1 hour to initiate action and 6 additional hours for the unit to be placed in MODE 3. ITS 3.3.1 ACTION P, which is applicable if any Required Action and associated Completion Time of Condition C or D (as applicable to the above Functions) is not met, requires the unit to be in MODE 3 within 6 hours. This changes the CTS requirements by decreasing the time allowed to be in MODE 3 from 7 hours in the CTS to 6 hours in the ITS.

This change is acceptable because the CTS requirements are modified to provide the necessary Required Actions and appropriate Completion Times. The Completion Time of 6 hours to reach MODE 3 from 100% RTP, in a safe manner without challenging unit systems, is consistent with other CTS and ITS requirements. This change is designated as more restrictive because the Completion Time for the unit to be placed in MODE 3 has been decreased by 1 hour.

M.5 With one Intermediate Range Neutron Flux channel inoperable, CTS Table 3.3-1 Action 3.b, when above the P-6 interlock and below 5% of RTP, requires the restoration of the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% RTP. In addition, CTS Table 3.3-1 Action 3.c allows unlimited operation with an inoperable Intermediate Range Neutron Flux channel above 5% RTP. ITS 3.3.1 ACTION E, which provides actions for when one Intermediate Range Neutron Flux channel is inoperable, requires either a reduction of THERMAL POWER to < P-6 within 24 hours or the increase in THERMAL POWER to > P-10 within 24 hours. This changes the CTS by limiting the time the unit can operate with an inoperable Intermediate Range Neutron Flux channel above 5% RTP but below the P-10 interlock to 24 hours.

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This change is acceptable because a time limit is placed on the length of time the unit may operate with an inoperable Intermediate Range Neutron Flux channel at a power level above 5% RTP and below the P-10 interlock. The requirement to allow 24 hours to restore the instrument to OPERABLE status or to leave the Applicability for when the equipment is required to be OPERABLE is reasonable because a protection function has been significantly degraded and 24 hours is a reasonable period of time to allow for a slow and controlled power adjustment. This change is more restrictive because it restricts the time the unit can operate with an inoperable Intermediate Range Neutron Flux channel.

M.6 In CTS 3.3.1.1, no action is provided for two inoperable Source Range Neutron Flux channels; therefore CTS 3.0.3 must be entered. CTS 3.0.3 allows 1 hour to initiate action and 6 additional hours for the unit to be placed in MODE 3. ITS 3.3.1 ACTION H provides actions for two inoperable Source Range Neutron Flux channels and requires the reactor trip breakers (RTBs) to be opened immediately. This changes the CTS by requiring the RTBs to be opened immediately if both Source Range Neutron Flux channels become inoperable, in lieu of performing a controlled shutdown to MODE 3 in 7 hours.

This change is acceptable because with no Source Range Neutron Flux channels OPERABLE and with the reactor in a condition of being capable of achieving criticality, the operator may have no automatic safety function capable of shutting down the unit. Therefore, the unit must be placed into a safe condition. This is accomplished by opening the RTBs, which inserts all rods. This change is designated as more restrictive because the actions added are more restrictive than are required by the CTS.

M.7 CTS Table 3.3-1 Functional Units 7, 8, 9, 10, 16, and 17 require entry into CTS Table 3.3-1 Action 6. CTS Table 3.3-1 Action 6 states that with the number of OPERABLE channels one less than the total number of channels, startup and power operations may proceed provided the inoperable channel is placed in the tripped condition within 1 hour. CTS Table 3.3-1 Functional Units 11 through 15, 18.A, and 18.B require entry into CTS Table 3.3-1 Action 7. CTS Table 3.3-1 Action 7 states that with the number of OPERABLE channels one less than the total number of channels, startup and power operations may proceed provided the inoperable channel is place in the tripped condition within 1 hour. CTS Table 3.3-1 Functional Unit 20 requires entry into CTS Table 3.3-1 Action 11. CTS Table 3.3-1 Action 11 states that with less than the minimum number of channels OPERABLE, operation may continue provided the inoperable channel is placed in the tripped condition within 1 hour. If CTS Table 3.3-1 Action 6, Action 7, or Action 11 is not met, entry into CTS 3.0.3 is required since no further actions are specified. CTS 3.0.3 allows 1 hour to initiate action and 6 additional hours for the unit to be placed in MODE 3. ITS 3.3.1 ACTIONS N and P, which are applicable if any Required Action and associated Completion Time of Condition D or L is not met (as applicable to the above Functions), require the unit to be placed in MODE 3 within 6 hours (ACTION P) or require a reduction in THERMAL POWER to < P-7 within 6 hours (ACTION N). This changes the CTS by providing a specific default condition instead of requiring entry into CTS 3.0.3, and reducing the time to reach the applicable condition from 7 hours to 6 hours.

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This change is acceptable because the proposed default condition will require the plant to be in a condition where the RTS instrumentation is no longer required to be OPERABLE. The proposed Completion Times are consistent with the time currently required for the unit to reach these conditions in a safe manner. This change is designated as more restrictive since the 1 hour specified in CTS 3.0.3 no longer applies.

M.8 CTS 4.3.1.1.2 requires the logic for the interlocks be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. ITS Table 3.3.1-1 Functions 18.a through 18.e require the performance of an ACTUATION LOGIC TEST every 92 days on a STAGGERED TEST BASIS (ITS SR 3.3.1.5). This changes the CTS by changing the Surveillance Frequency from prior to each reactor startup unless performed during the preceding 92 days to every 92 days on a STAGGERED TEST BASIS.

The purpose of the CTS Table 4.3.1.1.2 CHANNEL FUNCTIONAL TEST requirement is to ensure the RTS interlocks are OPERABLE. The change is acceptable since the proposed Surveillance Frequency will require performance of the test every 92 days on a STAGGERED TEST BASIS. This ensures that each interlock train is tested every 184 days, even when the unit is operating. Currently, the test could be performed only once in an 18-month cycle. The Frequency is also consistent with the ACTUATION LOGIC TEST Frequency for the RTS actuation logic and relays. This change is designated as more restrictive since the ITS will require the test to be performed more frequently than in the CTS.

M.9 CTS Table 3.3-1 Action 13 does not allow the Reactor Trip Breaker (RTB) to be bypassed while one of the diverse trip features is inoperable except for the time required to perform maintenance to restore the breaker to OPERABLE status. However, no finite time to perform maintenance is specified. ITS 3.3.1 ACTION K does not include this allowance. This changes the CTS by eliminating the allowance for one RTB to be bypassed for maintenance on undervoltage or shunt trip mechanisms for an unlimited amount of time.

This change is acceptable because the allowance was inadvertently left in the CTS by the License Amendment Request (AEP:NRC:3311) submitted to the NRC to adopt the relaxations of WCAP-15376-P-A, "Risk - Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," Revision 1, dated March 2003. WCAP-15376-P-A justified, in part, extensions of the RTB Completion Times and RTB bypass time and included the deletion of the allowance for bypassing an RTB for maintenance of a diverse trip mechanism. This License Amendment Request was approved by the NRC in License Amendments 277 (Unit 1) and 260 (Unit 2), dated May 23, 2003. This change is designated as more restrictive since an allowance for bypassing an RTB for maintenance on undervoltage or shunt trip mechanisms has been eliminated.

M.10 CTS Table 4.3-1 requires a CHANNEL CALIBRATION of Functional Units 7 and 8, the Overtemperature ΔT and Overpower ΔT channels, respectively. CTS Table 4.3-1 Note 9 modifies these CHANNEL CALIBRATION requirements, and specifies, in part, that the provisions of Specification 4.0.4 are not applicable for

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measurement of delta T. ITS Table 3.3.1-1 Functions 6 and 7 require the performance of ITS SR 3.3.1.15, a CHANNEL CALIBRATION for the Overtemperature ΔT and Overpower ΔT channels. ITS SR 3.3.1.15 is modified by a Note (Note 2) that states that normalization of the ΔT is not required to be performed until 72 hours after THERMAL POWER is $\geq$ 98% RTP. This changes the CTS by restricting the application of CTS 4.0.4 for measurement of delta T by requiring the performance of the Surveillance no later than 72 hours after THERMAL POWER is $\geq$ 98% RTP.

The purpose of the CTS 4.0.4 exception is to allow the unit to enter the MODE of Applicability of the Overtemperature ΔT and Overpower ΔT channels without completing the normalization of ΔT. The change explicitly specifies that the normalization of ΔT channels is not required to be performed until 72 hours after THERMAL POWER is $\geq$ 98% RTP. The Note allows entry into MODES 1 and 2 without performing the normalization of ΔT portion of the CHANNEL CLAIBRATION since normalization should be performed as close to rated conditions as possible. Performing the normalization at a lower condition (i.e., < 98% RTP) will not provide the required accuracy to meet the assumptions in the Allowable Value calculations. This change is acceptable since the proposed Surveillance is consistent with the intent of the current allowance and ensures the normalization of ΔT is performed within a reasonable period of time after the unit is in the condition to perform the normalization. The 72 hours is necessary for unit conditions to stabilize, obtain the appropriate data, perform calculations, and perform the actual normalization. This change is designated as more restrictive since the added Note explicitly states that the only portion of the CHANNEL CALIBRATION of the Overtemperature ΔT and Overpower ΔT channels that can be performed after entering the MODE of Applicability is the normalization of ΔT and that the normalization must be performed within 72 hours after achieving 98% RTP.

M.11 In CTS 3.3.1.1, no Action is provided for two inoperable Intermediate Range Neutron Flux channels; therefore CTS 3.0.3 must be entered. CTS 3.0.3 allows 1 hour to initiate action and 6 additional hours for the unit to be placed in MODE 3. ITS 3.3.1 ACTION F provides actions for two inoperable Intermediate Range Neutron Flux channels. ITS 3.3.1 Required Action F.1 requires the immediate suspension of operations involving positive reactivity additions. A Note modifies the Required Action and states "Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM." ITS 3.3.1 Required Action F.2 requires the reduction of THERMAL POWER to < P-6 within 2 hours. This changes the CTS by adding a specific ACTION to cover the condition for two inoperable Intermediate Range Neutron Flux channels.

This change is acceptable because the Required Actions require the unit to be placed in a condition where the Intermediate Range Nuclear Flux channels are no longer required to be OPERABLE. The proposed ACTION precludes a power level increase and allows a reasonable period of time for a slow and controlled power adjustment with no Intermediate Range channels OPERABLE status. The ITS requires the actions of precluding positive reactivity additions and reducing power. These remedial actions are for safe operation. This change is designated as more restrictive because an explicit ACTION is being added which requires the unit to be at a specific condition in 2 hours, in lieu of the current 7 hour time.

M.12 CTS Table 4.3-1, including Note 17, requires the performance of a CHANNEL FUNCTIONAL TEST for the Functional Unit 5 (Intermediate Range Neutron Flux) channels prior to each reactor startup if not performed in the previous 184 days. ITS Table 3.3.1-1 Function 4 requires the performance of a COT (SR 3.3.1.11) every 184 days. However, a Note (Note 1) states that the Surveillance is not required to be performed until 12 hours after reducing THERMAL POWER below the P-10 interlock. This effectively changes the CTS by requiring a COT be performed during a reactor shutdown within 12 hours after decreasing power below the P-10 interlock, if the COT has not been performed in the previous 184 days.

This change is acceptable because it ensures the Intermediate Range Neutron Flux channels are OPERABLE in the MODES or other specified conditions in which the channels are assumed to function. The use of the 184 day Frequency continues to ensure the Surveillance is met within the last 184 days prior to entering MODE 2 above P-6 (i.e., the CTS "S/U(17)" Frequency), since SR 3.0.4 requires Surveillances to be met prior to entering the MODE or other specified condition in the Applicability of an LCO, and also requires the Surveillance to be met within 12 hours after reducing THERMAL POWER below the P-10 interlock (e.g., a reactor shutdown). This change is designated as more restrictive since the Surveillance must be performed every 184 days instead of during a startup if not performed in the previous 184 days.

M.13 CTS Table 4.3-1 requires a CHANNEL CALIBRATION of Functional Unit 7, the Overtemperature ΔT channels. CTS Table 4.3-1 Note 9 modifies the CHANNEL CALIBRATION requirement, and specifies, in part, that the provisions of Specification 4.0.4 are not applicable for f_1 (delta I) penalty. However, the CTS does not include a requirement to calibrate the excore channels to agree with the incore channels, which are needed to determine the f_1 (delta I) penalty. ITS Table 3.3.1-1 Function 7 requires the performance of ITS SR 3.3.1.7 for the Overtemperature ΔT channels. ITS SR 3.3.1.7 requires the calibration of excore channels to agree with incore detector measurements every 92 effective full power days. ITS SR 3.3.1.7 is modified by a Note that states that the Surveillance is not required to be performed until 24 hours after THERMAL POWER is $\geq$ 50% RTP. This changes the CTS by adding an explicit Surveillance to calibrate the excore channels to agree with incore detector measurements. This also changes the CTS by restricting the application of CTS 4.0.4 for the f_1 (delta I) penalty by requiring the performance of the Surveillance no later than 24 hours after THERMAL POWER is $\geq$ 50% RTP.

The purpose of the excore to incore calibration is to ensure that the excore detectors are accurately measuring power. The purpose of CTS 4.0.4 exception is to allow the unit to enter the MODE of Applicability of the Overtemperature ΔT channels without completing a calibration of the excore to incore detectors. However, no finite time to complete the calibration is provided in the CTS. The change adds an explicit Surveillance to calibrate the excore channels to agree with incore detector measurements every 92 effective full power days with a Note which allows the performance of the Surveillance to be delayed only until

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24 hours after THERMAL POWER is ≥ 50% RTP. This change is acceptable since the proposed Surveillance is consistent with the intent of the current allowance and ensures the incore to excore detector calibration is performed periodically. ITS SR 3.3.1.7 is a calibration of the excore channels to the incore channels. This Surveillance is performed to compute the f_1 (delta I) input to the Overtemperature ΔT Function Allowable Value. The change is designated as more restrictive since a new Surveillance with an explicit Frequency has been added to the Technical Specifications. In addition, a time period is specified for when the Surveillance must be performed after achieving a THERMAL POWER level at which the calibration can be performed.

M.14 CTS Table 4.3-2 Functional Units 18.A and 18.B specify the Surveillance Requirements for the Turbine Trip - Low Fluid Oil Pressure and Turbine Trip - Turbine Stop Valve Closure Functions and do not include a CHANNEL CALIBRATION requirement. ITS SR 3.3.1.13 has been added which requires a CHANNEL CALIBRATION of these channels every 24 months (ITS Table 3.3.1-1, Functions 16.a and 16.b). This changes the CTS by adding a CHANNEL CALIBRATION requirement for the Turbine Trip - Low Fluid Oil Pressure and Turbine Trip - Turbine Stop Valve Closure Functions every 24 months.

This change is acceptable because it ensures the Allowable Values for the Turbine Trip - Low Fluid Oil Pressure and Turbine Trip - Turbine Stop Valve Closure Trip Functions are consistent with the plant setpoint methodology, and the CHANNEL CALIBRATION Frequency (24 months) is consistent with the Frequency assumed in the calculations performed using the plant setpoint methodology. This change is designated as more restrictive since a new Surveillance Requirement has been added to the Turbine Trip Functions.

M.15 CTS Table 4.3-1, Functional Units 2, 5, and 6 require a 92 day (for Functional Unit 2) and an 18 month (for Functional Units 5, 6, 12, and 13) CHANNEL CALIBRATION of the Power Range Neutron Flux, Intermediate Range Neutron Flux, Source Range Neutron Flux, Loss of Flow-Single Loop, and Loss of Flow-Two Loops channels, respectively. CTS Table 4.3-1 Note 8 specifies that the provision of Specification 4.0.4 are not applicable to the Functional Units 2, 5, 12, and 13 Surveillances and CTS Table 4.3-1 Note 14 specifies that the provisions of Specification 4.0.4 are not applicable to the Functional Unit 6 Surveillance when leaving MODE 1 and requires the Surveillance to be performed within 24 hours after leaving MODE 1. The ITS does not include these exceptions for the Power Range Neutron Flux, Intermediate Range Neutron Flux, Source Range Neutron Flux, and Loss of Flow (Single Loop and Two Loops) CHANNEL CALIBRATION Surveillances (ITS SRs 3.3.1.9, 3.3.1.13, and 3.3.1.14). This changes the CTS by deleting a CTS 4.0.4 exception for performing CHANNEL CALIBRATIONS of certain RTS channels.

The purpose of the CTS 4.0.4 exception is to allow the unit to enter the MODE of Applicability of the instrumentation without calibrating the associated equipment. However, since the CHANNEL CALIBRATION Surveillances are normally performed while shutdown for the Intermediate Range Neutron Flux, Source Range Neutron Flux, and Loss of Flow channels, and the Frequency of the ITS Surveillance is 24 months, the exceptions are no longer needed. For the Power

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Range Neutron Flux channels, the Surveillance can be performed prior to entering the applicable MODES of the channels, thus the exception is no longer needed. The ITS will require the Surveillances to be current prior to entering the MODE of Applicability for the Power Range Neutron Flux, Intermediate Range Neutron Flux, Source Range Neutron Flux, and Loss of Flow channels. This change is designated as more restrictive since current exceptions are being deleted.

M.16 CTS Table 4.3-1, Functional Unit 16 (Undervoltage - Reactor Coolant Pumps) requires the performance of a CHANNEL CALIBRATION every 18 months, however the Surveillance is currently being performed more frequently. ITS Table 3.3.1-1 Function 12 (Undervoltage RCPs) requires the performance of CHANNEL CALIBRATION every 184 days (ITS SR 3.3.1.12). This changes the CTS by changing the Frequency of the Surveillance from 18 months to 184 days.

The purpose of the CHANNEL CALIBRATION is to ensure the Undervoltage - Reactor Coolant Pumps channels will function as designed during an analyzed event. Changing the SR Frequency is acceptable because a 184 day calibration interval is assumed in the setpoint analysis. This change is designated as more restrictive because Surveillances will be performed more frequently under the ITS than under the CTS.

M.17 CTS Table 2.2-1 provides the Allowable Values for Functional Unit 8 (Overpower ΔT) (Unit 2 only), Functional Unit 9 (Pressurizer Pressure - Low) (Unit 1 only), Functional Unit 12 (Loss of Flow), Functional Unit 13, (Steam Generator Water Level - Low Low) (Unit 2 only), and Functional Unit 14, (Steam/Feedwater Flow Mismatch and Steam Generator Water Level - Low) (Steam Generator Water Level - Low portion only is covered by this change) (Unit 2 only). ITS Table 3.3.1-1 provides the Allowable Values for all the RTS Instrumentation Functions, including ITS Table 3.3.1-1 Functions 7, 8.a, 10, 14, and 15. This change revises the above specified CTS RTS Table 2.2-1 Allowable Values to the ITS Allowable Values.

The purpose of the Allowable Values is to ensure the instruments function as assumed in the safety analyses. ITS 3.3.1 reflects Allowable Values consistent with the philosophy of Westinghouse ISTS, NUREG-1431. These Allowable Values have been established consistent with the methods described in I&M's Instrument Setpoint Methodology (EG-IC-004, "Instrument Setpoint Uncertainty," Rev. 4). For most cases, the Allowable Value determinations were calculated using plant specific operating and Surveillance trend data. There were no changes to Safety Analysis Limits (SALs) required due to instrument performance. All design limits applied in the methodologies were confirmed as ensuring that applicable design requirements of the associated systems and equipment are maintained. The methodologies used have been compared with the guidance of ANSI/ISA S67.04-Part I-1994 and ANSI/ISA RP67.04-Part II-1994. Plant calibration procedures will ensure that the assumptions regarding calibration accuracy, measurement and test equipment accuracy, and setting tolerance are maintained. Nominal Trip Setpoints (NTSPs) for each design or SAL have been established by accounting for the applicable instrument accuracy, calibration and drift uncertainties, environmental effects, power supply fluctuations, as well as uncertainties related to process and primary element

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measurement accuracy using the instrument setpoint methodology. The Allowable Values have also been established from each SAL by combining the errors associated with the CHANNEL OPERATIONAL TEST (COT) (e.g., device accuracy, setting tolerance, and drift) with the calculated Nominal Trip Setpoint using the instrument setpoint methodology. Where a SAL exists, trigger values are used to ensure that the Allowable Value provides sufficient margin from the SAL to account for any associated errors not confirmed by the COT Use of the previously discussed methodologies for determining Allowable Values, instrument setpoints, and analyzing channel/instrument performance ensure that the design basis and associated SALs will not be exceeded during plant operation. These evaluations, determinations, and analyses now form a portion of the CNP design bases. Additionally, each applicable channel/instrument has been evaluated and analyzed to support a fuel cycle extension to a 24 month interval. These drift evaluations and drift analyses have been performed utilizing the guidance provided in EPRI TR-103335, "Statistical Analysis of Instrument Calibration Data/ Guidelines for Instrument Calibration Extension/Reduction Programs," Rev. 1. The EPRI guidance was used to demonstrate that the data collected by the operating plant (from Surveillance testing) has remained acceptable and reasonable with regard to the manufacturers design specifications. Therefore, based on the above discussion, the changes to the Allowable Values are acceptable. This change is designated as more restrictive because more stringent Allowable Values are being applied in the ITS than were applied in the CTS.

M.18 CTS Table 4.3-1, including Note 4, requires a CHANNEL FUNCTIONAL TEST on the manual portion of the Safety Injection Input from ESFAS Function (Functional Unit 19) every 18 months. ITS Table 3.3.1-1 Function 17 requires the performance of ITS SR 3.3.1.6, a TADOT, every 92 days on a STAGGERED TEST BASIS. This changes the CTS by requiring the manual portion of each of the two trains of Functional Unit 19 to be tested every 184 days. The change from a CHANNEL FUNCTIONAL TEST to a TADOT is discussed in DOC A.20.

The purpose of the CHANNEL FUNCTIONAL TEST required by Table 4.3-1 and Note 4 is to ensure the Safety Injection Input from ESFAS Functional Unit can perform its intended function. The automatic portion of the signal is currently required to be tested every 92 days on a STAGGERED TEST BASIS, as stated in CTS Table 4.3-1 and Note 15. Therefore, it is acceptable to increase the Frequency of testing for the manual portion of the Functional Unit to be consistent with the automatic portion of the Functional Unit. This change is designated as more restrictive since the ITS will require the test to be performed more frequently than in the CTS.

RELOCATED SPECIFICATIONS

None

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REMOVED DETAIL CHANGES

LA.1 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.3.1.1.3 requires each RTS trip function to be response time tested. However, CTS 4.3.1.1.3 Note * exempts the neutron detectors from response time testing and specifies that the "response time of the neutron flux signal portion of the channel shall be measured from the detector output or input of first electronic component in channel." ITS SR 3.3.1.19 Note exempts the neutron detectors from response time testing, but does not include the detail of how to test the neutron flux signal portion of the channel. This changes the CTS by moving the descriptive wording from the Specification to the Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to perform RESPONSE TIME TESTING. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA.2 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-1 for RTS instrumentation has three columns stating various requirements for each function. These columns are labeled, "TOTAL NO. OF CHANNELS," "CHANNELS TO TRIP," and "MINIMUM CHANNELS OPERABLE." ITS Table 3.3.1-1 does not retain the "TOTAL NO. OF CHANNELS" or "CHANNELS TO TRIP" columns. This changes the CTS by moving the information of the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.3 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS Table 3.3-1, including Note *, requires Functional Units 1 (Manual Reactor Trip) and 6 (Source Range Neutron Flux) channels to be OPERABLE "with the reactor trip system breakers in the closed position" and the control rod drive system capable of rod withdrawal. CTS Table 4.3-1 specifies the Surveillance Requirements for the Manual Reactor Trip channels and includes a similar applicability in Note *. ITS Table 3.3.1-1, including Footnote (a), requires Functions 1 (Manual Reactor Trip) and 5 (Source Range Neutron Flux) channels to be OPERABLE in MODES 3, 4, and 5 with the Rod Control System capable of rod withdrawal or with one or more rods not fully inserted. This changes the CTS by moving the details on how to place the Rod Control System in a state capable of rod withdrawal (i.e., by using the reactor trip breakers) from the Technical Specifications to the Bases. The change that adds the requirement concerning the position of the rods is discussed in DOC M.1 and the change that adds MODES 3, 4, and 5 is discussed in DOC A.18.

The removal of these details for performing actions from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still continues to specify requirements on the RTS depending on the status of the Rod Control System's capability to withdraw rods. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA.4 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-1 Function 6 requires two Source Range Neutron Flux channels be OPERABLE in MODE 2 ##. Note ## states that the high voltage to the detector may be de-energized above P-6. ITS Table 3.3.1-1 Function 5, including Footnote (d), requires two OPERABLE Source Range Neutron Flux channels in MODE 2 below the P-6 (Intermediate Range Neutron Flux) interlock, and maintains the intent of the CTS requirement. This changes the CTS by moving the allowance that the high voltage to the detector may be de-energized above P-6 from the Specification to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements for the Source Range Neutron Flux channels to be OPERABLE. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.5 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-1 specifies the functions and logic of the P-6, P-7, P-8, and P-10 interlocks. ITS Table 3.3-1 Functions 18.a, b, c, and d, do not

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include this information. The ITS only specifies the number of required channels or trains for each of the interlocks. This changes the CTS by moving the functional description and logic associated with each of the interlocks specified in CTS Table 3.3-1 to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements for the interlocks to be OPERABLE, and specifies the number of required channels or trains. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.6 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-1 breaks down the Loss of Flow Function into two separate Functional Units; the reactor trips on Loss of Flow - Single Loop and on Loss of Flow - Two Loops. As stated in CTS Table 3.3-1 Functional Unit 12, the Loss of Flow - Single Loop is enabled above P-8, and as stated in CTS Table 3.3-1 Functional Unit 13, the Loss of Flow - Two Loops is enabled above P-7 and below P-8. The two separate Functional Units are also listed in CTS Table 4.3-1 (Functional Units 12 and 13). ITS Table 3.3.1-1 Function 10 provides the requirements for the Reactor Coolant Flow - Low (per loop) Function, but does not include the logic description of the Reactor Coolant Flow - Low (per loop) Function (i.e., on a two loop loss of flow above P-7 and below P-8 and on a single loop loss of flow above P-8). This changes the CTS by moving the logic details to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the Reactor Coolant Flow - Low (per loop) Function. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.7 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 2.2-1 Notes 1 and 2 provide descriptions of some of the factors in the Allowable Value formulas for the Overtemperature ΔT and Overpower ΔT Functional Units, specifically the descriptions concerning the lead-lag and rate lag controllers for T_{avg} dynamic compensation. ITS Table 3.3-1 Notes 1 and 2 include the same Allowable Value formula, but do not include these specific factor descriptions. This changes the CTS by moving these factor descriptions to the UFSAR.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the Allowable Value formula for the Overtemperature ΔT and Overpower ΔT Functions. Also, this change is acceptable because the removed information will be adequately controlled in the UFSAR. Any changes to the UFSAR are made under 10 CFR 50.59 or 10 CFR 50.71(e), which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.8 *(Type 5 – Removal of Cycle-Specific Parameter Limits from the Technical Specifications to the Core Operating Limits Report)* CTS Table 2.2-1 for the Limiting Safety System Settings states the formulas for Overtemperature ΔT and Overpower ΔT Functional Units. ITS 3.3.1 in Table 3.3.1-1 lists the formulas for the Overtemperature ΔT and Overpower ΔT Functions with a reference that certain variables/constants are contained in the CORE OPERATING LIMITS REPORT (COLR). This changes the CTS by relocating specific parameters for the Overtemperature ΔT and Overpower ΔT Functions, which must be confirmed on a cycle-specific basis, from the Technical Specifications to the COLR.

The removal of these cycle-specific parameter limits from the Technical Specifications and their relocation into the COLR is acceptable because these limits are developed or utilized under NRC-approved methodologies. The NRC documented in Generic Letter 88-16, "Removal of Cycle-Specific Parameter Limits From Technical Specifications," that this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains requirements and Surveillances that verify that the cycle-specific parameter limits are being met. The functional requirements of the Overtemperature ΔT and Overpower ΔT Functions are retained in the Technical Specifications to ensure core protection. Also, this change is acceptable because the removed information will be adequately controlled in the COLR under the requirements provided in ITS 5.6.5, "CORE OPERATING LIMITS REPORT." ITS 5.6.5 ensures that the applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems limits, and nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analyses are met. This change is designated as a less restrictive removal of detail change because information relating to cycle-specific parameter limits is being removed from the Technical Specifications.

LA.9 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS Table 4.3-1 Functional Unit 1 requires the performance of a CHANNEL FUNCTIONAL TEST for the Manual Reactor Trip Function, including the shunt and undervoltage trip devices. In addition, Table 4.3-1 Note 10 states that the CHANNEL FUNCTIONAL TEST shall "independently verify the OPERABILITY of the undervoltage and shunt trip

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circuits" and "verify the OPERABILITY of the bypass breaker trip circuits." CTS Table 4.3-1 Functional Unit 21 requires the performance of a CHANNEL FUNCTIONAL TEST for the Reactor Trip Breaker Shunt and Undervoltage Trip Functions. In addition, CTS Table 4.3-1 Note 11 states that the CHANNEL FUNCTIONAL TEST shall "independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers." CTS Table 4.3-1, Functional Unit 23 requires the performance of a CHANNEL FUNCTIONAL TEST for each Reactor Trip Bypass Breaker every 124 days and prior to each reactor startup if not performed in the previous 7 days. In addition, Note 12 states that the 124 day test includes a verification of the "local manual shunt trip" prior to placing the breaker in service, and Note 13 states that the prior to each startup test includes the "automatic undervoltage trip." ITS 3.3.1 requires a similar Surveillance (ITS SR 3.3.1.17) to be performed, however, the Surveillance does not include these quoted details. This changes the CTS by moving the details of the scope of the tests from the CTS to the Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to perform a TADOT. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA.10 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 2.2.1 requires the RTS instrumentation setpoints to be set consistent with the Trip Setpoint values shown in Table 2.2-1. However, the CTS 2.2.1 Action is only required to be taken when the setpoint is less conservative than the Allowable Value column of Table 2.2-1. When the setpoint is less conservative than the Allowable Value, the channel is to be declared inoperable and adjusted consistent with the Trip Setpoint value. CTS Table 2.2-1 specifies both the Trip Setpoints and Allowable Values for the RTS Instrumentation Functional Units. ITS 3.3.1 requires the RTS instrumentation for each Function in Table 3.3.1-1 to be OPERABLE. ITS Table 3.3.1-1 specifies only the Allowable Values for the RTS Instrumentation Functions. The ITS also ties OPERABILITY of channels to the Allowable Values. This changes the CTS by moving the Trip Setpoints to the Technical Requirements Manual (TRM).

The removal of these details for meeting Technical Specification requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the Allowable Values associated with the RTS Instrumentation. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a

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less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA.11 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 2.2-1 Functional Unit 11 provides an Allowable Value of ≤ 93% of instrument span for the Pressurizer Water Level - High channels. CTS Table 2.2-1 Functional Unit 12 provides an Allowable Value of ≥ 89.1% of the design flow per loop for the Loss of Flow channels. In addition, Unit 1 CTS Table 2.2-1 Note * states that design flow is 1/4 Reactor Coolant System total flow rate from Table 3.2-1 (i.e., 341,100 gpm) and Unit 2 CTS Table 2.2-1 Note * states design flow is 91,600 gpm per loop. CTS Table 2.2-1 Functional Unit 13 provides an Allowable Value of ≥ 16% (Unit 1) and ≥ 19.2% (Unit 2) of narrow range instrument span for the Steam Generator Water Level - Low Low channels. CTS Table 2.2-1 Functional Unit 14 provides an Allowable Value of ≥ 4% of the narrow range instrument span for the SG Water Level - Low portion of the Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level channels. ITS Table 3.3.1-1 Function 9 provides an Allowable Value for the Pressurizer Water Level - High channels in terms of percent, but does not include the detail of the associated instrument span. ITS Table 3.3.1-1 Function 10 provides an Allowable Value for the Reactor Coolant Flow - Low (per loop) channels in terms of percent, but does not include the detail of the associated design flow per loop. ITS Table 3.3.1-1 Function 14 provides an Allowable Value for the Steam Generator Water Level - Low Low (per SG) channels in terms of percent, but does not include the detail of the associated narrow range instrument span. ITS Table 3.3.1-1 Function 15 provides an Allowable Value for the Steam Generator Water Level - Low (per SG) portion of the Steam Generator Level - Low (per SG) Coincident with Steam Flow/Feedwater Flow Mismatch (per SG) channels in terms of percent, but does not include the detail of the associated narrow range instrument span. This changes the CTS by moving the details of what the setting in % is based upon to the Technical Requirements Manual (TRM).

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the value for each of the Allowable Values. Also, this change is acceptable because the removed information will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 10 – 18 to 24 Month Surveillance Frequency Change, Non-Channel Calibration Type)* CTS 4.3.1.1.2 requires the total interlock function to be demonstrated OPERABLE at least once per 18 months. ITS SR 3.3.1.16 requires the performance of a CHANNEL OPERATIONAL TEST (COT), which tests a portion of the total interlock function, every 24 months. This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

The purpose of CTS 4.3.1.1.2 is to ensure the proper operation of the RTS interlock functions. This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Reviews of historical surveillance data and maintenance data sufficient to determine failure modes have shown that these tests normally pass their Surveillances at the current Frequency. An evaluation has been performed using this data, and it has been determined that the effect on safety due to the extended Surveillance Frequency will be minimal. Extending the Surveillance test interval for this COT is acceptable because during the operating cycle, there is sufficient indication of THERMAL POWER and RTS interlock status to ensure the interlocks are in the correct status. Based on the inherent system and component reliability and the testing performed during the operating cycle, the impact, if any, from this change on system availability is minimal. The review of historical surveillance data also demonstrated that there are no failures that would invalidate this conclusion. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the plant licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.2 *(Category 11 – 18 to 24 Month Surveillance Frequency Change, Channel Calibration Type)* CTS 4.3.1.1.2 requires the total interlock function to be demonstrated OPERABLE at least once per 18 months. CTS Table 4.3-1 requires a CHANNEL CALIBRATION of Functional Units 3 through 15 and 17 every 18 months. ITS Table 3.3.1-1 Functional Units 3 through 10, 13 through 15, and 18 require the performance of a CHANNEL CALIBRATION every 24 months (ITS SRs 3.3.1.13, 3.3.1.14, and 3.3.1.15). This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

The purpose of the CHANNEL CALIBRATION required by CTS 4.3.1.1.2 and Table 4.3-1 is to ensure the RTS instrumentation and interlocks are calibrated correctly to ensure the safety analysis can be met. This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. This change is acceptable because the RTS, including the actuation logic, is designed to be single failure proof, therefore ensuring system availability in the event of a failure of one of the channel components. Furthermore, CTS Table 4.3-1 Functional Units 3 through 15 and 17, and the Interlock Functions of the impacted RTS instrumentation have been evaluated for drift using both quantitative and qualitative analysis, based on

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manufacturer and model number to determine that the instrumentation's actual drift falls within the design allowance in the associated setpoint calculation.

Functional Unit 3, Power Range Neutron Flux High Positive Rate

This function is performed by the Westinghouse Top and Bottom Half Core Power Detectors and Top and Bottom Half Core Power Drawers (Westinghouse Models 6051D51G01 and 6051D53G01, respectively). These system components were not evaluated for drift but were justified for extension based on engineering judgment. Extension of this SR is acceptable because the operation of the circuits associated with the Power Range Neutron Flux, High Positive Rate Function are verified by more frequent CHANNEL CHECKS every 12 hours, comparison tests between indicated power and calculated power (i.e., calorimetric verification) every 24 hours, and CHANNEL OPERATIONAL TESTS (COTs) every 92 days. This testing ensures a significant portion of the circuitry is operating properly and accurately, and will detect significant failures of this circuitry. Additionally, since the flux measurement is evaluated and corrected on a daily basis by the calorimetric verification using high accuracy measurement devices, any drift associated with the circuit is normalized. Therefore, long term drift has no impact on the accuracy of this trip. The results of these analyses will support a 24 month Surveillance interval.

Functional Unit 4, Power Range Neutron Flux High Negative Rate

This function is performed by the Westinghouse Top and Bottom Half Core Power Detectors and Top and Bottom Half Core Power Drawers (Westinghouse Models 6051D51G01 and 6051D53G01, respectively). These system components were not evaluated for drift but were justified for extension based on engineering judgment. Extension of this SR is acceptable because the operation of the circuits associated with the Power Range Neutron Flux, High Negative Rate Function are verified by more frequent CHANNEL CHECKS every 12 hours, comparison tests between indicated power and calculated power (i.e., calorimetric verification) every 24 hours, and COTs every 92 days. This testing ensures a significant portion of the circuitry is operating properly and accurately, and will detect significant failures of this circuitry. Additionally, since the flux measurement is evaluated and corrected on a daily basis by the calorimetric verification using high accuracy measurement devices, any drift associated with the circuit is normalized. Therefore, long term drift has no impact on the accuracy of this trip. The results of these analyses will support a 24 month Surveillance interval.

Functional Unit 5, Intermediate Range Neutron Flux

This function is performed by IRM Neutron Flux Detectors (Westinghouse Model WL-23707) and IRM Neutron Flux Drawers (Westinghouse Model 6051D46G01). These system components were not evaluated for drift but were justified for extension based on engineering judgment. Extension of this SR is acceptable because the operation of the circuits associated with the Intermediate Range Neutron Flux Function are verified by more frequent CHANNEL CHECKS every 12 hours and COTs every 184 days. The IRMs are only required in MODE 1 below the P-10 interlock and in MODE 2 above the P-6 interlock. While operating in MODE 1, operation is normally above the P-10 interlock and the IRM trip is inactive. Also, before the IRM detectors are used for operation, an overlap check is routinely performed to determine if the instruments are reading and tracking with the power range and the source range neutron detectors, as applicable. Therefore, long term drift has no impact on the accuracy of this circuit. The results of these analyses will support a 24 month Surveillance interval.

Functional Unit 6, Source Range Neutron Flux

This function is performed by SRM Neutron Flux Detectors (Westinghouse Model WL-23706) and SRM Neutron Flux Drawers (Westinghouse Model 6051D50G01). These system components were not evaluated for drift but were justified for extension based on engineering judgment. SRMs satisfy their design function if calibration is sufficient to ensure neutron level is observable when the reactor is shutdown. This is verified by CHANNEL CHECKS at least every 12 hours when the reactor is shutdown. The SRMs must be operational in MODE 2 below the P-6 interlock. SRM response to reactivity changes is distinctive and well known to plant operators, and SRM response is closely monitored during these reactivity changes. Additionally, since there is very little neutron activity during loading, refueling, shutdown, and approach to criticality, a neutron source is placed in the reactor during approach to criticality to provide a minimum observable SRM neutron count rate attributable to core neutrons of at least 2 counts per second. During plant shutdowns and startups, overlap between the IRM channels and the SRM channels is routinely verified to ensure performance of the SRM channels. There is also more frequent testing, including a COT every 184 days in MODES 1 and 2 and every 31 days in MODES 3, 4, and 5, to verify operation of the electronics for the source range trip. Therefore, any substantial degradation of the SRMs will be evident and long term drift has no impact on the accuracy of this circuit. The results of these analyses will support a 24 month Surveillance interval.

Functional Unit 7, Overtemperature ΔT

This function is performed by a loop consisting of a 200Ω Platinum RTD and Foxboro N-E11 Series Transmitter as the sensing elements with the signal conditioned by Foxboro N-2AI-P2V and N-2AI-H2V Input Cards, and Foxboro N-2CCA-DC Control Cards performing the trip functions. This function utilizes a reactor power input from the Power Range Monitors that is conditioned by a Foxboro N-2AI-T2V+VE Series Converter and N-2CCA-SC Control Card. The Input Cards, Converters and Control Cards are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified by a COT every 184 days, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The RTDs are not calibrated, and as such, instrument drift does not apply to these devices. Response of the RTDs to temperature variations during normal plant operation and during the more frequent testing verifies proper operation of the input signal. The flux input for this trip is derived from excore detectors that are calibrated to match the incore neutron detectors every 92 EFPD. The incore detectors are compared to a calorimetric every

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24 hours. The Foxboro Transmitters' drift was determined by quantitative analysis. The drift value determined has been used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Values. The results of this analysis will support a 24 month Surveillance interval.

Functional Unit 8, Overpower ΔT

This function is performed by a loop consisting of a 200Ω Platinum RTD with the signal conditioned by Foxboro N-2AI-P2V and N-2AI-H2V Input Cards, and Foxboro N-2CCA-DC Control Cards performing the trip functions. This function utilizes a reactor power input from the Power Range Monitors that is conditioned by a Foxboro N-2AI-T2V+VE Series Converter and N-2CCA-SC Control Card. The Input Cards, Converters and Control Cards are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified by a COT every 184 days, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The RTDs are not calibrated, and as such, instrument drift does not apply to these devices. Response of the RTDs to temperature variations during normal plant operation and during the more frequent testing verifies proper operation of the input signal. Although the reactor power input is available for input to this function, input value is set to zero and has no impact on trip operation. The results of this analysis will support a 24 month Surveillance interval.

Functional Unit 9, Pressurizer Pressure - Low

This function is performed by a Foxboro (N-)E11 Series Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip function. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

Functional Unit 10, Pressurizer Pressure - High

This function is performed by a Foxboro (N-)E11 Series Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip function. The signal conditioner and control card are part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro

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Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

Functional Unit 11, Pressurizer Water Level - High

This function is performed by a Foxboro (N-)E13 Series Differential Pressure Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip function. The signal conditioner and control card are part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

Functional Unit 12, Loss of Flow - Single Loop

This function is performed by a Foxboro (N-)E13 Series Differential Pressure Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval or the interval.

Functional Unit 13, Loss of Flow - Two Loops

This function is performed by a Foxboro (N-)E13 Series Differential Pressure Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip function. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

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Functional Unit 14, Steam Generator (SG) Water Level - Low Low

This function is performed by a Foxboro (N-)E13 Series Differential Pressure Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval or the interval.

Functional Unit 15, Steam/Feedwater Flow Mismatch and Low Steam Generator Water Level

This function is performed by Foxboro (N-)E13 Series Differential Pressure Transmitters with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip function. The signal conditioners and control cards are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval or the interval.

Functional Unit 17, Underfrequency - RCPs

This function is performed by General Electric Model SFF99AE002A Underfrequency Relays. The Underfrequency Relays' drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

P-6 Interlock

This P-6 Interlock receives an input from the Intermediate Range Monitoring System. The function is performed by IRM Neutron Flux Detectors (Westinghouse Model WL-23707) and IRM Neutron Flux Drawers (Westinghouse Model 6051D46G01). These system components were not evaluated for drift but were justified for extension based on engineering judgment. Extension of this SR is acceptable because the operation of the circuits associated with the P-6 Interlock Function are verified by more frequent CHANNEL CHECKS every

12 hours, COTs every 184 days, and an ACTUATION LOGIC TEST every 184 days. The IRMs are only required in MODE 1 below the P-10 interlock and in MODE 2 above the P-6 interlock. While operating in MODE 1, operation is normally above the P-10 interlock and the IRM trip is inactive. Also, before the IRM detectors are used for operation, an overlap check is routinely performed to determine if the instruments are reading and tracking with the power range and the source range neutron detectors, as applicable. Therefore, long term drift has no impact on the accuracy of this circuit. The results of these analyses will support a 24 month Surveillance interval.

P-7 Interlock

The P-7 Interlock receives an input from the Power Range Neutron Monitoring System and the Turbine Impulse Pressure instrumentation. The Power Range Neutron Monitoring System portion of the Function is performed by the Westinghouse Top and Bottom Half Core Power Detectors and Top and Bottom Half Core Power Drawers (Westinghouse Models 6051D51 and 6051D53, respectively). These system components were not evaluated for drift but were justified for extension based on engineering judgment. Extension of this SR is acceptable because the operation of the circuits associated with the Power Range Neutron Monitoring System – P-7 Interlock Function are verified by more frequent CHANNEL CHECKS every 12 hours, comparison tests between indicated power and calculated power (i.e., calorimetric verification) every 24 hours, and COTs every 92 days. This testing ensures a significant portion of the circuitry is operating properly and accurately, and will detect significant failures of this circuitry. Additionally, since the flux measurement is evaluated and corrected on a daily basis by the calorimetric verification using high accuracy measurement devices, any drift associated with the circuit is normalized. Therefore, long term drift has no impact on the accuracy of this portion of the Function. The Turbine Impulse Pressure portion of the Function (the P-13 interlock) is performed by a Foxboro E11 Series Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip function. The Input Card and Control Card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined has been used in the development of, confirmation of, or revision to the current plant setpoint. The results of these analyses will support a 24 month Surveillance interval.

P-8 Interlock

The P-8 Interlock receives an input from the Power Range Neutron Monitoring System. This function is performed by the Westinghouse Top and Bottom Half Core Power Detectors and Top and Bottom Half Core Power Drawers (Westinghouse Models 6051D51G01 and 6051D53G01, respectively). These system components were not evaluated for drift but were justified for extension based on engineering judgment. Extension of this SR is acceptable because the operation of the circuits associated with the Power Range Neutron Monitoring

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System – P-8 Interlock are verified by more frequent CHANNEL CHECKS every 12 hours, comparison tests between indicated power and calculated power (i.e., calorimetric verification) every 24 hours, and COTs every 92 days. This testing ensures a significant portion of the circuitry is operating properly and accurately, and will detect significant failures of this circuitry. Additionally, since the flux measurement is evaluated and corrected on a daily basis by the calorimetric verification using high accuracy measurement devices, any drift associated with the circuit is normalized. Therefore, long term drift has no impact on the accuracy of this Function. The results of these analyses will support a 24 month Surveillance interval.

P-10 Interlock

The P-10 Interlock receives an input from the Power Range Neutron Monitoring System. This function is performed by the Westinghouse Top and Bottom Half Core Power Detectors and Top and Bottom Half Core Power Drawers (Westinghouse Models 6051D51G01 and 6051D53G01, respectively). These system components were not evaluated for drift but were justified for extension based on engineering judgment. Extension of this SR is acceptable because the operation of the circuits associated with the Power Range Neutron Monitoring System – P-10 Interlock are verified by more frequent CHANNEL CHECKS every 12 hours, comparison tests between indicated power and calculated power (i.e., calorimetric verification) every 24 hours, and COTs every 92 days. This testing ensures a significant portion of the circuitry is operating properly and accurately, and will detect significant failures of this circuitry. Additionally, since the flux measurement is evaluated and corrected on a daily basis by the calorimetric verification using high accuracy measurement devices, any drift associated with the circuit is normalized. Therefore, long term drift has no impact on the accuracy of this Function. The results of these analyses will support a 24 month Surveillance interval.

Based on the design of the instrumentation and the drift evaluations, it is concluded that the impact, if any, from this change on system availability is minimal. A review of the Surveillance test history was performed to validate the above conclusion. There were approximately 41 Intermediate Range and Power Range Monitor tests classified as failures. However, these tests were evaluated and the vast majority involved components found with out of tolerance calibration data. The other failures were reviewed and those failures did not invalidate the conclusion that the impact, if any, on system availability from this change is minimal. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the plant licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.3 *(Category 10 – 18 to 24 Month Surveillance Frequency Change, Non-Channel Calibration Type)* CTS 4.3.1.1.3 requires the RTS RESPONSE TIME of each reactor trip function to be demonstrated to be within limit at least once per 18 months. ITS SR 3.3.1.19 requires the same test at a 24 month Frequency. This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

The purpose of CTS 4.3.1.1.3 is to ensure the actuation response times are less than or equal to the maximum values assumed in the accident analysis. This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Reviews of historical surveillance data and maintenance data sufficient to determine failure modes have shown that these tests normally pass their Surveillances at the current Frequency. An evaluation has been performed using this data, and it has been determined that the effect on safety due to the extended Surveillance Frequency will be minimal. Extending the Surveillance test interval for the RTS RESPONSE TIME TEST is acceptable because the RTS instrumentation is verified to be operating properly throughout the operating cycle by the performance of CHANNEL OPERATIONAL TESTS and, in some cases, CHANNEL CHECKS. This testing ensures that a significant portion of the RTS circuitry is operating properly and will detect significant failures of this circuitry. Additional justification for extending the Surveillance test interval is that the RTS, including the actuating logic, is designed to be single failure proof and therefore, is highly reliable. Based on the inherent system and component reliability and the testing performed during the operating cycle, the impact, if any, from this change on system availability is minimal. The review of historical surveillance data also demonstrated that there are no failures that would invalidate this conclusion. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the plant licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.4 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 requires that when a Functional Unit 2 (Power Range Neutron Flux) channel is inoperable, CTS Table 3.3-1 Action 2 be entered. Action 2 requires, in part, the Power Range Neutron Flux trip setpoint to be reduced to ≤ 85% RTP within the 4 hours. ITS 3.3.1 does not include this Required Action. This changes the CTS by deleting the requirement to reduce the Power Range Neutron Flux - High trip setpoint to ≤ 85% RTP.

The purpose of the CTS Actions is to ensure proper compensatory measures are taken in the event of an inoperable Power Range Neutron Flux channel is inoperable. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. The resetting of the Power Range Neutron Flux - High trip setpoints to ≤ 85% RTP would increase the potential for an inadvertent reactor trip and does

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not provide significant additional assurance of safety. The ITS retains the requirement to place the inoperable channel in trip, which performs the intended function of the channel. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.5 *(Category 2 – Relaxation of Applicability)* CTS Table 3.3-1 requires Functional Units 2 (Power Range Neutron Flux) and 5 (Intermediate Range Neutron Flux) channels to be OPERABLE with the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal, as stated in CTS Table 3.3-1 Note *. A similar Note is provided in CTS Table 4.3-1 for Functional Units 2 and 5. ITS Table 3.3.1-1 does not include this Applicability for either of these Functions (Functions 2.a, 2.b, and 4). This changes the CTS by deleting the requirements for OPERABILITY of the Power Range Neutron Flux and Intermediate Range Neutron Flux channels with the reactor trip system breakers in the closed position and the control rod drive system capable of rod withdrawal.

The purpose of CTS Table 3.3-1 Functional Units 2 and 5 is to ensure the Power Range Neutron Flux and Intermediate Range Neutron Flux channels are OPERABLE. This change is acceptable because the requirements continue to ensure that the process variables are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. This change deletes the shutdown requirements for both the Power Range Neutron Flux and Intermediate Range Neutron Flux channels. The Source Range Neutron Flux channels are sufficient to mitigate any reactivity excursions in these conditions. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L.6 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 requires that when a Functional Unit 19 (Safety Injection input from ESF) or a Functional Unit 22 (Automatic Trip Logic) train is inoperable, CTS Table 3.3-1 Action 1 be entered. CTS Table 3.3-1 Action 1 requires, in part, the unit to be in MODE 3 within 6 hours. In addition, this Action allows one channel to be bypassed for up to 2 hours for surveillance testing per CTS 4.3.1.1.1. CTS Table 3.3-1 requires that when a Functional Unit 2 (Power Range, Neutron Flux), Functional Unit 3 (Power Range, Neutron Flux, High Positive Rate), or Functional Unit 4 (Power Range, Neutron Flux, High Negative Rate) channel is inoperable, CTS Table 3.3-1 Action 2 be entered. CTS Table 3.3-1 Action 2 allows the inoperable channel be bypassed for up to 2 hours for surveillance testing of the other channels per CTS 4.3.1.1.1. CTS Table 3.3-1 requires that when a Functional Unit 7 (Overtemperature ΔT), Functional Unit 8 (Overpower ΔT), Functional Unit 9 (Pressurizer Pressure - Low), Functional Unit 10 (Pressurizer Pressure - High), Functional Unit 16 (Undervoltage - Reactor Coolant Pumps), or Functional Unit 17 (Underfrequency - Reactor Coolant Pumps) channel is inoperable, CTS Table 3.3-1 Action 6 be entered. CTS Table 3.3-1 Action 6 requires that the inoperable channel be placed in the tripped condition within 1 hour. In addition, this Action allows the inoperable channel be bypassed for up to 2 hours for surveillance testing of the other channels per CTS 4.3.1.1.1. CTS Table 3.3-1 requires that when a Functional Unit 11 (Pressurizer Water Level - High), Functional Unit 12 (Loss of Flow - Single Loop), Functional Unit 13 (Loss of Flow

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- Two Loops), Functional Unit 14 (Steam Generator Water Level - Low Low), Functional Unit 15 (Steam/Feedwater Flow Mismatch and Low Steam Generator Water), Functional Unit 18.A (Turbine Trip Low Fluid Oil Pressure), or Functional Unit 18.B (Turbine Trip Turbine Stop Valve Closure) channel is inoperable, CTS Table 3.3-1 Action 7 be entered. CTS Table 3.3-1 Action 7 requires, in part, the inoperable channel be placed in the tripped condition within 1 hour and that STARTUP and/or POWER OPERATION may proceed "until performance of the next required CHANNEL FUNCTIONAL TEST." No allowance is provided in this Action to allow an inoperable channel to be bypassed for surveillance testing. CTS Table 3.3-1 requires that when a Functional Unit 20 (Reactor Coolant Pump Breaker Position) channel is inoperable, CTS Table 3.3-1 Action 11 be entered. CTS Table 3.3-1 Action 11 requires the inoperable channel be placed in the tripped condition within 1 hour. ITS Table 3.3.1-1 Functions 17 and 21 require entry into ITS 3.3.1 ACTION J if one Safety Injection Input from ESFAS train or one Automatic Trip Logic train is inoperable. ITS 3.3.1 ACTION J requires the restoration of the inoperable train to OPERABLE status within 6 hours. If the inoperable train cannot be restored to OPERABLE status within 6 hours, the unit must be in MODE 3 within the following 6 hours (ITS 3.3.1 ACTION P). In addition, ITS 3.3.1 ACTION J includes an allowance to bypass one train for up to 4 hours for surveillance testing provided the other train is OPERABLE. ITS 3.3.1 ACTION C applies when one Power Range Neutron Flux - High channel (ITS 3.3.1 Function 2.a) is inoperable. ITS 3.3.1 ACTION C requires the placement of the inoperable channel in the trip condition within 6 hours and includes an allowance to bypass the inoperable channel for up to 4 hours for surveillance testing and setpoint adjustment of other channels. ITS 3.3.1 ACTION D applies when one channel is inoperable and applies to ITS 3.3.1 Functions 2.b, 3.a, 3.b, 6, 7, 8.a, 8.b, 9 through 15, 16.a, and 16.b. ITS 3.3.1 ACTION D requires the placement of the inoperable channel in the trip condition within 6 hours and includes an allowance to bypass the inoperable channel (except for the Function 11 channel) for up to 4 hours for surveillance testing of other channels. This changes the CTS by: a) allowing 6 hours to restore the CTS Table 3.3-1 Functional Units 19 and 22 trains to OPERABLE status prior to requiring a shutdown to MODE 3 and extends the bypass time for these Functional Units from 2 hours to 4 hours; b) extending the time allowed to place an inoperable channel in the tripped condition from 1 hour to 6 hours for CTS Table 3.3-1 Functional Units 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18.A, 18.B, and 20; c) extending the time allowed to bypass an inoperable channel or train from 2 hours to 4 hours for CTS Table 3.3-1 Functional Units 2, 3, 4, 7, 8, 9, 10, 16, and 17; and d) adds an allowance to bypass the inoperable CTS Table 3.3-1 Functional Units 11, 12, 13, 14, 15, 18.A, and 18.B channels for 4 hours and deletes the requirement that STARTUP and/or POWER OPERATION may proceed "until performance of the next required CHANNEL FUNCTIONAL TEST."

The purpose of the current Actions is to provide a short period of time to restore the inoperable channel or train to OPERABLE status. The proposed bypass time of 4 hours in ITS 3.3.1 ACTIONS C, D, and J is a sufficient time to perform train or channel surveillance. The 4 hour time period is acceptable since it is considered an acceptable amount of time based on the risk analysis of WCAP-10271-P, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System." In addition, the

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deletion of the CTS Table 3.3-1 Action 7 requirement that STARTUP and/or POWER OPERATION may proceed "until performance of the next required CHANNEL FUNCTIONAL TEST" is acceptable based on the 4 hour bypass time allowance. The 6 hour Completion Time specified in ITS 3.3.1 ACTIONS C, D, and J is also acceptable since the change results in a small, and therefore acceptable, impact on plant risk as stated in the NRC Safety Evaluation Reports (SERs) associated with WCAP-10271-P. I&M has performed an evaluation to ensure that the conditions of the three NRC SERs supporting WCAP-10271-P, including Supplements 1 and 2 and Supplement 2, Rev. 1, have been met for the proposed ITS Completion Time and/or bypass time. Specifically, the NRC imposed five conditions on utilities seeking to implement the Technical Specification changes approved generically as a result of their review of WCAP-10271 and WCAP-10271 Supplement 1, and two conditions as a result of their review of WCAP-10271 Supplement 2 and Supplement 2, Rev. 1. Two of the conditions imposed in the Reactor Trip System (RTS) SER are now not applicable due to approvals given in the ESFAS SER. Conditions given in the RTS SER are considered to apply equally to the ESFAS Functions and equipment, and the conditions given in the ESFAS SER are considered to apply equally to the RTS Functions and equipment. I&M provided results of this evaluation to the NRC by application dated August 30, 2002, as supplemented by letters dated February 27, April 7, April 29, and May 2, 2003, that requested approval for increasing the CHANNEL OPERATIONAL TEST Surveillance intervals for analog channels, logic cabinets, and reactor trip breakers, and increasing the Completion Time and bypass time for the reactor trip breakers, as allowed by WCAP-15376-P, Rev. 0, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," and the Nuclear Regulatory Commission (NRC) staff's approved Technical Specification Task Force (TSTF) Traveler TSTF-411, Rev. 1, "Surveillance Test Interval Extension for Components of the Reactor Protection System." The NRC granted approval for these new requirements based upon WCAP-15376 by issuing License Amendments 277 (Unit 1) and 260 (Unit 2) on May 23, 2003. In the NRC SER for these amendments, the NRC stated that the December 20, 2002, acceptance letter for WCAP-15376 noted that this topical report was built on the foundation established by WCAP-10271-P and WCAP-14333, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times." As a result, the NRC staff's review of I&M's application, as supplemented, verified that the applicable implementation requirements associated with the NRC staff acceptance of WCAP-10271 was also adequately addressed by I&M. Therefore, this change is considered acceptable. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.7 Not Used.

L.8 *(Category 4 - Relaxation of Required Action)* CTS LCO 3.3.1.1 states that the interlocks of Table 3.3-1 shall be OPERABLE. However, no specific Actions are provided for when an interlock is inoperable. Therefore, all affected RTS instrumentation is required to be declared inoperable, which will result in a CTS 3.0.3 entry. CTS 3.0.3 allows 1 hour to initiate action and then requires the unit to be in MODES 3, 4, and 5 within the following 6 hours, 12 hours, and 36 hours, respectively. ITS 3.3.1 ACTION L provides the actions for when one or more interlock channels are inoperable. ACTION L requires a verification that the interlock is in the required state for existing unit conditions within 1 hour. ITS 3.3.1 ACTIONS O, P, and Q, which are applicable if any Required Action and associated Completion Time of Condition L is not met, requires the unit to be placed in MODE or other specified condition outside the Applicability of the associated interlock. This changes the CTS by allowing continued operation as long as the interlock is placed in the correct state and providing actions if the inoperable interlock is not placed in the correct state.

The purpose of the interlocks is to ensure the associated RTS instrumentation is automatically enabled or disabled when required. This change is acceptable since the proposed ACTIONS ensure that the interlock is either manually placed in the correct state for the existing unit conditions or that the unit is placed in a MODE or specified Condition outside the Applicability of the associated interlock. ITS 3.3.1 Required Action L.1 requires the interlock to be placed in the same state as it would be normally placed in if it were automatically functioning (i.e., this performs the intended function of the interlock). If this Required Action is not accomplished within 1 hour, then ITS 3.3.1 ACTIONS O, P, and Q will require the unit to be placed in a MODE or specified condition that is outside the Applicability of the associated interlock. The Required Actions and Completion Times for placing the unit in the MODES or specified conditions outside the Applicabilities of the interlocks are consistent with the Required Actions and Completion Times associated with exiting the Applicabilities for RTS Instrumentation Functions supported by the interlocks. With the unit placed in a MODE or specified condition that is outside the Applicability of the associated interlock, the interlock is no longer required to function to support the required OPERABILITY of the associated RTS Instrumentation Function. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.9 *(Category 4 – Relaxation of Required Action)* With one Intermediate Range Neutron Flux channel inoperable, CTS Table 3.3-1 Action 3.b requires, when above the P-6 interlock and below 5% of RTP, the restoration of the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% RTP. ITS 3.3.1 ACTION E, which provides the actions when one Intermediate Range Neutron Flux channel is inoperable, provides two optional Required Actions. Required Action E.1 requires the reduction of THERMAL POWER to < P-6 within 24 hours, while Required Action E.2 requires the increase of THERMAL POWER to > P-10 within 24 hours. This changes the CTS by allowing the unit to change power level to exit the MODE of Applicability instead of requiring the restoration of the equipment.

The purpose of CTS Table 3.3-1 Action 3.b is to ensure the appropriate actions are taken when an Intermediate Range Neutron Flux channel is inoperable. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and

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the low probability of a DBA occurring during the repair period. The Intermediate Range Neutron Flux channels are required to mitigate events within the proposed Applicability of above the P-6 interlock and below the P-10 interlock. While the unit is within the Applicability of the LCO, the other Intermediate Range Neutron Flux channel can perform the required safety function. With the unit outside the proposed Applicability of the equipment, the equipment is not credited in any transient. Other instrumentation is available to mitigate the consequences of a transient event. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.10 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS Table 4.3-1, including Note 1, require the performance of CHANNEL FUNCTIONAL TEST for Functional Units 18.A (Turbine Trip - Low Fluid Oil Pressure) and 18.B (Turbine Trip - Turbine Stop Valve Closure) channels prior to each reactor startup if not performed in previous 7 days. ITS Table 3.3.1-1, Functions 16.a and 16.b require the performance of a TADOT (ITS SR 3.3.1.18) prior to exceeding the P-7 interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days. This changes the CTS by extending the requirement to perform the test from "if not performed within the previous 7 days" to "if not performed within the previous 31 days."

The purpose of the CHANNEL FUNCTIONAL TEST/TADOT is to ensure the instrumentation is functioning properly. This changes the CTS by extending the requirement to perform the test from "if not performed within the previous 7 days" to "if not performed within the previous 31 days." Currently this Surveillance is only required to be performed prior to each reactor startup. During a normal cycle, the unit is in MODE 1 for a time period in excess of 31 days and the Surveillance is not performed. A review of maintenance history has shown that when the Surveillance is performed after an extended time period in MODE 1 (i.e., $\geq$ 31 days), the Surveillance normally passes. Thus, allowing the reactor startup to proceed without performing the Surveillance if the Surveillance has been performed within the previous 31 days versus the current 7 days is acceptable. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.11 *(Category 10 – 18 to 24 Month Surveillance Frequency Change, Non-Channel Calibration Type)* CTS Table 4.3-1 Functional Unit 20 requires the performance of a CHANNEL FUNCTIONAL TEST on the Reactor Coolant Pump Breaker Position Trip channels every 18 months. ITS Table 3.3.1-1 Function 11 requires the performance of ITS SR 3.3.1.17, a TADOT, every 24 months. This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2). The change from a CHANNEL FUNCTIONAL TEST to a TADOT is discussed in DOC A.20.

The purpose of the CHANNEL FUNCTIONAL TEST required by CTS Table 4.3-1 is to ensure the RTS instrumentation can perform its intended function. This change was evaluated in accordance with the guidance provided in NRC Generic

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Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Reviews of historical surveillance data and maintenance data sufficient to determine failure modes have shown that these tests normally pass their Surveillances at the current Frequency. An evaluation has been performed using this data, and it has been determined that the effect on safety due to the extended Surveillance Frequency will be minimal. Extending the Surveillance test interval associated with the Reactor Coolant Pump Breaker Position Trip is acceptable since the RTS Instrumentation includes redundant instrumentation to monitor Reactor Coolant Flow (i.e., Loss of Flow - Single Loop, Loss of Flow - Two Loops, Underfrequency - Reactor Coolant Pump, Undervoltage - Reactor Coolant Pump). Based on the inherent system and component reliability, the impact, if any, from this change on system availability is minimal. The review of historical surveillance data also demonstrated that there are no failures that would invalidate this conclusion. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the plant licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.12 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 Functional Unit 1 specifies the requirements for the Manual Reactor Trip channels. The CTS requirement specifies that Action 12 applies with the number of channels OPERABLE one less than required by the minimum channels OPERABLE requirement. CTS Table 3.3-1 Action 12 requires the restoration of the inoperable channel to OPERABLE status within 48 hours or to be in MODE 3 within the next 6 hours and/or open the reactor trip breakers. ITS Table 3.3.1-1 Function 1 requires entry in ITS 3.3.1 ACTION B if a required channel is inoperable. ITS 3.3.1 Required Action B.1 requires restoration of the channel to OPERABLE status within 48 hours. If this cannot be met in MODE 1 and 2, ACTION P must be entered and Required Action P.1 requires the unit to be in at least MODE 3 within 6 hours. If the inoperable channel cannot be restored to OPERABLE status in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted, ACTION Q must be entered and Required Action Q.1 requires the immediate initiation of action to fully insert all rods and Required Action Q.2 requires the Rod Control System to be in a condition incapable of rod withdrawal within 1 hour. This changes the CTS by not specifically requiring the reactor trip breakers to be opened and providing 1 additional hour to ensure the Rod Control System is incapable of rod withdrawal.

The purpose of CTS Table 3.3-1 Action 12 is allow time to restore an inoperable channel and if not, to place the unit in a condition where the equipment is not required to be OPERABLE. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA

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occurring during the repair period. This change deletes the requirement to open the reactor trip breakers. The proposed Required Action ensures the unit is outside of the Applicability of the Manual Reactor Trip channels. The Required Actions require immediate action to insert all rods and, once inserted, the Rod Control System must be placed in a condition incapable of rod withdrawal within 1 hour, which is the purpose of opening the reactor trip breakers. This is normally performed by opening the reactor trip breakers. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.13 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 Functional Units 21 (Reactor Trip Breakers) and 22 (Automatic Trip Logic) specifies that Action 14 applies with the number of channels OPERABLE one less than required by the minimum channels OPERABLE requirement when in MODES 3, 4, and 5 with the reactor trip breakers closed and the rod control system capable of rod withdrawal. CTS Table 3.3-1 Action 14 requires the restoration of the inoperable channel to OPERABLE status within 48 hours "or open the reactor trip breakers within the next hour." In the ITS for the same Functions, if an inoperable channel/train is not restored to OPERABLE status within 48 hours as specified in ITS 3.3.1 ACTION B, then ITS 3.3.1 ACTION Q must be entered. ITS 3.3.1 Required Actions Q.1 and Q.2 require the unit to initiate action to fully insert all rods immediately and to place the Rod Control System in a condition incapable of rod withdrawal within 1 hour. This changes the CTS by not requiring the reactor trip breakers to be opened.

The purpose of CTS Table 3.3-1 Action14 is allow time to restore an inoperable channel and if this cannot be accomplished to place the unit in a condition where the equipment is not required to be OPERABLE. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. This change deletes the requirement to open the reactor trip breakers. The proposed Required Action ensures the unit is outside of the Applicability of the Reactor Trip Breaker and Automatic Trip Logic Functions. The actions require immediate action to insert all rods which is the purpose of opening the reactor trip breakers. Once inserted, the Rod Control System is placed in a condition incapable of rod withdrawal within 1 hour. This is normally performed by opening the reactor trip breakers. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.14 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS Table 4.3-1 Functional Unit 1, including Note 1, requires the performance of a CHANNEL FUNCTIONAL TEST of the Manual Reactor Trip Function prior to each reactor startup if not performed in the previous 7 days. CTS Table 4.3-1 Functional Unit 23, including Note 1, requires the performance of a CHANNEL FUNCTIONAL TEST of each Reactor Trip Bypass Breaker prior to each reactor startup if not performed in the previous 7 days. ITS SR 3.3.1.17 requires these tests to be performed every 24 months. This changes the CTS by changing the Surveillance Frequency from prior to each reactor startup if not performed in the previous 7 days to 24 months.

The purpose of the CTS Table 4.3-1 CHANNEL FUNCTIONAL TEST requirement is to ensure the Manual Reactor Trip and the Reactor Trip Bypass Breaker Functions are OPERABLE. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. If a unit operates a complete cycle without requiring a shutdown, this Surveillance will only be performed once per cycle (approximately 18 months). Testing these channels once per cycle is considered acceptable. A review of the Surveillance test history for the Manual Reactor Trip and Reactor Trip Bypass Breaker Functions indicates that an extension to 24 months is acceptable. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.15 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS Table 4.3-1 Functional Unit 2, including Note 3, requires a monthly comparison of the incore to excore axial imbalance above 15% of RATED THERMAL POWER and that recalibration is necessary if the absolute difference is greater than or equal to 3 percent. ITS Table 3.3.1-1, Function 6 requires the performance of this same test (ITS SR 3.3.1.3); however, the Frequency has been changed to 31 effective full power days (EFPD). This changes the CTS by allowing this Surveillance to be performed every 31 EFPD instead of 31 days.

The purpose of the ITS SR Frequency expressed in EFPD is to relate the requirement to a meaningful time frame. This change is acceptable because the new Surveillance Frequency has been evaluated and has been shown to provide an acceptable level of equipment reliability. The allowance for performing the comparison of the NIS channels indications to the incore indications are a function of burn up and not calendar days. The relationship of incore to excore measurement changes with the burnup of the fuel in the reactor, and depends upon power distribution in the reactor core. The burnup of the fuel is not a function of calendar days, but of total power produced by the reactor. A Frequency stated in EFPD is the appropriate unit for the Surveillance Frequency. This change is designated as less restrictive because Surveillances may be performed less frequently under the ITS than under the CTS.

L.16 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS Table 4.3-1 Functional Unit 2 (Power Range Neutron Flux), including Note 1, requires the performance of a CHANNEL FUNCTIONAL TEST during startup if not performed in previous 7 days. CTS Table 4.3-1 Functional Unit 6 (Source Range Neutron Flux), including Note 1, requires the performance of a CHANNEL FUNCTIONAL TEST during startup if not performed in previous 7 days. CTS Table 4.3-1 Functional Unit 21 (Reactor Trip Breakers, Shunt Trip and Undervoltage Trip), including Note 1, requires the performance of a CHANNEL FUNCTIONAL TEST during startup if not performed in previous 7 days. The ITS does not require these "during startup if not performed in the

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previous 7 days" tests. This changes the CTS by deleting the requirement to perform the startup Surveillance on the Power Range Neutron Flux, Source Range Neutron Flux, and Reactor Trip Breakers, including the Shunt and Undervoltage trip channels.

The purpose of the CTS Table 4.3-1 CHANNEL FUNCTIONAL TEST is to ensure the RTS instrumentation is functioning properly. This change is acceptable because the normal periodic CHANNEL FUNCTIONAL TEST (changed to COT or TADOT per DOC A.20) Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. This change deletes the requirement to perform the startup Surveillance on the Power Range Neutron Flux, Source Range Neutron Flux, and Reactor Trip Breakers, including the Shunt Trip and Undervoltage trip channels. ITS SR 3.0.4 requires the normal periodic Surveillances to be performed and be current prior to entry into the applicable operational conditions. Once the applicable conditions are entered, the normal, periodic Surveillance Frequency provides adequate assurance of OPERABILITY. Therefore, the removal of this Frequency is considered acceptable. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.17 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS Table 4.3-1 Functional Unit 6 requires the performance of a CHANNEL FUNCTIONAL TEST every 31 days. This Surveillance is modified by a Note (CTS Table 4.3-1 Note 14), which states that the provisions of Specification 4.0.4 are not applicable when leaving MODE 1 and shall be performed within 24 hours after leaving MODE 1. ITS Table 3.3.1-1 Function 5 requires the performance of a COT (ITS SR 3.3.1.11) at a Frequency of 184 days. This Surveillance is modified by a Note (Note 2) that states that the Surveillance is not required to be performed until 4 hours after power is below the P-6 interlock. This changes the CTS by changing the point at which the required completion time begins (leaving MODE 1 in the CTS and power below P-6 in the ITS) to perform the Surveillance, and reduces the time (24 hours to 4 hours) to perform the Surveillance after reaching that point. The change from a CHANNEL FUNCTIONAL TEST to a COT is discussed in DOC A.20 and the change in the Frequency is discussed in DOC L.18.

The purpose of CTS Table 4.3-1 Note 14 is to allow time for the Surveillance to be performed after power is reduced to the conditions where the equipment is required to function. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. Since the Applicability of the Source Range Neutron Flux channels is below P-6, this interlock is a more convenient reference point since instrument panels in the Control Room indicate when the condition has been met. The unit leaves MODE 1 when it reaches 5% RTP. The nuclear instrumentation available in the control room is not as accurate at this THERMAL POWER level, and it is therefore difficult to determine when the unit actually leaves MODE 1. This change modifies the point at which the required completion time begins (leaving MODE 1 in the CTS and power below P-6 in the ITS) to perform the Surveillances and reduces the time allowed (24 hours to 4 hours) to perform the Surveillance after reaching that point. The change is

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considered less restrictive since the point at which the required completion time begins is reduced to a lower power level, and the actual time to reach the P-6 interlock point could be greater than 20 hours. This change is designated as less restrictive because Surveillances may be performed less frequently under the ITS than under the CTS.

L.18 *(Category 9 – Surveillance Frequency Change Using GL 91-04 Guidelines, Non-24 Month Type Change)* CTS Table 4.3-1 requires a CHANNEL FUNCTIONAL TEST of Functional Units 6 (Source Range Neutron Flux), 16 (Undervoltage - Reactor Coolant Pumps), and 17 (Underfrequency - Reactor Coolant Pumps) instrumentation every 31 days. ITS SR 3.3.1.11 requires the performance of a COT for the Source Range Neutron Flux instrumentation every 184 days and ITS SR 3.3.1.10 requires the performance of a TADOT for the Undervoltage RCPs and Underfrequency RCPs instrumentation every 92 days. This changes the CTS, for Source Range Neutron Flux Function, by extending the Frequency of the Surveillance from 31 days (i.e., a maximum of 38.75 days accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 184 days (i.e., a maximum of 230 days accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2). Additionally, this changes the CTS, for the Undervoltage – Reactor Coolant Pumps and Underfrequency – Reactor Coolant Pumps Functions, by extending the Frequency of the Surveillance from 31 days (i.e., a maximum of 38.75 days accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 92 days (i.e., a maximum of 115 days accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2). The change from a CHANNEL FUNCTIONAL TEST to a COT or TADOT is discussed in DOC A.20.

The purpose of the CHANNEL FUNCTIONAL TEST requirement in CTS Table 4.3-1 is to ensure the channels of the Source Range Neutron Flux, Undervoltage - Reactor Coolant Pumps, and Underfrequency - Reactor Coolant Pumps Functions will function as designed during an analyzed event. An evaluation of the surveillance interval extension was performed, based on the same approach described in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Reviews of historical surveillance data and maintenance data sufficient to determine failure modes have shown that these tests normally pass their Surveillances at the current Frequency. An evaluation has been performed using this data, and it has been determined that the effect on safety due to the extended Surveillance Frequency will be minimal. Extending the Surveillance test interval for this COT and TADOT is acceptable because for the Undervoltage RCPs and Underfrequency RCPs trips, the probability of significant variations of the RCP pump power supply is remote due to the plant electrical system and the offsite grid reliability, and for the Source Range Neutron Flux trip, the source range monitors are always checked prior to use and overlap is confirmed between the source and intermediate range monitors during startup and shutdown. During operations where the Source Range Neutron Flux trip is required, a significant change in detected power level would be noticed and investigated by plant operators. Based on the inherent system and component reliability the impact, if any, from this change on system availability is minimal. The review of historical surveillance data also demonstrated that there are no failures that would invalidate this conclusion. In addition, the proposed 92 day

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and 184 day Surveillance Frequencies, if performed at the maximum interval allowed by ITS SR 3.0.2 (115 day and 230 days, as applicable) does not invalidate any assumptions in the plant licensing basis. Additionally, these Surveillances Frequencies were specifically evaluated in WCAP-15376 (184 days) and WCAP 10271-P, Supplement 2, (92 days) and found to be acceptable. This change is designated as less restrictive because Surveillances may be performed less frequently under the ITS than under the CTS.

L.19 *(Category 14 – Changing Instrumentation Allowable Values)* CTS Table 2.2-1 provides the Allowable Values for Functional Unit 7 (Overtemperature ΔT), Functional Unit 8 (Overpower ΔT) (Unit 1 only), Functional Unit 9 (Pressurizer Pressure - Low) (Unit 2 only), Functional Unit 10, (Pressurizer Pressure - High), Functional Unit 11 (Pressurizer Water Level - High), Functional Unit 13, (Steam Generator Water Level - Low Low) (Unit 1 only), Functional Unit 14 (Steam/Feedwater Flow Mismatch and Steam Generator Water Level - Low) (Steam Generator Water Level - Low portion only is covered by this change) (Unit 1 only), and Functional Unit 16 (Underfrequency - Reactor Coolant Pumps). ITS Table 3.3.1-1 provides the Allowable Values for all the RTS Instrumentation Functions, including ITS Table 3.3.1-1 Function 6, 7, 8.a, 8.b, 9, 13, 14, and 15. This change revises the above specified CTS RTS Table 2.2-1 Allowable Values to the ITS Allowable Values.

The purpose of the Allowable Values is to ensure the instruments function as assumed in the safety analyses. ITS 3.3.1 reflects Allowable Values consistent with the philosophy of Westinghouse ISTS, NUREG-1431. These Allowable Values have been established consistent with the methods described in I&M's *Instrument Setpoint Methodology* (EG-IC-004, "Instrument Setpoint Uncertainty," Rev. 4). For all cases where a SAL exists, the Allowable Value determinations were calculated using plant specific operating and Surveillance trend data. For all other cases, existing Allowable Values were converted directly to the ITS Allowable Values. The Allowable Value verification used actual plant operating and surveillance trend information to ensure the validity of the developed Allowable Value. There were no changes to SALs required due to instrument performance. All design limits applied in the methodologies were confirmed as ensuring that applicable design requirements of the associated systems and equipment are maintained. The methodologies used have been compared with the guidance of ANSI/ISA S67.04-Part I-1994 and ANSI/ISA RP67.04-Part II-1994. Plant calibration procedures will ensure that the assumptions regarding calibration accuracy, measurement and test equipment accuracy, and setting tolerance are maintained. Setpoints for each SAL have been established by accounting for the applicable instrument accuracy, calibration and drift uncertainties, environmental effects, power supply fluctuations, as well as uncertainties related to process and primary element measurement accuracy using the instrument setpoint methodology. The Allowable Values have also been established from each SAL by combining the errors associated with the COT (e.g., device accuracy, setting tolerance, and drift) with the calculated Nominal Trip Setpoint using the instrument setpoint methodology. Where a SAL exists, trigger values are used to ensure that the Allowable Value provides sufficient margin from the SAL to account for any associated errors not confirmed by the COT. Use of the previously discussed methodologies for determining Allowable Values, NTSPs, and analyzing channel/instrument performance

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ensure that the design basis and associated SALs will not be exceeded during plant operation. These evaluations, determinations, and analyses now form a portion of the CNP design bases. Additionally, each applicable channel/instrument has been evaluated and analyzed to support a fuel cycle extension to a 24 month interval. These drift evaluations and drift analyses have been performed utilizing the guidance provided in EPRI TR-103335, "Statistical Analysis of Instrument Calibration Data/ Guidelines for Instrument Calibration Extension/Reduction Programs," Rev. 1. The EPRI guidance was used to demonstrate that the data collected by the operating plant (from Surveillance testing) has remained acceptable and reasonable with regard to the manufacturers design specifications. Therefore, based on the above discussion, the changes to the Allowable Values are acceptable. This change is designated as less restrictive because the less stringent Allowable Values are being applied in the ITS than were applied in the CTS.

L.20 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS Table 4.3-1 requires a CHANNEL FUNCTIONAL TEST of Functional Unit 2 (Power Range, Neutron Flux) every 92 days. ITS SR 3.3.1.8 for the Power Range Neutron Flux - Low Function (ITS Table 3.3.1-1 Function 2.b) requires a CHANNEL OPERATIONAL TEST (COT) to be performed every 92 days. Additionally, a Note allows the SR to not be performed until 12 hours after power is reduced below the P–10 interlock. This changes the CTS by allowing 12 hours to perform the required SR (i.e., a COT) after entry into the applicable MODES or other specified conditions (i.e., after reducing power to below P-10) for the Power Range Neutron Flux - Low Function. The change from a CHANNEL FUNCTIONAL TEST to a COT is discussed in DOC A.20.

The purpose of ITS SR 3.3.1.8 Note 12 hour allowance is to provide a reasonable period of time that the SR may be performed on the Power Range Neutron Flux - Low Function instrumentation channels upon entering the MODE of Applicability (i.e., below P-10 interlock). This COT cannot be performed prior to the MODE of Applicability because the reactor must below the P-10 interlock in order to adequately perform a COT. The time required to perform this SR is approximately 2 hours per channel, provided no problems are experienced during the performance of the SR. Therefore, the 12 hour allowance is reasonable and provides adequate time to perform the SR on all the channels. In addition, the results of performing the Surveillance Requirement are normally found to be satisfactory. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. This change is designated as less restrictive because a Surveillance will be performed less frequently under the ITS than under the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.3 INSTRUMENTATION

3.3.1 Reactor Trip System (RTS) Instrumentation

LCO 3.3.1

LCO 3.3.1 The RTS instrumentation for each Function in Table 3.3.1-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.1-1.

ACTIONS

- NOTE -
Separate Condition entry is allowed for each Function.

Action

Table 3.3-1 ACTION 12, Table 3.3-1 ACTION 14

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1	Enter the Condition referenced in Table 3.3.1-1 for the channel(s) or train(s).	Immediately
B. One Manual Reactor Trip channel inoperable. (or train)	B.1	Restore channel (or train) to OPERABLE status.	48 hours (2)
	OR		
	B.2.	Be in MODE 3.	54 hours (1)
C. One channel or train inoperable.	C.1	Restore channel or train to OPERABLE status.	48 hours (1)
	OR		
	C.2.1	Initiate action to fully insert all rods.	48 hours
	AND		

INSERT 1

Not Used

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	C.2.2	Place the Rod Control System in a condition incapable of rod withdrawal.	49 hours
Table 3.3-1 ACTION 2 D. One Power Range Neutron Flux - High channel inoperable.		- NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing and setpoint adjustment of other channels.	
	D.1.1	Place channel in trip.	6 hours
	AND		
	D.1.2	Reduce THERMAL POWER to ≤ 75% RTP.	12 hours
	OR		
	D.2.1	Place channel in trip.	6 hours
	AND		
	D.2.2	- NOTE - Only required to be performed when the Power Range Neutron Flux input to QPTR is inoperable.	
		Perform SR 3.2.4.2.	INSERT 1A Once per 12 hours thereafter
	OR		
	D.3	Be in MODE 3.	12 hours

(4) **INSERT 1A**

12 hours from discovery of THERMAL POWER > 75% RTP

AND

TSTF-418 not shown (25)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
Table 3.3-1 ACTIONS 2, 6, 7, 11 — ~~E~~ D. One channel inoperable, except for Function # channel.	- NOTE - The inoperable channel(s) may be bypassed for up to 4 hours for surveillance testing of other channels.	(1) (16) (3)
	~~E~~ D.1 Place channel in trip.	6 hours (1)
	~~OR~~	
	~~E.2 Be in MODE 3.~~	~~12 hours~~ (1)
Table 3.3-1 ACTION 3 — ~~G~~ E. One Intermediate Range Neutron Flux channel inoperable.	~~G~~ E.1 Reduce THERMAL POWER to < P-6.	24 hours (1)
	OR	
	~~G~~ E.2 Increase THERMAL POWER to > P -10.	24 hours (1)
DOC M.11 — ~~H~~ F. Two Intermediate Range Neutron Flux channels inoperable.	- NOTE - Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM.	(1)
	~~H~~ F.1 Suspend operations involving positive reactivity additions.	Immediately (6) (1)
	AND	
	~~H~~ F.2 Reduce THERMAL POWER to < P-6.	2 hours (1)

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ACTIONS (continued)

	CONDITION	REQUIRED ACTION		COMPLETION TIME	
Table 3.3-1 Action 4	G. One Source Range Neutron Flux channel inoperable.		- NOTE - Limited plant cooldown or boron dilution is allowed provided the change is accounted for in the calculated SDM.		1 16
		G.1	Suspend operations involving positive reactivity additions.	Immediately	1
DOC M.6	H. Two Source Range Neutron Flux channels inoperable.	H.1	Open Reactor Trip Breakers (RTBs).	Immediately	16 1
Table 3.3-1 Action 4	I. One Source Range Neutron Flux channel inoperable.	I.1	Restore channel to OPERABLE status.	48 hours	1
		OR			
		J.2.1	Initiate action to fully insert all rods.	48 hours	1
		AND			
		J.2.2	Place the Rod Control System in a condition incapable of rod withdrawal.	49 hours	
	K. One channel inoperable.		- NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.		1
		K.1	Place channel in trip.	6 hours	
		OR			

<TSTF - 418 not shown> (25)

RTS Instrumentation
3.3.1

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	K.2	Reduce THERMAL POWER to < P-7.	12 hours
L. One Reactor Coolant Pump Breaker Position channel inoperable.		- NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.	
	L.1	Restore channel to OPERABLE status.	6 hours
	OR		
	L.2	Reduce THERMAL POWER to < P-8.	10 hours
M. One Turbine Trip channel inoperable.		- NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.	
	M.1	Place channel in trip.	6 hours
	OR		
	M.2	Reduce THERMAL POWER to < [P-9].	10 hours

(1) (1) (1)

<TSTF-418 not shown> (25)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
(Table 3.3-1 Action 1) (J) N. One train inoperable.	- NOTE - One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.	(1) (16)
	(J) N.1 Restore train to OPERABLE status.	6 hours (24) (6) (7) (TSTF-418) (1)
	OR	
	N.2 Be in MODE 3.	12 hours (1)
(Table 3.3-1 Action 15) (K) O. One RTB train inoperable.	- NOTE - 1. One train may be bypassed for up to (4) 2 hours for surveillance testing, provided the other train is OPERABLE.	(1) (16) (TSTF-411) (TSTF-411)
(Table 3.3-1 Action 13)	2. One RTB may be bypassed for up to 2 hours for maintenance on undervoltage or shunt trip mechanisms, provided the other train is OPERABLE.	(TSTF-411)
	(K) O.1 Restore train to OPERABLE status.	1 hour (24 hours) (TSTF-411) (1)
	OR	
	O.2 Be in MODE 3.	7 hours (1)

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 <TSTF-418 not shown> (25)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
DOC L.8 (L) ~~P~~. One or more channels inoperable.	~~P~~ (L).1 Verify interlock is in required state for existing unit conditions.	1 hour (1)
	~~OR~~	
	~~P.2 Be in MODE 3.~~	~~7 hours~~ (1)
~~Q. One or more channels inoperable.~~	~~Q.1 Verify interlock is in required state for existing unit conditions.~~	~~1 hour~~ (1)
	~~OR~~	
	~~Q.2 Be in MODE 2.~~	~~7 hours~~
Table 3.3-1 Action 13 (M) ~~R~~. One trip mechanism inoperable for one RTB.	~~R~~ (M).1 Restore inoperable trip mechanism to OPERABLE status.	48 hours (1)
	~~OR~~	
	~~R.2 Be in MODE 3.~~	~~54 hours~~ (1)

INSERT 2 (1)

SURVEILLANCE REQUIREMENTS

4.3.1.1.1

- NOTE -
Refer to Table 3.3.1-1 to determine which SRs apply for each RTS Function.

Table 4.3-1, Functions 2, 5-15

SURVEILLANCE		FREQUENCY
SR 3.3.1.1	Perform CHANNEL CHECK.	12 hours

CTS

(1) INSERT 2

CTS	Condition	Required Action		Completion Time
DOC M.7	N. Required Action and associated Completion Time of Condition D not met for Function 8.a, 9, 10, 11, 12, 13, 16.a, or 16.b.	N.1	Reduce THERMAL POWER to < P-7.	6 hours
DOC L.8	O. Required Action and associated Completion Time of Condition L not met for Function 18.b, 18.c, or 18.e.	O.1	Be in MODE 2.	6 hours
Table 3.3-1 Actions 1, 12, and 15	P. Required Action and associated Completion Time of Condition B, J, K, or M not met in MODE 1 or 2.	P.1	Be in MODE 3.	6 hours
	<u>OR</u>			
DOC M.4	Required Action and associated Completion Time of Condition C not met.			
	<u>OR</u>			
DOC M.7	Required Action and associated Completion Time of Condition D not met for Function 2.b, 3.a, 3.b, 6, 7, 8.b, 14, or 15.			
	<u>OR</u>			
DOC L.8	Required Action and associated Completion Time of Condition L not met for Function 18.a or 18.d.			

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CTS

(1) **INSERT 2 (continued)**

CTS	CONDITION	REQUIRED ACTION	COMPLETION TIME
Table 3.3-1 Actions 12 and 14	Q. Required Action and associated Completion Time of Condition B not met in MODE 3, 4, or 5.	Q.1 Initiate action to fully insert all rods.	Immediately
		AND	
	OR	Q.2 Place the Rod Control System in a condition incapable of rod withdrawal.	1 hour
DOC L.8	Required Action and associated Completion Time of Condition L not met in MODE 3, 4, or 5 for Function 18.a.		
	OR		
Table 3.3-1 Action 4	Required Action and associated Completion Time of Condition I not met.		

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SURVEILLANCE REQUIREMENTS (continued)

CTS		SURVEILLANCE	FREQUENCY	
Table 4.3-1 Function 2, including Notes 2 and 8	SR 3.3.1.2	- NOTES - 1. Adjust NIS channel if absolute difference is > 2%. 2. Not required to be performed until [12] hours after THERMAL POWER is ≥ 15% RTP. Compare results of calorimetric heat balance calculation to Nuclear Instrumentation System (NIS) channel output.	24 hours	(7) TSTF-371 not shown (26)
Table 4.3-1 Function 2, including Notes 3 and 8	SR 3.3.1.3	- NOTES - 1. Adjust NIS channel if absolute difference is ≥ 3%. 2. Not required to be performed until [24] hours after THERMAL POWER is ≥ [15]% RTP. Compare results of the incore detector measurements to NIS AFD.	31 effective full power days (EFPD)	(7)
Table 4.3-1 Functions 21.A, 21.B, and 23, including Notes 5 and 12	SR 3.3.1.4	- NOTE - This Surveillance must be performed on the reactor trip bypass breaker prior to placing the bypass breaker in service. Perform TADOT.	~~31~~ 62 days on a STAGGERED TEST BASIS	TSTF-411
Table 4.3-1 Function 22, including Note 15, 4.3.1.1.2	SR 3.3.1.5	Perform ACTUATION LOGIC TEST.	~~31~~ 92 days on a STAGGERED TEST BASIS	TSTF-411

INSERT 3 (8)

3.3.1

CTS

(8) **INSERT 3**

CTS			
Table 4.3-1 Function 19, including Note 15	SR 3.3.1.6	Perform TADOT.	92 days on a STAGGERED TEST BASIS

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SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
DOC M. 13 SR 3.3.1.6 (7)	- NOTE - Not required to be performed until 24 hours after THERMAL POWER is ≥ 50% RTP. Calibrate excore channels to agree with incore detector measurements.	92 EFPD (7) (8)
Table 4.3-1 Functions 2.a, 2.b, 3, 4 SR 3.3.1.7 (8)	- NOTE - Not required to be performed for source range instrumentation prior to entering MODE 3 from MODE 2 until 4 hours after entry into MODE 3. (9) [For Function 2.b, until 12 hours after THERMAL POWER is below the P-10 interlock.] Perform COT.	92 days (184) (92) (7) TSTF-411

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INSERT 4 (8) (9)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.8 (11)	- NOTE - This Surveillance shall include verification that interlocks P-6 and P-10 are in their required state for existing unit conditions. (5) (10) Perform COT. INSERT 5 (9)	- NOTE - Only required when not performed within previous [92] days (9) Prior to reactor startup AND Four hours after reducing power below P-6 for source range instrumentation (9) AND [Twelve] hours after reducing power below P-10 for power and intermediate range instrumentation (9) AND Every 92 days thereafter (184) (TSTF-411)
SR 3.3.1.9 (10)	- NOTE - Verification of setpoint is not required. (3) (relay) Perform TADOT.	92 days (7) (28) (27)

INSERT 5A (8)

Table 4.3-1 Functions 5 through 12, 14, and 15

Table 4.3-1 Functions 16 and 17

(8) **INSERT 4**

Table 4.3-1 Function 2, including Note 6	SR 3.3.1.9	-NOTE- Neutron detectors are excluded from CHANNEL CALIBRATION. Perform CHANNEL CALIBRATION.	92 days

(9) **INSERT 5**

1. For Function 4, not required to be performed until 12 hours after THERMAL POWER is below the P-10 interlock.

2 For Function 5, not required to be performed until 4 hours after THERMAL POWER is below the P-6 interlock.

(8) **INSERT 5A**

Table 4.3-1 Function 16, DOC M.16	SR 3.3.1.12	Perform CHANNEL CALIBRATION.	184 days

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(9)

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE		FREQUENCY
Table 4.3-1 Functions 9 through 17, 4.3.1.1.2, DOC M.14	SR 3.3.1.10 (13)	- NOTE - This Surveillance shall include verification that the time constants are adjusted to the prescribed values. (11) Perform CHANNEL CALIBRATION.	(24) 18 months (7) (8)
Table 4.3-1 Functions 3 through 6, including Note 6, 4.3.1.1.2	SR 3.3.1.11 (14)	- NOTE - Neutron detectors are excluded from CHANNEL CALIBRATION. Perform CHANNEL CALIBRATION.	(24) 18 months (7) (8)
Table 4.3-1 Functions 7 and 8 and Note 9	SR 3.3.1.12 (15)	- NOTE - (5) (6) This Surveillance shall include verification of Reactor Coolant System resistance temperature detector bypass loop flow rate. INSERT 6 (9) Perform CHANNEL CALIBRATION.	(24) 18 months (7) (8)
4.3.1.1.2	SR 3.3.1.13 (16)	Perform COT.	18 months (24) (7) (8)
Table 4.3-1 Functions 1, 19, including Note 4, and 20	SR 3.3.1.14 (17)	- NOTE - Verification of setpoint is not required. (21) Perform TADOT.	(24) 18 months (7) (8)
Table 4.3-1 Functions 18.a and 18.b	SR 3.3.1.15 (18)	- NOTE - Verification of setpoint is not required. Perform TADOT.	Prior to exceeding the P-9 (P-7) interlock whenever the unit has been in MODE 3, if not performed within the previous 31 days (7) (8)

(9) **INSERT 6**

2. Normalization of the ΔT is not required to be performed until 72 hours after THERMAL POWER is ≥ 98% RTP.

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4.3.1.1.3

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.1.16 (19)	- NOTE - Neutron detectors are excluded from response time testing.	(8)
	Verify RTS RESPONSE TIME is within limits.	(18) (24) (7) months on a STAGGERED TEST BASIS

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Table 3.3.1-1 (page 1 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
1. Manual Reactor Trip	1,2	2	B	SR 3.3.1.14	NA	NA
	3(a), 4(a), 5(a)	2	C	SR 3.3.1.14	NA	NA
2. Power Range Neutron Flux						
a. High	1,2	4	D	SR 3.3.1.1 SR 3.3.1.2 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ [111.2]% RTP	[109]% RTP
b. Low	1(b),2	4	E	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ [27.2]% RTP	[25]% RTP
3. Power Range Neutron Flux Rate						
a. High Positive Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11	≤ [6.8]% RTP with time constant ≥ [2] sec	[5]% RTP with time constant ≥ [2] sec
b. High Negative Rate	1,2	4	E	SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ [6.8]% RTP with time constant ≥ [2] sec	[5]% RTP with time constant ≥ [2] sec
4. Intermediate Range Neutron Flux	1(b), 2(c)	2	F,G	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11	≤ [31]% RTP	[25]% RTP
5. Source Range Neutron Flux	2(d)	2	H,I	SR 3.3.1.1 SR 3.3.1.8 SR 3.3.1.11 SR 3.3.1.16	≤ [1.4 E5] cps	[1.0 E5] cps
	3(a), 4(a), 5(a)	2	I,J	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.11 SR 3.3.1.16	≤ [1.4 E5] cps	[1.0 E5] cps

(a) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(b) Below the P-10 (Power Range Neutron Flux) interlock.

(c) Above the P-6 (Intermediate Range Neutron Flux) interlock.

(d) Below the P-6 (Intermediate Range Neutron Flux) interlock.

⟨TSTF-418 not shown⟩ (25)

CTS Tables 3.3-1 4.3-1 2.2-1

Table 3.3.1-1 (page 2 of 6)
Reactor Trip System Instrumentation

CTS	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS (7)	CONDITIONS (1)	SURVEILLANCE REQUIREMENTS (8)	ALLOWABLE VALUE (7)	NOMINAL TRIP SETPOINT (12)
(7) (7) (7)	6. Overtemperature ΔT	1,2	[4]	D E	SR 3.3.1.1 SR 3.3.1.3 SR 3.3.1.6 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10	Refer to Note 1 (Page 3.3.1-16)	Refer to Note 1 (Page 3.3.1-16)
(8) (8) (8)	7. Overpower ΔT	1,2	[4]	D E	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10	Refer to Note 2 (Page 3.3.1-17) 1868 (Unit 1) and 1930 (Unit 2)	Refer to Note 2 (Page 3.3.1-17)
	8. Pressurizer Pressure						
(9) (9) (9)	a. Low	1(g) (e)	[4]	E K D	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10	≥ [1886] psig 2390 (Unit 1) and 2306 (Unit 2)	[1900] psig
(10) (10) (10)	b. High	1,2	[4]	E D	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.9 SR 3.3.1.10	≤ [2396] psig 93.4 (Unit 1) and 92.3 (Unit 2)	[2385] psig
(11) (11) (11)	9. Pressurizer Water Level - High	1(e)	3	D K	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 (SR 3.3.1.19)	≤ [93.8]%	[92]%
(12, 13) (12, 13) (12)	10. Reactor Coolant Flow - Low (per loop)	1(f) (e)	3 per loop	E D	SR 3.3.1.1 SR 3.3.1.7 SR 3.3.1.10 SR 3.3.1.15	≥ [89.2]% 89.6	[90]%
(20) (20) (19)	11. Reactor Coolant Pump (RCP) Breaker Position						
	a. Single Loop	1(f) (e)	1 per RCP	L D	SR 3.3.1.14	NA	NA
	~~b. Two Loops~~	~~1(g)~~	~~1 per RCP~~	~~K~~	~~SR 3.3.1.14~~	~~NA~~	NA

Handwritten annotation circles in table: (7), (11), (13), (15), (16), (17), (19), (5) next to entries.

Table 3.3-1 P-7 — (e) Above the P-7 (Low Power Reactor Trips Block) interlock.

~~(f) Above the P-8 (Power Range Neutron Flux) interlock.~~ (15)

~~(g) Above the P-7 (Low Power Reactor Trips Block) interlock and below the P-8 (Power Range Neutron Flux) interlock~~ (15)

<TSTF - 418 not shown> (25)

CTS
Tables
3-1 4.3-1 2.2-1

Table 3.3.1-1 (page 3 of 6)
Reactor Trip System Instrumentation

CTS	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
16) (16) (15)	12. Undervoltage RCPs	1[e]	[1] per bus	H	SR 3.3.1.9, SR 3.3.1.10, SR 3.3.1.16	≥ [4760] V	[4830] V
17) (17) (16)	13. Underfrequency RCPs	1[e]	[1] per bus	H	SR 3.3.1.9, SR 3.3.1.10, SR 3.3.1.16	≥ [57.1] Hz	[57.5] Hz
4) (14) (13)	14. Steam Generator (SG) Water Level - Low Low	1,2	3 per SG	E	SR 3.3.1.1, SR 3.3.1.7, SR 3.3.1.10, SR 3.3.1.16	≥ [30.4]%	[32.3]%
5) (15) (14)	15. SG Water Level - Low	1,2	2 per SG	E	SR 3.3.1.1, SR 3.3.1.7, SR 3.3.1.10, SR 3.3.1.16	≥ [30.4]%	[32.3]%
	Coincident with Steam Flow/ Feedwater Flow Mismatch	1,2	2 per SG	E	SR 3.3.1.1, SR 3.3.1.7, SR 3.3.1.10, SR 3.3.1.16	≤ [42.5]% full steam flow at RTP	[40]% full steam flow at RTP
	16. Turbine Trip						
8A) (18A) (17A)	a. Low Fluid Oil Pressure	1[e]	3	M	SR 3.3.1.10, SR 3.3.1.15	≥ [750] psig	[800] psig
8B) (18B) (17B)	b. Turbine Stop Valve Closure	1[e]	4	M	SR 3.3.1.10, SR 3.3.1.15	≥ [1]% open	[1]% open
19) (19) (18)	17. Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)	1,2	2 trains	N	SR 3.3.1.14	NA	NA

Table 3.3-1 P-7 — (e) Above the P-7 (Low Power Reactor Trips Block) interlock.

(h) Above the P-9 (Power Range Neutron Flux) interlock. (18)

2725 (Unit 1) and 2870 (Unit 2); 57.01; 4.0 (Unit 1) and 20.8 (Unit 2); 9.7 (Unit 1) and 25.0 (Unit 2); (per SG) (5); (per train); SR 3.3.1.19; 0.73 E6 lb/hr (Unit 1) and 1.56 E6 lb/hr (Unit 2); (Unit 1) and ≥ 57 psig (Unit 2); (7); (1); (8); (12); (D); (13); (J); (e); (18)

<TSTF-418 not shown> (25)

CTS

Tables 3.3-1 4.3-1 2.2-1

Table 3.3.1-1 (page 4 of 6)
Reactor Trip System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT[a]
18. Reactor Trip System Interlocks						
a. Intermediate Range Neutron Flux, P-6	2[d]	2	S	SR 3.3.1.11 SR 3.3.1.13	≥ [6E-11] amp	[1E-10] amp
b. Low Power Reactor Trips Block, P-7	1	1 per train	T	SR 3.3.1.11 SR 3.3.1.13	NA	NA
c. Power Range Neutron Flux, P-8	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ [50.2]% RTP	[48]% RTP
d. Power Range Neutron Flux, P-9	1	4	T	SR 3.3.1.11 SR 3.3.1.13	≤ [52.2]% RTP	[50]% RTP
e. Power Range Neutron Flux, P-10	1,2	4	S	SR 3.3.1.11 SR 3.3.1.13	≥ [7.8]% RTP and ≤ [12.2]% RTP	[10]% RTP
f. Turbine Impulse Pressure, P-13	1	2	T	SR 3.3.1.1 SR 3.3.1.10 SR 3.3.1.13	≤ [12.2]% turbine power	[10]% turbine power
19. Reactor Trip Breakers[e] (RTBs)	1,2	2 trains	R	SR 3.3.1.4	NA	NA
	3[b], 4[b], 5[b]	2 trains	C	SR 3.3.1.4	NA	NA
20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms	1,2	1 each per RTB	U	SR 3.3.1.4	NA	NA
	3[b], 4[b], 5[b]	1 each per RTB	C	SR 3.3.1.4	NA	NA
21. Automatic Trip Logic	1,2	2 trains	Q	SR 3.3.1.5	NA	NA
	3[b], 4[b], 5[b]	2 trains	C	SR 3.3.1.5	NA	NA

(b) With Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

(d) Below the P-6 (Intermediate Range Neutron Flux) Interlocks.

(e) Including any reactor trip bypass breakers that are racked in and closed for bypassing an RTB.

- REVIEWER'S NOTE -
(a) Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.

37 psig (unit 1) and 51 psig (unit 2)

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Table 3.3.1-1 (page 5 of 6)
Reactor Trip System Instrumentation

CTS

Table 2.1-1 Notes 1 and 3

Note 1: Overtemperature ΔT

The Overtemperature ΔT Function Allowable Value shall not exceed the following nominal Trip Setpoint by more than 3.8% of ΔT span. 0.008 (Unit 1) and 0.012 (Unit 2) 7

$$\Delta T\frac{(1+\tau_1 s)}{(1+\tau_2 s)}\left(\frac{1}{1+\tau_3 s}\right) \le \Delta T_0\left\{K_1 - K_2\frac{(1+\tau_4 s)}{(1+\tau_5 s)}\left[T\frac{1}{(1+\tau_6 s)} - T'\right] + K_3(P-P') - f_1(\Delta I)\right\}$$ 20

Where: ΔT is measured RCS ΔT, °F. 20
ΔT_0 is the indicated ΔT at RTP, °F.
s is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature, °F.
T' is the nominal T_{avg} at RTP, ≤ [*]°F.

P is the measured pressurizer pressure, psig
P' is the nominal RCS operating pressure, ≥ [*] psig

K_1 ≤ [*]	K_2 ≥ [*]/°F	K_3 ≥ [*]/psig
τ_1 ≥ [*] sec	τ_2 ≤ [*] sec	τ_3 ≤ [*] sec
τ_4 ≥ [*] sec	τ_5 ≤ [*] sec	τ_6 ≤ [*] sec

20

$f_1(\Delta I)$ = [*] {[*] + $(q_t - q_b)$} when $q_t - q_b$ ≤ - [*]% RTP
0% of RTP when -[*]% RTP < $q_t - q_b$ ≤ [*]% RTP
-[*] {$(q_t - q_b)$ - [*]} when $q_t - q_b$ > [*]% RTP

Where q_t and q_b are percent RTP in the upper and lower halves of the core, respectively, and $q_t + q_b$ is the total THERMAL POWER in percent RTP.

*These values denoted with [*] are specified in the COLR.

Table 3.3.1-1 (page 6 of 6)
Reactor Trip System Instrumentation

CTS
Table 2.1-1
Notes 2 and 4

Note 2: Overpower ΔT

The Overpower ΔT Function Allowable Value shall not exceed the following nominal Trip Setpoint by more than [3]% of ΔT span. 0.037 (Unit 1) and 0.138 (Unit 2) (7)

$$\Delta T \frac{(1+\tau_1 s)}{(1+\tau_2 s)}\left(\frac{1}{1+\tau_3 s}\right) \le \Delta T_0 \left\{K_4 - K_5 \frac{\tau_7 s}{1+\tau_7 s}\left(\frac{1}{1+\tau_6 s}\right) T - K_6\left[T\frac{1}{1+\tau_6 s} - T''\right] - f_2(\Delta I)\right\}$$ (20)

Where: ΔT is measured RCS ΔT, °F.
ΔT_0 is the indicated ΔT at RTP, °F.
s is the Laplace transform operator, sec^{-1}.
T is the measured RCS average temperature, °F.
T″ is the nominal T_{avg} at RTP, ≤ [*]°F.

K_4 ≤ [*]

K_5 ≥ [*]/°F for increasing T_{avg}
[*]/°F for decreasing T_{avg}

K_6 ≥ [*]/°F when T > T″
[*]/°F when T ≤ T″

τ_1 ≥ [*] sec τ_2 ≤ [*] sec
τ_6 ≤ [*] sec τ_7 ≥ [*] sec
τ_3 ≤ [*] sec (20)

$f_2(\Delta I)$ = [*]

*These values denoted with [*] are specified in the COLR.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

1. ISTS 3.3.1 ACTIONS B, C, D, E, J, K, L, M, N, O, P, Q, and R provide Required Actions and associated Completion Times for various RTS instrumentation inoperabilities. Each of these ACTIONS include Required Actions to either trip a channel or restore a channel to OPERABLE status (depending on the associated RTS Instrumentation Function). Each of these ACTIONS also include Required Actions that require placing the unit outside the applicable MODE or condition of the associated RTS Instrumentation Function (i.e., default Required Action). In each of these ACTIONS, the Required Actions to restore or trip the affected channels are connected to the default Required Action by the logical connector "OR." The Completion Times for the Required Actions to restore or trip affected channels are inconsistent with the Completion Times for the default Required Actions. This presentation is inconsistent with the format and convention used in all but one other specification in ISTS 3.3, all other sections of the ISTS, and other NSSS vendor ISTS (e.g., NUREG-1433, Revision 2 and NUREG-1434, Revision 2). This presentation can also cause confusion with respect to the correct application of the requirements of ISTS Section 3.0, "LCO Applicability." For example, ISTS LCO 3.0.4 includes an exception that allows entry into an applicable MODE or other specified condition when an LCO is not met if the ACTIONS permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. However, with an ACTION that includes both the Required Action to trip a channel and the default Required Action to exit the applicable MODE, it could be argued that this ACTION would not allow continued operation. Therefore, these ACTIONS have been revised or deleted to eliminate the default Required Actions from the ACTIONS with Required Actions to restore or trip the affected channels. As a result, additional ACTIONS (ITS 3.3.1 ACTIONS N, O, P, and Q) have been added, which include the default Required Actions consistent with placing the unit outside the applicable MODE or other specified condition of the associated RTS Instrumentation Function. In addition, ISTS ACTIONS K, L, and M have been incorporated in ITS ACTION D since the bypass time and Completion Times are the same. Subsequent Conditions and Required Actions have been renumbered, as necessary.

2. ISTS 3.3.1 Functions 1 (Manual Reactor Trip), 19 (Reactor Trip Breakers (RTBs), 20 (Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms), and 21 (Automatic Trip Logic) during shutdown conditions require entry into ISTS 3.3.1 ACTION C. ISTS 3.3.1 ACTION C has been deleted based on the discussion in JFD 1 above. Since the Required Action and associated Completion Time of ISTS 3.3.1 Required Actions B.1 and C.1 are similar, ITS Table 3.3.1-1, for Functions 1, 19, 20, and 21, has been revised to require entry into ITS 3.3.1 ACTION B, instead of ISTS 3.3.1 ACTION C. Since ISTS 3.3.1-1 Functions 19 and 21 require "2 trains" to be OPERABLE, ISTS 3.3.1 ACTION B (ITS 3.3.1 ACTION B) has been revised to address an inoperable train.

3. The ISTS 3.3.1 ACTION E Note (ITS 3.3.1 ACTION D Note) has been modified to exclude Function 11 channels. This change is necessary since the 4 hour bypass time is not supported by WCAP-10271-A for the Function 11 channels.

4. ISTS 3.3.1 ACTION D (ITS 3.3.1 ACTION C) provides requirements for an inoperable Power Range Neutron Flux - High channel. ISTS 3.3.1 Required Actions D.1.2 , D.2.1, and D.2.2 include requirements that are essentially duplicative of the requirements in the Surveillance Requirements for ISTS 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)" (ITS 3.2.4). The intent of the Required Actions is to

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

ensure the requirements of ISTS 3.2.4 are not missed if a Power Range Neutron Flux input to QPTR is inoperable. However, it is not necessary to require THERMAL POWER to be reduced to ≤ 75% RTP. This reduction is not required provided ISTS SR 3.2.4.2 is performed, and ISTS SR 3.2.4.2 includes the necessary requirements concerning the reduction in power. Maintaining only the requirement to perform SR 3.2.4.2 (ISTS 3.3.1 Required Action D.2.2) is sufficient to cover the reduction in power requirement, therefore, ISTS 3.3.1 Required Actions D.1.2 and D.2.1 have been deleted. Furthermore, the Completion Time of ISTS Required Action D.2.2 (to perform SR 3.2.4.2) is "Once per 12 hours." However, this Completion Time is not consistent with the actual Surveillance Requirement Frequency in ISTS SR 3.2.4.2. Therefore, the Frequency for ISTS 3.3.1 Required Action D.2.2 (ITS 3.3.1 Required Action C.2) has been changed to "12 hours from discovery of THERMAL POWER > 75% RTP <u>AND</u> Once per 12 hours thereafter." This new Completion Time is consistent with the ISTS SR 3.2.4.2 (ITS SR 3.2.4.2) Frequency, as modified by the applicable Notes to the Surveillance Requirement.

5. The title of ISTS Table 3.3.1-1 Functions 10, 14, 15, and 16 have been revised to state "(per loop)" for Function 10, "(per SG)" for Functions 14 and 15, and "(per train)" for Function 16.b. This change effectively allows separate Condition entry for these Functions specified on a loop, steam generator, or train basis. In addition, the "per loop," "per SG," and "per train" terminology in the Required Channels column for these Functions has been deleted. This change is acceptable since the channels associated with each loop, steam generator, or train, as applicable, will provide the associated RTS trip based on the logic associated with the channels on the specified basis. This change has been made to be consistent with the allowances specified in the Bases for ISTS 3.3.2 for similar type Functions and to be consistent with current plant practice for these Functions.

6. TSTF-286, Rev. 2, was approved by the NRC on April 13, 2000. When NUREG-1431, Rev. 2, was issued, this TSTF was incorporated, but included a typographical error. Therefore, this change corrects the typographical error to be consistent with the approved TSTF-286, Rev. 2.

7. The brackets are removed and the proper plant specific information/value is provided.

8. ITS SR 3.3.1.6 (Perform TADOT once per 92 days on a STAGGERED TEST BASIS), SR 3.3.1.9 (Perform CHANNEL CALIBRATION once per 92 days) and ITS SR 3.3.1.12 (Perform CHANNEL CALIBRATION once per 184 days) have been added to ISTS 3.3.1 to be consistent with the CNP Units 1 and 2 CTS. Subsequent SRs have been renumbered, as necessary. In addition, an RTS RESPONSE TIME test (ITS SR 3.3.1.19) has been added for ITS Table 3.3.1-1 Function 17 (SI Input From ESFAS), consistent with the current licensing basis requirements.

9. The Notes in ISTS SR 3.3.1.7 and ISTS SR 3.3.1.8 provide allowances to enter the applicable MODES or other specified conditions without having performed the required COT. The allowances of these ISTS Notes have been incorporated into the ITS SR for performance of a COT for the intermediate range and source range neutron flux instrumentation (ITS SR 3.3.1.11, Notes 1 and 2) and for the power range neutron flux instrumentation (ITS SR 3.3.1.8 Note). A similar Note has also been provided for ISTS SR 3.3.1.12 (ITS SR 3.3.1.15) for ITS Table 3.3.1-1

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

Function 6 (Overtemperature ΔT) and Function 7 (Overpower ΔT), to reflect the CNP Units 1 and 2 CTS allowances and current practice. The Note will allow entry into MODES 1 and 2 without performing the normalization of ΔT portion of the CHANNEL CALIBRATION since normalization should be performed as close to rated conditions as possible. Performing the normalization at a lower condition (i.e., < 98% RTP) will not provide the required accuracy to meet the assumptions in the Allowable Value calculations. All other portions of the CHANNEL CALIBRATION will continue to be required prior to entering MODES 1 and 2.

10. The Note to ISTS SR 3.3.1.8 (ITS SR 3.3.1.11) associated with the verification that the P-6 and P-10 are in their required state for existing unit conditions has been deleted consistent with the CNP Units 1 and 2 CTS. This change is acceptable since these verifications are made more frequently since status of the interlocks is available in the control room. In addition, this type of verification is not normally part of a COT.

11. A Note to ISTS SR 3.3.1.10 requires the CHANNEL CALIBRATION to include verification that time constants are adjusted to the prescribed values. ITS SR 3.3.1.13 does not include this Note since it does not apply to any ITS Table 3.3.1-1 Functions that include time constants.

12. The Nominal Trip Setpoint column has been deleted as allowed by the Reviewer's Note at the end of ISTS Table 3.3.1-1. This Reviewer's Note allows the unit specific implementation to contain only the Allowable Value. The nominal trip setpoints for each of the applicable ITS Table 3.3.1-1 Functions will be controlled in accordance with the Note in the ISTS 3.3.1 Bases Background section.

13. ISTS SR 3.3.1.16 (ITS SR 3.3.1.19) requires verification that RTS RESPONSE TIME is within limits. This requirement has been deleted from ITS Table 3.3.1-1 Functions 3.b (Power Range Neutron Flux Rate - High Negative Rate), 5 (Source Range Neutron Flux), and 15 (SG Water Level - Low Coincident with Steam Flow/Feedwater Flow Mismatch) and has been added to Function 9 (Pressurizer Water Level - High). These changes are made to achieve consistency with the CNP Units 1 and 2 current licensing basis reflected in UFSAR Table 7.2-6.

14. Not used.

15. The Footnotes which modify the Applicability of ISTS Table 3.3.1-1 (ITS Table 3.3.1-1) Functions 8.a (Pressurizer Pressure - Low), 10 (Reactor Coolant Flow - Low), and 11 (Reactor Coolant Pump (RCP) Breaker Position) have been revised to be consistent with the CNP Units 1 and 2 current design and licensing basis. As a result of this change, ISTS Table 3.3.1-1 Footnotes (f) and (g) are deleted since they are not used. In addition, ISTS Table 3.3.1-1 Functions 11.a (Reactor Coolant Pump (RCP) Breaker Position Single Loop) and 11.b (Reactor Coolant Pump (RCP) Breaker Position Two Loop) requirements are revised into a single requirement (ITS Table 3.3.1-1 Function 11) to be consistent with the CNP Units 1 and 2 current design and licensing basis. Subsequent footnotes are renumbered, as necessary.

16. Editorial changes made for enhanced clarity or to be consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

17. The Applicability for the RTS P-6 Interlock Function has been revised to be consistent with the Functions it supports. The P-6 interlock prevents or defeats the manual block of the Source Range Neutron Flux reactor trip. The logic is such that both channels are required to defeat the block of the Source Range Neutron Flux reactor trip. Therefore, if any one of the two interlock channels are inoperable and not in the correct state, the Required Action should be consistent with ACTIONS for when two Source Range Neutron Flux reactor trip channels are inoperable. Therefore ISTS 3.3.1 Required Action P.2 (ITS 3.3.1 Required Actions Q.1 and Q.2) has been changed to reflect exiting the applicable MODE or other specified condition.

18. The P-9 Interlock Function and Footnotes referencing the P-9 Interlock Function have been deleted since the interlock does not apply to the RTS Instrumentation. The Applicable Modes for ITS Table 3.3.1-1 Functions 16.a (Turbine Trip - Low Fluid Oil Pressure) and 16.b (Turbine Trip - Turbine Stop Valve Closure) have been corrected as necessary to reflect the unit design. Subsequent Functions and Footnotes have been renumbered, as necessary.

19. The Reviewer's Note has been deleted since it is not intended to be included in the ITS.

20. Changes to the ISTS Table 3.3.1-1 (ITS Table 3.3.1-1) Note 1 (the Overtemperature ΔT Allowable Value) and Note 2 (Overpower ΔT Allowable Value) have been made to be consistent with the CNP Units 1 and 2 CTS.

21. ISTS SR 3.3.1.14 (ITS SR 3.3.1.17) requires the performance of a TADOT for ISTS Table 3.3.1-1 (ITS Table 3.3.1-1) Functions 1 (Manual Reactor Trip), 11 (Reactor Coolant Pump (RCP) Breaker Position), and 17 (Safety Injection (SI) Input from Engineered Safety Feature Actuation System (ESFAS)). ISTS SR 3.3.1.14 is modified by a Note, which states "Verification of setpoint is not required." ITS Table 3.3.1-1 Functions 1, 11, and 17 do not have required setpoints. The ISTS definition of TADOT states "The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy." Since no required setpoints apply for ITS Table 3.3.1-1 Functions 1, 11, and 17, the TADOT definition does not require verification of setpoints. Therefore, the Note to ISTS SR 3.3.1.14 is unnecessary and has been deleted.

22. Not used.

23. Not used.

24. Not used.

25. TSTF-418, Rev. 2, which incorporates WCAP-14333, has not been adopted.

26. Approved TSTF-371, Rev. 1 provided a less restrictive change to ISTS SR 3.3.1.2 and ISTS SR 3.3.1.3 that would allow the acceptance criteria for the Nuclear Instrumentation System to be changed from ± 2% RTP to + 2% RTP. The TSTF required a plant-specific evaluation. This has not been performed for CNP, thus this less restrictive change is not being adopted.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

27. ISTS SR 3.3.1.8 has been renumbered as ITS SR 3.3.1.11 because the Frequency associated with ISTS SR 3.3.1.9 (ITS SR 3.3.1.10) is less than the Frequency of ITS SR 3.3.1.11.

28 The Note has been revised consistent with the Note in ITS SR 3.3.2.5, which performs a TADOT on the actual or similar instruments. This is also consistent with the current licensing basis.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.1 Reactor Trip System (RTS) Instrumentation

BASES

BACKGROUND

The RTS initiates a unit shutdown, based on the values of selected unit parameters, to protect against violating the core fuel design limits and Reactor Coolant System (RCS) pressure boundary during anticipated operational occurrences (AOOs) and to assist the Engineered Safety Features (ESF) Systems in mitigating accidents. transients ①

The protection and monitoring systems have been designed to assure safe operation of the reactor. This is achieved by specifying limiting safety system settings (LSSS) in terms of parameters directly monitored by the RTS, as well as specifying LCOs on other reactor system parameters and equipment performance.

Technical specifications are required by 10 CFR 50.36 to contain LSSS defined by the regulation as "...settings for automatic protective devices...so chosen that automatic protective action will correct the abnormal situation before a Safety Limit (SL) is exceeded." The Analytic Limit is the limit of the process variable at which a safety action is initiated, as established by the safety analysis, to ensure that a SL is not exceeded. Any automatic protection action that occurs on reaching the Analytic Limit therefore ensures that the SL is not exceeded. However, in practice, the actual settings for automatic protective devices must be chosen to be more conservative than the Analytic Limit to account for instrument loop uncertainties related to the setting at which the automatic protective action would actually occur. ② (A) ⑥

The Trip Setpoint is a predetermined setting for a protective device chosen to ensure automatic actuation prior to the process variable reaching the Analytic Limit and thus ensuring that the SL would not be exceeded. As such, the Trip Setpoint accounts for uncertainties in setting the device (e.g., calibration), uncertainties in how the device might actually perform (e.g., repeatability), changes in the point of action of the device over time (e.g., drift during surveillance intervals), and any other factors which may influence its actual performance (e.g., harsh accident environments). In this manner, the Trip Setpoint plays an important role in ensuring that SLs are not exceeded. As such, the Trip Setpoint meets the definition of an LSSS (Ref. 10) and could be used to meet the requirement that they be contained in the technical specifications. (Ref. 1) ② ② ⑤ ② ② ④

Technical specifications contain values related to the OPERABILITY of equipment required for safe operation of the facility. OPERABLE is ②

BASES

BACKGROUND (continued)

defined in technical specifications as "...being capable of performing its safety functions(s)." For automatic protective devices, the required safety function is to ensure that a SL is not exceeded and therefore the LSSS as defined by 10 CFR 50.36 is the same as the OPERABILITY limit for these devices. However, use of the Trip Setpoint to define OPERABILITY in technical specifications and its corresponding designation as the LSSS required by 10 CFR 50.36 would be an overly restrictive requirement if it were applied as an OPERABILITY limit for the "as found" value of a protective device setting during a surveillance. This would result in technical specification compliance problems, as well as reports and corrective actions required by the rule which are not necessary to ensure safety. For example, an automatic protective device with a setting that has been found to be different from the Trip Setpoint due to some drift of the setting may still be OPERABLE since drift is to be expected. This expected drift would have been specifically accounted for in the setpoint methodology for calculating the Trip Setpoint and thus the automatic protective action would still have ensured that the SL would not be exceeded with the "as found" setting of the protective device. Therefore, the device would still be OPERABLE since it would have performed its safety function and the only corrective action required would be to reset the device to the Trip Setpoint to account for further drift during the next surveillance interval. (2)

Use of the Trip Setpoint to define "as found" OPERABILITY and its designation as the LSSS under the expected circumstances described above would result in actions required by both the rule and technical specifications that are clearly not warranted. However, there is also some point beyond which the device would have not been able to perform its function due, for example, to greater than expected drift. This value needs to be specified in the technical specifications in order to define OPERABILITY of the devices and is designated as the Allowable Value which, as stated above, is the same as the LSSS. (2)

The Allowable Value specified in Table 3.3.1-1 serves as the LSSS such that a channel is OPERABLE if the trip setpoint is found not to exceed the Allowable Value during the CHANNEL OPERATIONAL TEST (COT). As such, the Allowable Value differs from the Trip Setpoint by an amount primarily equal to the expected instrument loop uncertainties, such as drift, during the surveillance interval. In this manner, the actual setting of the device will still meet the LSSS definition and ensure that a Safety Limit is not exceeded at any given point of time as long as the device has not drifted beyond that expected during the surveillance interval. Note that, although the channel is "OPERABLE" under these circumstances, (2)

BASES

BACKGROUND (continued)

the trip setpoint should be left adjusted to a value within the established trip setpoint calibration tolerance band, in accordance with uncertainty assumptions stated in the referenced setpoint methodology (as-left criteria), and confirmed to be operating within the statistical allowances of the uncertainty terms assigned. If the actual setting of the device is found to have exceeded the Allowable Value the device would be considered inoperable from a technical specification perspective. This requires corrective action including those actions required by 10 CFR 50.36 when automatic protective devices do not function as required. (2)

[Note: Alternatively, a TS format incorporating an Allowable Value only column may be proposed by a licensee. In this case the trip setpoint value of Table 3.3.1-1 is located in the TS Bases or in a licensee-controlled document outside the TS. Changes to the trip setpoint value would be controlled by 10 CFR 50.59 or administratively as appropriate, and adjusted per the setpoint methodology and applicable surveillance requirements. At their option, the licensee may include the trip setpoint in Table 3.3.1-1 as shown, or as suggested by the licensees' setpoint methodology or license.] (3)

anticipated operational transients

During AOOs, which are those events expected to occur one or more times during the unit life, the acceptable limits are: (1)

1. The Departure from Nucleate Boiling Ratio (DNBR) shall be maintained above the Safety Limit (SL) value to prevent departure from nucleate boiling (DNB), (11)

2. Fuel centerline melt shall not occur, and (11)

3. The RCS pressure SL of 2750 psia shall not be exceeded.

Operation within the SLs of Specification 2.0, "Safety Limits (SLs)," also maintains the above values and assures that offsite dose will be within the 10 CFR 50 and 10 CFR 100 criteria during AOOs. (1)

Accidents are events that are analyzed even though they are not expected to occur during the unit life. The acceptable limit during accidents is that offsite dose shall be maintained within an acceptable fraction of 10 CFR 100 limits. Different accident categories are allowed a different fraction of these limits, based on probability of occurrence. Meeting the acceptable dose limit for an accident category is considered having acceptable consequences for that event.

BASES

BACKGROUND (continued)

The RTS instrumentation is segmented into four distinct but interconnected modules as illustrated in Figure [ ], FSAR, Chapter [7] (Ref. 4), and as identified below:

1. Field transmitters or process sensors: provide a measurable electronic signal based upon the physical characteristics of the parameter being measured;

2. Signal Process Control and Protection System, including Analog Protection System, Nuclear Instrumentation System (NIS), field contacts, and protection channel sets: provides signal conditioning, bistable setpoint comparison, process algorithm actuation, compatible electrical signal output to protection system devices, and control board/control room/miscellaneous indications;

3. Solid State Protection System (SSPS), including input, logic, and output bays: initiates proper unit shutdown and/or ESF actuation in accordance with the defined logic, which is based on the bistable outputs from the signal process control and protection system; and

4. Reactor trip switchgear, including reactor trip breakers (RTBs) and bypass breakers: provides the means to interrupt power to the control rod drive mechanisms (CRDMs) and allows the rod cluster control assemblies (RCCAs), or "rods," to fall into the core and shut down the reactor. The bypass breakers allow testing of the RTBs at power.

<u>Field Transmitters or Sensors</u>

To meet the design demands for redundancy and reliability, more than one, and often as many as four, field transmitters or sensors are used to measure unit parameters. To account for the calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the trip setpoint and Allowable Values. The OPERABILITY of each transmitter or sensor is determined by either "as-found" calibration data evaluated during the CHANNEL CALIBRATION or by qualitative assessment of field transmitter or sensor as related to the channel behavior observed during performance of the CHANNEL CHECK.

BASES

BACKGROUND (continued)

Signal Process Control and Protection System

Generally, three or four channels of process control equipment are used for the signal processing of unit parameters measured by the field instruments. The process control equipment provides signal conditioning, comparable output signals for instruments located on the main control board, and comparison of measured input signals with setpoints established by safety analyses. These setpoints are defined in FSAR Chapter [7] (Ref. 1), Chapter [6] (Ref. 2), and Chapter [15] (Ref. 3). If the measured value of a unit parameter exceeds the predetermined setpoint, an output from a bistable is forwarded to the SSPS for decision evaluation. Channel separation is maintained up to and through the input bays. However, not all unit parameters require four channels of sensor measurement and signal processing. Some unit parameters provide input only to the SSPS, while others provide input to the SSPS, the main control board, the unit computer, and one or more control systems. INSERT 1 (1)

Generally, if a parameter is used only for input to the protection circuits, three channels with a two-out-of-three logic are sufficient to provide the required reliability and redundancy. If one channel fails in a direction that would not result in a partial Function trip, the Function is still OPERABLE with a two-out-of-two logic. If one channel fails, such that a partial Function trip occurs, a trip will not occur and the Function is still OPERABLE with a one-out-of-two logic.

Generally, if a parameter is used for input to the SSPS and a control function, four channels with a two-out-of-four logic are sufficient to provide the required reliability and redundancy. The circuit must be able to withstand both an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. Again, a single failure will neither cause nor prevent the protection function actuation. These requirements are described in IEEE-279-1971 (Ref. 4). INSERT 2 (1) The actual number of channels required for each unit parameter is specified in Reference 4. 5 (1)

Two logic channels are required to ensure no single random failure of a logic channel will disable the RTS. The logic channels are designed such that testing required while the reactor is at power may be accomplished without causing trip. Provisions to allow removing logic channels from service during maintenance are unnecessary because of the logic system's designed reliability.

(1) **INSERT 1**

the Technical Requirements Manual (Ref. 3)

(1) **INSERT 2**

Where a unit condition that requires protective action can be brought on by a failure or malfunction of the control system, and the same failure or malfunction prevents proper action of a protection system channel or channels designed to protect against the resultant unsafe condition, the remaining portions of the protection system shall be independently capable of withstanding a single failure and automatically initiating appropriate protective action. This is described in Reference 4. The protection system is designed to be independent of the status of the control system. However, the control system does derive signals from the protection systems through isolation amplifiers, which are part of the protection system. The isolation amplifiers prevent perturbation of the protection signal (input) due to disturbances of the isolated signal (output) which could occur near any termination of the output wiring external to the protection and safeguards racks. As such, other acceptable logic designs (e.g., two-out-of-three logic) exist for parameters that are used as inputs to SSPS and a control function.

BASES

BACKGROUND (continued)

Allowable Values and RTS Setpoints

The trip setpoints used in the bistables are based on the analytical limits stated in Reference 6. The selection of these trip setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those RTS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 6), the Allowable Values specified in Table 3.3.1-1 in the accompanying LCO are conservative with respect to the analytical limits. A detailed description of the methodology used to calculate the Allowable Value and trip setpoints, including their explicit uncertainties, is provided in the "RTS/ESFAS Setpoint Methodology Study" (Ref. 8) which incorporates all of the known uncertainties applicable to each channel. The magnitudes of these uncertainties are factored into the determination of each trip setpoint and corresponding Allowable Value. The trip setpoint entered into the bistable is more conservative than that specified by the Allowable Value (LSSS) to account for measurement errors detectable by the COT. The Allowable Value serves as the Technical Specification OPERABILITY limit for the purpose of the COT. One example of such a change in measurement error is drift during the surveillance interval. If the measured setpoint does not exceed the Allowable Value, the bistable is considered OPERABLE.

The trip setpoint is the value at which the bistable is set and is the expected value to be achieved during calibration. The trip setpoint value ensures the LSSS and the safety analysis limits are met for surveillance interval selected when a channel is adjusted based on stated channel uncertainties. Any bistable is considered to be properly adjusted when the "as left" setpoint value is within the band for CHANNEL CALIBRATION uncertainty allowance (i.e., ± rack calibration + comparator setting uncertainties). The trip setpoint value is therefore considered a "nominal" value (i.e., expressed as a value without inequalities) for the purposes of COT and CHANNEL CALIBRATION.

Trip setpoints consistent with the requirements of the Allowable Value ensure that SLs are not violated during AOOs (and that the consequences of DBAs will be acceptable, providing the unit is operated from within the LCOs at the onset of the AOO or DBA and the equipment functions as designed).

BASES

BACKGROUND (continued)

Each channel of the process control equipment can be tested on line to verify that the signal or setpoint accuracy is within the specified allowance requirements of Reference 8. Once a designated channel is taken out of service for testing, a simulated signal is injected in place of the field instrument signal. The process equipment for the channel in test is then tested, verified, and calibrated. SRs for the channels are specified in the SRs section.

Solid State Protection System

The SSPS equipment is used for the decision logic processing of outputs from the signal processing equipment bistables. To meet the redundancy requirements, two trains of SSPS, each performing the same functions, are provided. If one train is taken out of service for maintenance or test purposes, the second train will provide reactor trip and/or ESF actuation for the unit. If both trains are taken out of service or placed in test, a reactor trip will result. Each train is packaged in its own cabinet for physical and electrical separation to satisfy separation and independence requirements. The system has been designed to trip in the event of a loss of power, directing the unit to a safe shutdown condition.

The SSPS performs the decision logic for actuating a reactor trip or ESF actuation, generates the electrical output signal that will initiate the required trip or actuation, and provides the status, permissive, and annunciator output signals to the main control room of the unit.

The bistable outputs from the signal processing equipment are sensed by the SSPS equipment and combined into logic matrices that represent combinations indicative of various unit upset and accident transients. If a required logic matrix combination is completed, the system will initiate a reactor trip or send actuation signals via master and slave relays to those components whose aggregate Function best serves to alleviate the condition and restore the unit to a safe condition. Examples are given in the Applicable Safety Analyses, LCO, and Applicability sections of this Bases.

Reactor Trip Switchgear

The RTBs are in the electrical power supply line from the control rod drive motor generator set power supply to the CRDMs. Opening of the RTBs interrupts power to the CRDMs, which allows the shutdown rods and control rods to fall into the core by gravity. Each RTB is equipped with a bypass breaker to allow testing of the RTB while the unit is at power.

BASES

BACKGROUND (continued)

During normal operation the output from the SSPS is a voltage signal that energizes the undervoltage coils in the RTBs and bypass breakers, if in use. When the required logic matrix combination is completed, the SSPS output voltage signal is removed, the undervoltage coils are de-energized, the breaker trip lever is actuated by the de-energized undervoltage coil, and the RTBs and bypass breakers are tripped open. This allows the shutdown rods and control rods to fall into the core. In addition to the de-energization of the undervoltage coils, each breaker is also equipped with a shunt trip device that is energized to trip the breaker open upon receipt of a reactor trip signal from the SSPS. Either the undervoltage coil or the shunt trip mechanism is sufficient by itself, thus providing a diverse trip mechanism.

The decision logic matrix Functions are described in the functional diagrams included in Reference 2. In addition to the reactor trip or ESF, these diagrams also describe the various "permissive interlocks" that are associated with unit conditions. Each train has a built in testing device that can automatically test the decision logic matrix Functions and the actuation devices while the unit is at power. When any one train is taken out of service for testing, the other train is capable of providing unit monitoring and protection until the testing has been completed. The testing device is semiautomatic to minimize testing time. (1)

are also described

anticipated operational transients (1)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

The RTS functions to maintain the SLs during all AOOs and mitigates the consequences of DBAs in all MODES in which the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

Each of the analyzed accidents and transients can be detected by one or more RTS Functions. The accident analysis described in Reference 3 (9) takes credit for most RTS trip Functions. RTS trip Functions not specifically credited in the accident analysis are qualitatively credited in the safety analysis and the NRC staff approved licensing basis for the unit. These RTS trip Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. They may also serve as backups to RTS trip Functions that were credited in the accident analysis. (1)

The LCO requires all instrumentation performing an RTS Function, listed in Table 3.3.1-1 in the accompanying LCO, to be OPERABLE. A channel (is) OPERABLE with a trip setpoint value outside its calibration tolerance band provided the trip setpoint "as-found" value does not exceed its associated Allowable Value and provided the trip setpoint "as-left" value is adjusted to a value within the "as-left" calibration tolerance band of the (2)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Nominal Trip Setpoint. A trip setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions.

The LCO generally requires OPERABILITY of four or three channels in each instrumentation Function, two channels of Manual Reactor Trip in each logic Function, and two trains in each Automatic Trip Logic Function. Four OPERABLE instrumentation channels in a two-out-of-four configuration are required when one RTS channel is also used as a control system input. This configuration accounts for the possibility of the shared channel failing in such a manner that it creates a transient that requires RTS action. In this case, the RTS will still provide protection, even with random failure of one of the other three protection channels. Three OPERABLE instrumentation channels in a two-out-of-three configuration are generally required when there is no potential for control system and protection system interaction that could simultaneously create a need for RTS trip and disable one RTS channel. The two-out-of-three and two-out-of-four configurations allow one channel to be tripped during maintenance or testing without causing a reactor trip. Specific exceptions to the above general philosophy exist and are discussed below.

Reactor Trip System Functions

The safety analyses and OPERABILITY requirements applicable to each RTS Function are discussed below.

1. Manual Reactor Trip

The Manual Reactor Trip ensures that the control room operator can initiate a reactor trip at any time by using either of two reactor trip switches in the control room. A Manual Reactor Trip accomplishes the same results as any one of the automatic trip Functions. It is used by the reactor operator to shut down the reactor whenever any parameter is rapidly trending toward its Trip Setpoint.

The LCO requires two Manual Reactor Trip channels to be OPERABLE. Each channel is controlled by a manual reactor trip switch. Each channel activates the reactor trip breaker in both trains. Two independent channels are required to be OPERABLE so that no single random failure will disable the Manual Reactor Trip Function.

(1)

INSERT 3

There are two Manual Reactor Trip channels arranged in a one-out-of-two logic.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 1 or 2, manual initiation of a reactor trip must be OPERABLE. These are the MODES in which the shutdown rods and/or control rods are partially or fully withdrawn from the core. In MODE 3, 4, or 5, the manual initiation Function must also be OPERABLE if one or more shutdown rods or control rods are withdrawn or the Rod Control System is capable of withdrawing the shutdown rods or the control rods. In this condition, inadvertent control rod withdrawal is possible. In MODE 3, 4, or 5, manual initiation of a reactor trip does not have to be OPERABLE if the Rod Control System is not capable of withdrawing the shutdown rods or control rods and if all rods are fully inserted. If the rods cannot be withdrawn from the core, or all of the rods are inserted, there is no need to be able to trip the reactor. In MODE 6, neither the shutdown rods nor the control rods are permitted to be withdrawn and the CRDMs are disconnected from the control rods and shutdown rods. Therefore, the manual initiation Function is not required.

INSERT 4 (1)

and (7)

2. Power Range Neutron Flux

The NIS power range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS power range detectors provide input to the Rod Control System and the Steam Generator (SG) Water Level Control System. Therefore, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. Note that this Function also provides a signal to prevent automatic and manual rod withdrawal prior to initiating a reactor trip. Limiting further rod withdrawal may terminate the transient and eliminate the need to trip the reactor.

(12) (1) (1) (12)

In addition, while not required for OPERABILITY of the Power Range Neutron Flux Function,

a. Power Range Neutron Flux - High

The Power Range Neutron Flux - High trip Function ensures that protection is provided, from all power levels, against a positive reactivity excursion leading to DNB during power operations. These can be caused by rod withdrawal or reductions in RCS temperature.

INSERT 5

The LCO requires all four of the Power Range Neutron Flux - High channels to be OPERABLE. (1)

(1) **INSERT 4**

(e.g., RTBs in the closed position)

(1) **INSERT 5**

There are four Power Range Neutron Flux - High channels arranged in a two-out-of-four logic.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 1 or 2, when a positive reactivity excursion could occur, the Power Range Neutron Flux - High trip must be OPERABLE. This Function will terminate the reactivity excursion and shut down the reactor prior to reaching a power level that could damage the fuel. In MODE 3, 4, 5, or 6, the NIS power range detectors cannot detect neutron levels in this range. In these MODES, the Power Range Neutron Flux - High does not have to be OPERABLE because the reactor is shut down and reactivity excursions into the power range are extremely unlikely. Other RTS Functions and administrative controls provide protection against reactivity additions when in MODE 3, 4, 5, or 6.

b. Power Range Neutron Flux - Low

The LCO requirement for the Power Range Neutron Flux - Low trip Function ensures that protection is provided against a positive reactivity excursion from low power or subcritical conditions.

INSERT L → The LCO requires all four of the Power Range Neutron Flux - Low channels to be OPERABLE. (1)

In MODE 1, below the Power Range Neutron Flux (P-10 setpoint), and in MODE 2, the Power Range Neutron Flux - Low trip must be OPERABLE. This Function may be manually blocked by the operator when two out of four power range channels are greater than approximately 10% RTP (P-10 setpoint). This Function is automatically unblocked when three out of four power range channels are below the P-10 setpoint. Above the P-10 setpoint, positive reactivity additions are mitigated by the Power Range Neutron Flux - High trip Function.

In MODE 3, 4, 5, or 6, the Power Range Neutron Flux - Low trip Function does not have to be OPERABLE because the reactor is shut down and the NIS power range detectors cannot detect neutron levels in this range. Other RTS trip Functions and administrative controls provide protection against positive reactivity additions or power excursions in MODE 3, 4, 5, or 6.

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(1)

INSERT 6

There are four Power Range Neutron Flux - Low channels arranged in a two-out-of-four logic.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

3. Power Range Neutron Flux Rate

The Power Range Neutron Flux Rate trips use the same channels as discussed for Function 2 above.

a. Power Range Neutron Flux - High Positive Rate

The Power Range Neutron Flux - High Positive Rate trip Function ensures that protection is provided against rapid increases in neutron flux that are characteristic of an RCCA drive rod housing rupture and the accompanying ejection of the RCCA. This Function compliments the Power Range Neutron Flux - High and Low Setpoint trip Functions to ensure that the criteria are met for a rod ejection from the power range.

INSERT 7

The LCO requires all four of the Power Range Neutron Flux - High Positive Rate channels to be OPERABLE. (1)

In MODE 1 or 2, when there is a potential to add a large amount of positive reactivity from a rod ejection accident (REA), the Power Range Neutron Flux - High Positive Rate trip must be OPERABLE. In MODE 3, 4, 5, or 6, the Power Range Neutron Flux - High Positive Rate trip Function does not have to be OPERABLE because other RTS trip Functions and administrative controls will provide protection against positive reactivity additions. Also, since only the shutdown banks may be withdrawn in MODE 3, 4, or 5, the remaining complement of control bank worth ensures a sufficient degree of SDM in the event of an REA. In MODE 6, no rods are withdrawn and the SDM is increased during refueling operations. The reactor vessel head is also removed or the closure bolts are detensioned preventing any pressure buildup. In addition, the NIS power range detectors cannot detect neutron levels present in this mode. (1)

b. Power Range Neutron Flux - High Negative Rate

The Power Range Neutron Flux - High Negative Rate trip Function ensures that protection is provided for multiple rod drop accidents. At high power levels, a multiple rod drop accident could cause local flux peaking that would result in an unconservative local DNBR. DNBR is defined as the ratio of the heat flux required to cause a DNB at a particular location in (1)

INSERT 8 / provides

(1) **INSERT 7**

There are four Power Range Neutron Flux - High Positive Rate channels arranged in a two-out-of-four logic.

(1) **INSERT 8**

However, this Function is not credited in the multiple rod drop accident analysis.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

the core to the local heat flux. The DNBR is indicative of the margin to DNB. No credit is taken for the operation of this Function for those rod drop accidents in which the local DNBRs will be greater than the limit. (1)

INSERT 9 → The LCO requires all four Power Range Neutron Flux - High Negative Rate channels to be OPERABLE. (1)

In MODE 1 or 2, when there is potential for a multiple rod drop accident to occur, the Power Range Neutron Flux - High Negative Rate trip must be OPERABLE. In MODE 3, 4, 5, or 6, the Power Range Neutron Flux - High Negative Rate trip Function does not have to be OPERABLE because the core is not critical and DNB is not a concern. Also, since only the shutdown banks may be withdrawn in MODE 3, 4, or 5, the remaining complement of control bank worth ensures a sufficient degree of SDM in the event of an REA. In MODE 6, no rods are withdrawn and the required SDM is increased during refueling operations. In addition, the NIS power range detectors cannot detect neutron levels present in this MODE. (1)

4. Intermediate Range Neutron Flux

The Intermediate Range Neutron Flux trip Function ensures that protection is provided against an uncontrolled RCCA bank rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the Power Range Neutron Flux - Low Setpoint trip Function. The NIS intermediate range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS intermediate range detectors do not provide any input to control systems. Note that this Function also provides a signal to prevent automatic and manual rod withdrawal prior to initiating a reactor trip. Limiting further rod withdrawal may terminate the transient and eliminate the need to trip the reactor. (1) (12)

In addition, while not required for OPERABILITY of the Intermediate Range Neutron Flux Function,

INSERT 10 → The LCO requires two all channels of Intermediate Range Neutron Flux to be OPERABLE. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip Function. (1)

Because this trip Function is important only during startup, there is generally no need to disable channels for testing while the Function

(1) **INSERT 9**

There are four Power Range Neutron Flux - High Negative Rate channels arranged in a two-out-of-four logic.

(1) **INSERT 10**

There are two Intermediate Range Neutron Flux channels arranged in a one-out-of-two logic.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

is required to be OPERABLE. Therefore, a third channel is unnecessary.

In MODE 1 below the P-10 setpoint, and in MODE 2 above the P-6 setpoint, when there is a potential for an uncontrolled RCCA bank rod withdrawal accident during reactor startup, the Intermediate Range Neutron Flux trip must be OPERABLE. Above the P-10 setpoint, the Power Range Neutron Flux - High Setpoint trip and the Power Range Neutron Flux - High Positive Rate trip provide core protection for a rod withdrawal accident. In MODE 2 below the P-6 setpoint, the Source Range Neutron Flux Trip provides the core protection for reactivity accidents. In MODE 3, 4, or 5, the Intermediate Range Neutron Flux trip does not have to be OPERABLE because the control rods must be fully inserted and only the shutdown rods may be withdrawn. The reactor cannot be started up in this condition. The core also has the required SDM to mitigate the consequences of a positive reactivity addition accident. In MODE 6, all rods are fully inserted and the core has a required increased SDM. Also, the NIS intermediate range detectors cannot detect neutron levels present in this MODE.

INSERT 10A (1)

5. Source Range Neutron Flux

The LCO requirement for the Source Range Neutron Flux trip Function ensures that protection is provided against an uncontrolled RCCA bank rod withdrawal accident from a subcritical condition during startup. This trip Function provides redundant protection to the Power Range Neutron Flux - Low trip Function. In MODES 3, 4, and 5, administrative controls also prevent the uncontrolled withdrawal of rods. The NIS source range detectors are located external to the reactor vessel and measure neutrons leaking from the core. The NIS source range detectors do not provide any inputs to control systems. The source range trip is the only RTS automatic protection function required in MODES 3, 4, and 5 when rods are capable of withdrawal or one or more rods are not fully inserted. Therefore, the functional capability at the specified Trip Setpoint is assumed to be available.

(7) In MODE 2, (5) and Intermediate Range Neutron Flux (1) (14) (e.g., RTBs in the closed position) Allowable Value (5)

The Source Range Neutron Flux Function provides protection for control rod withdrawal from subcritical, boron dilution and control rod ejection events.

(1) INSERT 10A

other RTS trip Functions and administrative controls will provide protection against positive reactivity additions.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 2 when below the P-6 setpoint and in MODES 3, 4, and 5 when there is a potential for an uncontrolled RCCA bank rod withdrawal accident, the Source Range Neutron Flux trip must be OPERABLE. Two OPERABLE channels are sufficient to ensure no single random failure will disable this trip Function. Above the P-6 setpoint, the Intermediate Range Neutron Flux trip and the Power Range Neutron Flux - Low trip will provide core protection for reactivity accidents. Above the P-6 setpoint, the NIS source range detectors are de-energized.

INSERT 11 — and Power Range Neutron Flux – High — high voltage to — may be — (1) (1) (1) (1)

In MODES 3, 4, and 5 with all rods fully inserted and the Rod Control System not capable of rod withdrawal, and in MODE 6, the outputs of the Function to RTS logic are not required OPERABLE. The requirements for the NIS source range detectors to monitor core neutron levels and provide indication of reactivity changes that may occur as a result of events like a boron dilution are addressed in LCO 3.3.8, "Boron Dilution Protection System (BDPS)," for MODE 3, 4, or 5 and LCO 3.9.3, "Nuclear Instrumentation," for MODE 6.

8 — MI — Monitoring Instrumentation — (2) (1) (2)

6. Overtemperature ΔT

The Overtemperature ΔT trip Function is provided to ensure that the design limit DNBR is met. This trip Function also limits the range over which the Overpower ΔT trip Function must provide protection. The inputs to the Overtemperature ΔT trip include all pressure, coolant temperature, axial power distribution, and reactor power as indicated by loop ΔT assuming full reactor coolant flow. Protection from violating the DNBR limit is assured for those transients that are slow with respect to delays from the core to the measurement system. The Function monitors both variation in power and flow since a decrease in flow has the same effect on ΔT as a power increase. The Overtemperature ΔT trip Function uses each loop's ΔT as a measure of reactor power and is compared with a setpoint that is automatically varied with the following parameters:

because of — (1) (2)

- reactor coolant average temperature - the Trip Setpoint is varied to correct for changes in coolant density and specific heat capacity with changes in coolant temperature;
- pressurizer pressure - the Trip Setpoint is varied to correct for changes in system pressure; and

Allowable Value (5) (11) — Allowable Value (5) (11)

1

INSERT 11

There are two Source Range Neutron Flux channels arranged in a one-out-of-two logic. The LCO requires all (two) channels of Source Range Neutron Flux to be OPERABLE.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

- axial power distribution - f(ΔI), the Trip Setpoint is varied to account for imbalances in the axial power distribution as detected by the NIS upper and lower power range detectors. If axial peaks are greater than the design limit, as indicated by the difference between the upper and lower NIS power range detectors, the Trip Setpoint is reduced in accordance with Note 1 of Table 3.3.1-1.

Dynamic compensation is included for system piping delays from the core to the temperature measurement system.

The Overtemperature ΔT trip Function is calculated for each loop as described in Note 1 of Table 3.3.1-1. Trip occurs if Overtemperature ΔT is indicated in two loops. At some units, the pressure and temperature signals are used for other control functions. For those units, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. Note that this Function also provides a signal to generate a turbine runback prior to reaching the Trip Setpoint. A turbine runback will reduce turbine power and reactor power. A reduction in power will normally alleviate the Overtemperature ΔT condition and may prevent a reactor trip.

The LCO requires all four channels of the Overtemperature ΔT trip Function to be OPERABLE for two and four loop units (the LCO requires all three channels on the Overtemperature ΔT trip Function to be OPERABLE for three loop units). Note that the Overtemperature ΔT Function receives input from channels shared with other RTS Functions. Failures that affect multiple Functions require entry into the Conditions applicable to all affected Functions.

In MODE 1 or 2, the Overtemperature ΔT trip must be OPERABLE to prevent DNB. In MODE 3, 4, 5, or 6, this trip Function does not have to be OPERABLE because the reactor is not operating and there is insufficient heat production to be concerned about DNB.

7. Overpower ΔT

The Overpower ΔT trip Function ensures that protection is provided to ensure the integrity of the fuel (i.e., no fuel pellet melting and less than 1% cladding strain) under all possible overpower conditions. This trip Function also limits the required range of the

1

INSERT 12

There are four Overtemperature ΔT channels arranged in a two-out-of-four logic.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Overtemperature ΔT trip Function and provides a backup to the Power Range Neutron Flux - High Setpoint trip. The Overpower ΔT trip Function ensures that the allowable heat generation rate (kW/ft) of the fuel is not exceeded. It uses the ΔT of each loop as a measure of reactor power with a setpoint that is automatically varied with the following parameters:

- reactor coolant average temperature - the Trip Setpoint is varied to correct for changes in coolant density and specific heat capacity with changes in coolant temperature; and
- rate of change of reactor coolant average temperature - including dynamic compensation for the delays between the core and the temperature measurement system.

The Overpower ΔT trip Function is calculated for each loop as per Note 2 of Table 3.3.1-1. Trip occurs if Overpower ΔT is indicated in two loops. At some units, the temperature signals are used for other control functions. At those units, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation and a single failure in the remaining channels providing the protection function actuation. Note that this Function also provides a signal to generate a turbine runback prior to reaching the Allowable Value. A turbine runback will reduce turbine power and reactor power. A reduction in power will normally alleviate the Overpower ΔT condition and may prevent a reactor trip.

The LCO requires four channels for two and four loop units (three channels for three loop units) of the Overpower ΔT trip Function to be OPERABLE. Note that the Overpower ΔT trip Function receives input from channels shared with other RTS Functions. Failures that affect multiple Functions require entry into the Conditions applicable to all affected Functions.

In MODE 1 or 2, the Overpower ΔT trip Function must be OPERABLE. These are the only times that enough heat is generated in the fuel to be concerned about the heat generation rates and overheating of the fuel. In MODE 3, 4, 5, or 6, this trip Function does not have to be OPERABLE because the reactor is not operating and there is insufficient heat production to be concerned about fuel overheating and fuel damage.

(1) **INSERT 13**

There are four Overpower ΔT channels arranged in a two-out-of-four logic.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

8. Pressurizer Pressure

The same sensors provide input to the Pressurizer Pressure - High and - Low trips and the Overtemperature ΔT trip. At some units, the Pressurizer Pressure channels are also used to provide input to the Pressurizer Pressure Control System. For those units, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. 14 1

a. Pressurizer Pressure - Low

The Pressurizer Pressure - Low trip Function ensures that protection is provided against violating the DNBR limit due to low pressure.

INSERT 14 → The LCO requires all four channels for two and four loop units (three channels for three loop units) of Pressurizer Pressure - Low to be OPERABLE. 1

In MODE 1, when DNB is a major concern, the Pressurizer Pressure - Low trip must be OPERABLE. This trip Function is automatically enabled on increasing power by the P-7 interlock (NIS power range P-10 or turbine impulse first stage pressure greater than approximately 10% of full power equivalent (P-13)). On decreasing power, this trip Function is automatically blocked below P-7. Below the P-7 setpoint, no conceivable power distributions can occur that would cause DNB concerns. 1

b. Pressurizer Pressure - High

The Pressurizer Pressure - High trip Function ensures that protection is provided against overpressurizing the RCS. This trip Function operates in conjunction with the pressurizer power operated relief and safety valves valves (PORVs) to prevent RCS overpressure conditions. 1

INSERT 15 → The LCO requires all four channels (or two and four loop units) (three channels for three loop units) of the Pressurizer Pressure - High to be OPERABLE. 1

The Pressurizer Pressure - High LSSS is selected to be below the pressurizer safety valve actuation pressure and above the

(1) **INSERT 14**

There are four Pressurizer Pressure - Low channels arranged in a two-out-of-four logic.

(1) **INSERT 15**

There are four Pressurizer Pressure - High channels arranged in a two-out-of-four logic.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

power operated relief valve (PORV) setting. This setting minimizes challenges to safety valves while avoiding unnecessary reactor trip for those pressure increases that can be controlled by the PORVs.

In MODE 1 or 2, the Pressurizer Pressure - High trip must be OPERABLE to help prevent RCS overpressurization and minimize challenges to the relief and safety valves. In MODE 3, 4, 5, or 6, the Pressurizer Pressure - High trip Function does not have to be OPERABLE because transients that could cause an overpressure condition will be slow to occur. Therefore, the operator will have sufficient time to evaluate unit conditions and take corrective actions. Additionally, low temperature overpressure protection systems provide overpressure protection when below MODE 4.

PORVs (1) in 5 , 5, and 6 (7)

9. Pressurizer Water Level - High

The Pressurizer Water Level - High trip Function provides a backup signal for the Pressurizer Pressure - High trip and also provides protection against water relief through the pressurizer safety valves. These valves are designed to pass steam in order to achieve their design energy removal rate. A reactor trip is actuated prior to the pressurizer becoming water solid. The LCO requires three channels of Pressurizer Water Level - High to be OPERABLE. The pressurizer level channels are used as input to the Pressurizer Level Control System. A fourth channel is not required to address control/protection interaction concerns. The level channels do not actuate the safety valves, and the high pressure reactor trip is set below the safety valve setting. Therefore, with the slow rate of charging available, pressure overshoot due to level channel failure cannot cause the safety valve to lift before reactor high pressure trip.

(1) INSERT 16 all (1) INSERT 17 (1) (14)

In addition, while not required for OPERABILITY of the Pressurizer Water Level - High Function, (15)

In MODE 1, when there is a potential for overfilling the pressurizer, the Pressurizer Water Level - High trip must be OPERABLE. This trip Function is automatically enabled on increasing power by the P-7 interlock. On decreasing power, this trip Function is automatically blocked below P-7. Below the P-7 setpoint, transients that could raise the pressurizer water level will be slow and the operator will have sufficient time to evaluate unit conditions and take corrective actions.

(1) **INSERT 16**

Water relief could be damaging to the pressurizer safety valves, relief piping, and pressurizer relief tank.

(1) **INSERT 17**

There are three Pressurizer Water Level - High channels arranged in a two-out-of-three logic.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

10. Reactor Coolant Flow - Low

The Reactor Coolant Flow - Low trip Function ensures that protection is provided against violating the DNBR limit due to low flow in one or more RCS loops, while avoiding reactor trips due to normal variations in loop flow. Above the P-7 setpoint, the reactor trip on low flow in two or more RCS loops is automatically enabled. Above the P-8 setpoint, which is approximately 48% RTP, a loss of flow in any RCS loop will actuate a reactor trip. Each RCS loop has three flow detectors to monitor flow. The flow signals are not used for any control system input.

The LCO requires three Reactor Coolant Flow - Low channels per loop to be OPERABLE in MODE 1 above P-7.

In MODE 1 above the P-8 setpoint, a loss of flow in one RCS loop could result in DNB conditions in the core because of the higher power level. In MODE 1 below the P-8 setpoint and above the P-7 setpoint, a loss of flow in two or more loops is required to actuate a reactor trip because of the lower power level and the greater margin to the design limit DNBR. Below the P-7 setpoint, all reactor trips on low flow are automatically blocked since there is insufficient heat production to generate DNB conditions.

11. Reactor Coolant Pump (RCP) Breaker Position

Both RCP Breaker Position trip Functions operate together on two sets of auxiliary contacts, with one set on each RCP breaker. These Functions anticipate the Reactor Coolant Flow - Low trips to avoid RCS heatup that would occur before the low flow trip actuates.

a. Reactor Coolant Pump Breaker Position (Single Loop)

The RCP Breaker Position (Single Loop) trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in one RCS loop. The position of each RCP breaker is monitored. If one RCP breaker is open above the P-8 setpoint, a reactor trip is initiated. This trip Function will generate a reactor trip before the Reactor Coolant Flow - Low (Single Loop) Trip Setpoint is reached.

The LCO requires one RCP Breaker Position channel per RCP to be OPERABLE. One OPERABLE channel is sufficient for

1 **INSERT 18**

Any two of the detectors in each loop must trip for a low flow signal in the RCS loop.

5 **INSERT 18A**

Each loop is treated separately and each loop is considered a separate Function. Therefore, separate Condition entry is allowed for each loop. This is acceptable since each loop has three flow detectors (with two out of the three necessary for a low flow signal), and the flow detectors of one loop are independent from the flow detectors of the other loops.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

this trip Function because the RCS Flow - Low trip alone provides sufficient protection of unit SLs for loss of flow events. The RCP Breaker Position trip serves only to anticipate the low flow trip, minimizing the thermal transient associated with loss of a pump. (5)

This Function measures only the discrete position (open or closed) of the RCP breaker, using a position switch. Therefore, the Function has no adjustable trip setpoint with which to associate an LSSS. (1)

In MODE 1 above the P-8 setpoint, when a loss of flow in any RCS loop could result in DNB conditions in the core, the RCP Breaker Position (Single Loop) trip must be OPERABLE. In MODE 1 below the P-8 setpoint, a loss of flow in two or more loops is required to actuate a reactor trip because of the lower power level and the greater margin to the design limit DNBR.

b. Reactor Coolant Pump Breaker Position (Two Loops) (5) (1)

The RCP Breaker Position (Two Loops) trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in two or more RCS loops. The position of each RCP breaker is monitored. Above the P-7 setpoint and below the P-8 setpoint, a loss of flow in two or more loops will initiate a reactor trip. This trip Function will generate a reactor trip before the Reactor Coolant Flow - Low (Two Loops) Trip Setpoint is reached. (5) (1) (1) (1) (7)

INSERT 19 INSERT 20 Function

INSERT 21

The LCO requires one RCP Breaker Position channel per RCP to be OPERABLE. One OPERABLE channel is sufficient for this Function because the RCS Flow - Low trip alone provides sufficient protection of unit SLs for loss of flow events. The RCP Breaker Position trip serves only to anticipate the low flow trip, minimizing the thermal transient associated with loss of an RCP. (1)

This Function measures only the discrete position (open or closed) of the RCP breaker, using a position switch. Therefore, the Function has no adjustable trip setpoint with which to associate an LSSS.

(1) **INSERT 19**

This Function anticipates the Reactor Coolant Flow-Low trip to avoid RCS heatup that would occur before the low flow trip actuates.

(1) **INSERT 20**

by a set of auxiliary contacts.

(1) **INSERT 21**

There is one RCP Breaker Position channel per RCP breaker (i.e., 4 channels) arranged in a two-out-of-four logic.

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APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

In MODE 1 above the P-7 setpoint and below the P-8 setpoint, the RCP Breaker Position (Two Loops) trip must be OPERABLE. Below the P-7 setpoint, all reactor trips on loss of flow are automatically blocked since no conceivable power distributions could occur that would cause a DNB concern at this low power level. Above the P-7 setpoint, the reactor trip on loss of flow in two RCS loops is automatically enabled. Above the P-8 setpoint, a loss of flow in any one loop will actuate a reactor trip because of the higher power level and the reduced margin to the design limit DNBR. (1) (5)

12. Undervoltage Reactor Coolant Pumps

The Undervoltage RCPs reactor trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in two or more RCS loops. The voltage to each RCP (bus) is monitored. [INSERT 22] Above the P-7 setpoint, a loss of voltage detected on two or more RCP buses will initiate a reactor trip. This trip Function will generate a reactor trip before the Reactor Coolant Flow - Low (Two Loops) Trip Setpoint is reached. Time delays are incorporated into the Undervoltage RCPs channels (Function) to prevent reactor trips due to momentary electrical power transients. [INSERT 23] (1) (1) (7) (1)

[only one] The LCO requires three Undervoltage RCPs channels (one per phase) per bus to be OPERABLE. [INSERT 24] [, since either of the two channels can generate the necessary trip signal for the bus] (1) (6)

In MODE 1 above the P-7 setpoint, the Undervoltage RCP (5) trip must be OPERABLE. Below the P-7 setpoint, all reactor trips on loss of flow are automatically blocked since no conceivable power distributions could occur that would cause a DNB concern at this low power level. Above the P-7 setpoint, the reactor trip on loss of flow in two or more RCS loops is automatically enabled. This Function uses the same relays as the ESFAS Function 6.f, "Undervoltage Reactor Coolant Pump (RCP) [undervoltage]" start of the [turbine driven] auxiliary feedwater (AFW) pumps. (7) (1)

13. Underfrequency Reactor Coolant Pumps

The Underfrequency RCPs reactor trip Function ensures that protection is provided against violating the DNBR limit due to a loss of flow in two or more RCS loops from a major network frequency disturbance. An underfrequency condition will slow down the pumps, thereby reducing their coastdown time following a pump trip.

(1) INSERT 22

A bus undervoltage signal is generated by one-out-of-two undervoltage relays per reactor coolant pump bus, and two-out-of-four bus undervoltage signals will generate a reactor trip.

(1) INSERT 23

The settings for the time delays are verified to be within limits during the performance of SR 3.3.1.19.

(1) INSERT 24

While there are two Undervoltage RCPs channels per bus,

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The proper coastdown time is required so that reactor heat can be removed immediately after reactor trip. The frequency of each RCP bus is monitored. Above the P-7 setpoint, a loss of frequency detected on two or more RCP buses will initiate a reactor trip. This trip Function will generate a reactor trip before the Reactor Coolant Flow - Low (Two Loops) Trip Setpoint is reached. Time delays are incorporated into the Underfrequency RCPs channels to prevent reactor trips due to momentary electrical power transients.

INSERT 25 INSERT 26 INSERT 27 INSERT 28 Function only one

The LCO requires three Underfrequency RCPs channels per bus to be OPERABLE.

In MODE 1 above the P-7 setpoint, the Underfrequency RCPs trip must be OPERABLE. Below the P-7 setpoint, all reactor trips on loss of flow are automatically blocked since no conceivable power distributions could occur that would cause a DNB concern at this low power level. Above the P-7 setpoint, the reactor trip on loss of flow in two or more RCS loops is automatically enabled.

14. Steam Generator Water Level - Low Low (per SG)

The SG Water Level - Low Low trip Function ensures that protection is provided against a loss of heat sink and actuates the AFW System prior to uncovering the SG tubes. The SGs are the heat sink for the reactor. In order to act as a heat sink, the SGs must contain a minimum amount of water. A narrow range low low level in any SG is indicative of a loss of heat sink for the reactor. The level transmitters provide input to the SG Level Control System. Therefore, the actuation logic must be able to withstand an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. This Function also performs the ESFAS function of starting the AFW pumps on low low SG level.

INSERT 27A of 6.c, SG Water Level - Low Low three

The LCO requires four channels of SG Water Level - Low Low per SG to be OPERABLE for four loop units in which these channels are shared between protection and control. In two, three, and four loop units where three SG Water Levels are dedicated to the RTS, only three channels per SG are required to be OPERABLE.

INSERT 27B

In MODE 1 or 2, when the reactor requires a heat sink, the SG Water Level - Low Low trip must be OPERABLE. The normal

1 **INSERT 25**

A bus underfrequency signal is generated by one-out-of-two underfrequency relays per reactor coolant pump bus, and two-out-of-four bus underfrequency signals will generate a reactor trip.

1 **INSERT 26**

The settings for the time delays are verified to be within limits during the performance of SR 3.3.1.19.

1 **INSERT 27**

While there are two Underfrequency RCPs channels per bus,

1 13 **INSERT 27A**

There are three SG Water Level - Low Low channels per SG. The logic is arranged such that any two channels on the same SG will actuate a reactor trip. In addition, while not required for OPERABILITY of the Steam Generator Water Level - Low Low Function,

5 **INSERT 27B**

Each SG is treated separately and each SG is considered a separate Function. Therefore, separate Condition entry is allowed for each SG. This is acceptable since each SG has three level channels (with two out of the three necessary for a low SG water level signal), and the level channels of one SG are independent from the level channels of the other SGs.

1 **INSERT 28**

, since either of the two channels can generate the necessary trip signal for the bus

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

source of water for the SGs is the Main Feedwater (MFW) System (not safety related). The MFW System is only in operation in MODE 1 or 2. The AFW System is the safety related backup source of water to ensure that the SGs remain the heat sink for the reactor. During normal startups and shutdowns, the AFW System provides feedwater to maintain SG level. In MODE 3, 4, 5, or 6, the SG Water Level - Low Low Function does not have to be OPERABLE because the MFW System is not in operation and the reactor is not operating or even critical. Decay heat removal is accomplished by the AFW System in MODE 3 and by the Residual Heat Removal (RHR) System in MODE 4, 5, or 6.

15. Steam Generator Water Level - Low, Coincident With Steam Flow/Feedwater Flow Mismatch

SG Water Level - Low, in conjunction with the Steam Flow/ Feedwater Flow Mismatch, ensures that protection is provided against a loss of heat sink and actuates the AFW System prior to uncovering the SG tubes. In addition to a decreasing water level in the SG, the difference between feedwater flow and steam flow is evaluated to determine if feedwater flow is significantly less than steam flow. With less feedwater flow than steam flow, SG level will decrease at a rate dependent upon the magnitude of the difference in flow rates. There are two SG level channels and two Steam Flow/ Feedwater Flow Mismatch channels per SG. One narrow range level channel sensing a low level coincident with one Steam Flow/ Feedwater Flow Mismatch channel sensing flow mismatch (steam flow greater than feed flow) will actuate a reactor trip.

The LCO requires two channels of SG Water Level - Low coincident with Steam Flow/Feedwater Flow Mismatch.

In MODE 1 or 2, when the reactor requires a heat sink, the SG Water Level - Low coincident with Steam Flow/Feedwater Flow Mismatch trip must be OPERABLE. The normal source of water for the SGs is the MFW System (not safety related). The MFW System is only in operation in MODE 1 or 2. The AFW System is the safety related backup source of water to ensure that the SGs remain the heat sink for the reactor. During normal startups and shutdowns, the AFW System provides feedwater to maintain SG level. In MODE 3, 4, 5, or 6, the SG Water Level - Low coincident with Steam Flow/Feedwater Flow Mismatch Function does not have to be OPERABLE because the MFW System is not in operation and the

(5) **INSERT 27C**

Each SG is treated separately and each SG is considered a separate Function. Therefore, separate Condition entry is allowed for each SG. This is acceptable since each SG has two level channels and two mismatch channels (with one out of the two channels per type necessary for a low SG level coincident with steam flow/feedwater flow mismatch signal), and the channels of one SG are independent from the channels of the other SGs.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

reactor is not operating or even critical. Decay heat removal is accomplished by the AFW System in MODE 3 and by the RHR System in MODE 4, 5, or 6. The MFW System is in operation only in MODE 1 or 2 and, therefore, this trip Function need only be OPERABLE in these MODES.

16. Turbine Trip

a. Turbine Trip - Low Fluid Oil Pressure

The Turbine Trip - Low Fluid Oil Pressure trip Function anticipates the loss of heat removal capabilities of the secondary system following a turbine trip. This trip Function acts to minimize the pressure/temperature transient on the reactor. Any turbine trip from a power level below the P-8 setpoint, approximately 50% power, will not actuate a reactor trip. Three pressure switches monitor the control oil pressure in the Turbine Electrohydraulic Control System. A low pressure condition sensed by two-out-of-three pressure switches will actuate a reactor trip. These pressure switches do not provide any input to the control system. The unit is designed to withstand a complete loss of load and not sustain core damage or challenge the RCS pressure limitations. Core protection is provided by the Pressurizer Pressure - High trip Function and RCS integrity is ensured by the pressurizer safety valves.

The LCO requires three channels of Turbine Trip - Low Fluid Oil Pressure to be OPERABLE in MODE 1 above P-8.

Below the P-8 setpoint, a turbine trip does not actuate a reactor trip. In MODE 2, 3, 4, 5, or 6, there is no potential for a turbine trip, and the Turbine Trip - Low Fluid Oil Pressure trip Function does not need to be OPERABLE.

b. Turbine Trip - Turbine Stop Valve Closure

The Turbine Trip - Turbine Stop Valve Closure trip Function anticipates the loss of heat removal capabilities of the secondary system following a turbine trip from a power level below the P-8 setpoint, approximately 50% power. This action will not actuate a reactor trip. The trip Function anticipates the loss of secondary heat removal capability that occurs when the stop valves close. Tripping the reactor in anticipation of loss of

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

secondary heat removal acts to minimize the pressure and temperature transient on the reactor. This trip Function will not and is not required to operate in the presence of a single channel failure. The unit is designed to withstand a complete loss of load and not sustain core damage or challenge the RCS pressure limitations. Core protection is provided by the Pressurizer Pressure - High trip Function, and RCS integrity is ensured by the pressurizer safety valves. This trip Function is diverse to the Turbine Trip - Low Fluid Oil Pressure trip Function. Each turbine stop valve is equipped with one limit switch that inputs to the RTS. If all four limit switches indicate that the stop valves are all closed, a reactor trip is initiated.

The LSSS for this Function is set to assure channel trip occurs when the associated stop valve is completely closed.

The LCO requires four Turbine Trip - Turbine Stop Valve Closure channels (one per valve) to be OPERABLE in MODE 1 above P-9. All four channels must trip to cause reactor trip. (5)

per train associated with a train INSERT 28A (7) INSERT 28B (5) (5) (5)

Below the P-9 setpoint, a load rejection can be accommodated by the Steam Dump System. In MODE 2, 3, 4, 5, or 6, there is no potential for a load rejection, and the Turbine Trip - Stop Valve Closure trip Function does not need to be OPERABLE.

17. Safety Injection Input from Engineered Safety Feature Actuation System

The SI Input from ESFAS ensures that if a reactor trip has not already been generated by the RTS, the ESFAS automatic actuation logic will initiate a reactor trip upon any signal that initiates SI. This is a condition of acceptability for the LOCA. However, other transients and accidents take credit for varying levels of ESF performance and rely upon rod insertion, except for the most reactive rod that is assumed to be fully withdrawn, to ensure reactor shutdown. Therefore, a reactor trip is initiated every time an SI signal is present.

Trip Setpoint and Allowable Values are not applicable to this Function. The SI Input is provided by relay in the ESFAS. Therefore, there is no measurement signal with which to associate an LSSS. (5) (1) (1)

from signal directly inputs to the RTS

5 **INSERT 28A**
(UNIT 1 only)

Each turbine stop valve includes a limit switch that has two contacts. One contact provides input to Train A while the other contact provides input to Train B. Each contact is considered to be a channel.

5 **INSERT 28A**
(UNIT 2 only)

Each turbine stop valve includes two limit switches. One limit switch provides input to Train A while the other limit switch provides input to Train B. Each limit switch is considered to be a channel.

5 **INSERT 28B**

Each train is treated separately and each train is considered a separate Function. Therefore, separate Condition entry is allowed for each train. This is acceptable since either train can generate a reactor trip signal and the logic is independent between trains.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

INSERT 29 → The LCO requires two trains of SI Input from ESFAS to be OPERABLE in MODE 1 or 2. (1)

A reactor trip is initiated every time an SI signal is present. Therefore, this trip Function must be OPERABLE in MODE 1 or 2, when the reactor is critical, and must be shut down in the event of an accident. In MODE 3, 4, 5, or 6, the reactor is not critical, and this trip Function does not need to be OPERABLE. (2)

18. Reactor Trip System Interlocks

Reactor protection interlocks are provided to ensure reactor trips are in the correct configuration for the current unit status. They back up operator actions to ensure protection system Functions are not bypassed during unit conditions under which the safety analysis assumes the Functions are not bypassed. Therefore, the interlock Functions do not need to be OPERABLE when the associated reactor trip functions are outside the applicable MODES. These [interlocks] are: (2)

a. Intermediate Range Neutron Flux, P-6

The Intermediate Range Neutron Flux, P-6 interlock is actuated when any NIS intermediate range channel goes approximately one decade above the minimum channel reading. If both channels drop below the ~~set~~ [reset]point, the permissive will automatically be defeated. The LCO requirement for the P-6 interlock ensures that the following Functions are performed: (1)

- on increasing power, the P-6 interlock allows the manual block of the NIS Source Range, Neutron Flux reactor trip. This prevents a premature block of the source range trip and allows the operator to ensure that the intermediate range is OPERABLE prior to leaving the source range. When the source range trip is blocked, the high voltage to the detectors is also removed~~.~~ [; and] (2) (11) (1)
- on decreasing power, the P-6 interlock automatically energizes the NIS source range detectors and enables the NIS Source Range Neutron Flux reactor trip~~; and~~ [INSERT 31] (1) (2)
- ~~on increasing power, the P-6 interlock provides a backup block signal to the source range flux doubling circuit.~~ (1)

1

INSERT 29

There are two trains of SI Input from ESFAS arranged in a one-out-of-two logic.

INSERT 30

Not Used

1

INSERT 31

(i.e., defeats the manual block).

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued) (5)

Normally, this Function is manually blocked by the control room operator during the reactor startup. (7)

The LCO requires two channels of Intermediate Range Neutron Flux, P-6 interlock to be OPERABLE in MODE 2 when below the P-6 interlock setpoint. (5)

INSERT 32

Above the P-6 interlock setpoint, the NIS Source Range Neutron Flux reactor trip will be blocked, and this Function will no longer be necessary.

In MODE 3, 4, 5, or 6, the P-6 interlock does not have to be OPERABLE because the NIS Source Range is providing core protection. (5)

b. Low Power Reactor Trips Block, P-7

The Low Power Reactor Trips Block, P-7 interlock is actuated by input from either the Power Range Neutron Flux, P-10, or the Turbine Impulse Pressure, P-13 interlock. The LCO requirement for the P-7 interlock ensures that the following Functions are performed: (L)

First Stage

(1) on increasing power, the P-7 interlock automatically enables reactor trips on the following Functions:

- Pressurizer Pressure - Low; (11)
- Pressurizer Water Level - High; (11)
- Reactor Coolant Flow - Low (low flow in two or more RCS loops); (7) (11)
- RCPs Breaker Open (Two Loops); (7) (11)
- Undervoltage RCPs; and (11)
- Underfrequency RCPs; and (11) (1)
- Turbine Trip (Low Fluid Oil Pressure and Turbine Stop Valve Closure),

These reactor trips are only required when operating above the P-7 setpoint (approximately 10% power RTP). The reactor trips provide protection against violating the DNBR limit. Below the P-7 setpoint, the RCS is capable of (1)

5

INSERT 32

and in MODE 3, 4, and 5 with Rod Control System capable of rod withdrawal or one or more rods not fully inserted.

INSERT 33

Not Used

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

providing sufficient natural circulation without any RCP running.

(2) on decreasing power, the P-7 interlock automatically blocks reactor trips on the following Functions:

- Pressurizer Pressure - Low,
- Pressurizer Water Level - High,
- Reactor Coolant Flow - Low (low flow in two or more RCS loops),
- RCP Breaker Position (Two Loops),
- Undervoltage RCPs, and
- Underfrequency RCPs.

Turbine Trip (Low Fluid Oil Pressure and Turbine Stop Valve Closure).

Trip Setpoint and Allowable Value are not applicable to the P-7 interlock because it is a logic Function and thus has no parameter with which to associate an LSSS.

The P-7 interlock is a logic Function with train and not channel identity. Therefore, the LCO requires one channel per train of Low Power Reactor Trips Block, P-7 interlock to be OPERABLE in MODE 1.

The low power trips are blocked below the P-7 setpoint and unblocked above the P-7 setpoint. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the interlock performs its Function when power level drops below 10% power, which is in MODE 1.

c. Power Range Neutron Flux, P-8

The Power Range Neutron Flux, P-8 interlock is actuated at approximately 48% power as determined by two-out-of-four NIS power range detectors. The P-8 interlock automatically enables the Reactor Coolant Flow - Low and RCP Breaker Position (Single Loop) reactor trips on low flow in one or more RCS loops on increasing power. The LCO requirement for this trip Function ensures that protection is provided against a loss of

INSERT 34

Not Used

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

flow in any RCS loop that could result in DNB conditions in the core when greater than approximately 48% power. On decreasing power, the reactor trip on low flow in any loop is automatically blocked. (31) (1)

The LCO requires four channels of Power Range Neutron Flux, P-8 interlock to be OPERABLE in MODE 1.

In MODE 1, a loss of flow in one RCS loop could result in DNB conditions, so the Power Range Neutron Flux, P-8 interlock must be OPERABLE. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the core is not producing sufficient power to be concerned about DNB conditions.

d. Power Range Neutron Flux, P-9 (5)

The Power Range Neutron Flux, P-9 interlock is actuated at approximately 50% power as determined by two-out-of-four NIS power range detectors. The LCO requirement for this Function ensures that the Turbine Trip - Low Fluid Oil Pressure and Turbine Trip - Turbine Stop Valve Closure reactor trips are enabled above the P-9 setpoint. Above the P-9 setpoint, a turbine trip will cause a load rejection beyond the capacity of the Steam Dump System. A reactor trip is automatically initiated on a turbine trip when it is above the P-9 setpoint, to minimize the transient on the reactor.

The LCO requires four channels of Power Range Neutron Flux, P-9 interlock to be OPERABLE in MODE 1.

In MODE 1, a turbine trip could cause a load rejection beyond the capacity of the Steam Dump System, so the Power Range Neutron Flux interlock must be OPERABLE. In MODE 2, 3, 4, 5, or 6, this Function does not have to be OPERABLE because the reactor is not at a power level sufficient to have a load rejection beyond the capacity of the Steam Dump System.

(d) → e. Power Range Neutron Flux, P-10 (5)

The Power Range Neutron Flux, P-10 interlock is actuated at approximately 10% power, as determined by two-out-of-four NIS power range detectors. If power level falls below approximately 10% RTP (1)

INSERT 35

Not Used

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

on 3 of 4 channels, the nuclear instrument trips will be automatically unblocked. The LCO requirement for the P-10 interlock ensures that the following Functions are performed:

- on increasing power, the P-10 interlock allows the operator to manually block the Intermediate Range Neutron Flux reactor trip. Note that blocking the reactor trip also blocks the signal to prevent automatic and manual rod withdrawal,
- on increasing power, the P-10 interlock allows the operator to manually block the Power Range Neutron Flux - Low reactor trip,
- on increasing power, the P-10 interlock automatically provides a backup signal to block the Source Range Neutron Flux reactor trip, and also to de-energize the NIS source range detectors,
- the P-10 interlock provides one of the two inputs to the P-7 interlock, and
- on decreasing power, the P-10 interlock automatically enables the Power Range Neutron Flux - Low reactor trip and the Intermediate Range Neutron Flux reactor trip (and rod stop).

The LCO requires four channels of Power Range Neutron Flux, P-10 interlock to be OPERABLE in MODE 1 or 2.

OPERABILITY in MODE 1 ensures the Function is available to perform its decreasing power Functions in the event of a reactor shutdown. This Function must be OPERABLE in MODE 2 to ensure that core protection is provided during a startup or shutdown by the Power Range Neutron Flux - Low and Intermediate Range Neutron Flux reactor trips. In MODE 3, 4, 5, or 6, this Function does not have to be OPERABLE because the reactor is not at power and the Source Range Neutron Flux reactor trip provides core protection.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

e. Turbine Impulse Pressure, P-13 (5)

The Turbine Impulse Pressure, P-13 interlock is actuated when the pressure in the first stage of the high pressure turbine is greater than approximately 10% of the rated full power pressure. This is determined by one-out-of-two pressure detectors. The LCO requirement for this Function ensures that one of the inputs to the P-7 interlock is available. (1)

The LCO requires two channels of Turbine Impulse Pressure, P-13 interlock to be OPERABLE in MODE 1. (1)

The Turbine Impulse Chamber Pressure, P-13 interlock must be OPERABLE when the turbine generator is operating. The interlock Function is not required OPERABLE in MODE 2, 3, 4, 5, or 6 because the turbine generator is not operating. (1)

19. Reactor Trip Breakers

This trip Function applies to the RTBs exclusive of individual trip mechanisms. The LCO requires two OPERABLE trains of trip breakers. A trip breaker train consists of all trip breakers associated with a single RTS logic train that are racked in, closed, and capable of supplying power to the Rod Control System. Thus, the train may consist of the main breaker, bypass breaker, or main breaker and bypass breaker, depending upon the system configuration. Two OPERABLE trains ensure no single random failure can disable the RTS trip capability. (1)

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical. In MODE 3, 4, or 5, these RTS trip Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

20. Reactor Trip Breaker Undervoltage and Shunt Trip Mechanisms

The LCO requires both the Undervoltage and Shunt Trip Mechanisms to be OPERABLE for each RTB that is in service. The trip mechanisms are not required to be OPERABLE for trip breakers that are open, racked out, incapable of supplying power to the Rod Control System, or declared inoperable under Function 19 above. OPERABILITY of both trip mechanisms on each breaker ensures

INSERT 36

Not Used

1 INSERT 37

There are two Reactor Trip Breaker trains arranged in a one-out-of-two logic.

1 INSERT 38

Either trip mechanism is capable of opening the associated RTB on receipt of a trip signal.

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<TSTF - 418 not shown> (12)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

that no single trip mechanism failure will prevent opening any breaker on a valid signal.

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical. In MODE 3, 4, or 5, these RTS trip Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

21. Automatic Trip Logic

The LCO requirement for the RTBs (Functions 19 and 20) and Automatic Trip Logic (Function 21) ensures that means are provided to interrupt the power to allow the rods to fall into the reactor core. Each RTB is equipped with an undervoltage coil and a shunt trip coil to trip the breaker open when needed. Each RTB is equipped with a bypass breaker to allow testing of the trip breaker while the unit is at power. The reactor trip signals generated by the RTS Automatic Trip Logic cause the RTBs and associated bypass breakers to open and shut down the reactor.

INSERT 39 → The LCO requires two trains of RTS Automatic Trip Logic to be OPERABLE. Having two OPERABLE channels ensures that random failure of a single logic channel will not prevent reactor trip. (1)

These trip Functions must be OPERABLE in MODE 1 or 2 when the reactor is critical. In MODE 3, 4, or 5, these RTS trip Functions must be OPERABLE when the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

The RTS instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

ACTIONS

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.1-1. ← INSERT 39A (10)

In the event a channel's ~~T~~rip ~~S~~etpoint is found nonconservative with respect to the Allowable Value, or the transmitter, instrument loop, signal processing electronics, or bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition(s) entered for the protection Function(s) affected. (2)

When the number of inoperable channels in a trip Function exceed those specified in one or other related Conditions associated with a trip

1 **INSERT 39**

There are two RTS Automatic Trip Logic trains arranged in a one-out-of-two logic.

10 **INSERT 39A**

The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

BASES

ACTIONS (continued)

Function, then the unit is outside the safety analysis. Therefore, LCO 3.0.3 must be immediately entered if applicable in the current MODE of operation.

- REVIEWER'S NOTE -

Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report.

A.1

Condition A applies to all RTS protection Functions. Condition A addresses the situation where one or more required channels or trains for one or more Functions are inoperable at the same time. The Required Action is to refer to Table 3.3.1-1 and to take the Required Actions for the protection functions affected. The Completion Times are those from the referenced Conditions and Required Actions.

B.1 and B.2

INSERT 40 (5)

Condition B applies to the Manual Reactor Trip in MODE 1 or 2. This action addresses the train orientation of the SSPS for this Function. With one channel inoperable, the inoperable channel must be restored to OPERABLE status within 48 hours. In this Condition, the remaining OPERABLE channel is adequate to perform the safety function.

or train (5) (3) esc

The Completion Time of 48 hours is reasonable considering that there are two automatic actuation trains and another manual initiation channel OPERABLE, and the low probability of an event occurring during this interval.

INSERT 41 (5)

If the Manual Reactor Trip Function cannot be restored to OPERABLE status within the allowed 48 hour Completion Time, the unit must be brought to a MODE in which the requirement does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 additional hours (54 hours total time). The 6 additional hours to reach MODE 3 is reasonable, based on operating experience, to reach MODE 3 from full power operation in an orderly manner and without challenging unit systems. With the unit in MODE 3, ACTION C would apply to any inoperable Manual Reactor Trip Function if the Rod Control System is capable of rod withdrawal or one or more rods are not fully inserted.

(5)

(5) **INSERT 40**

RTBs, RTB Undervoltage and Shunt Trip Mechanisms, and Automatic Trip Logic

(1) **INSERT 41**

in this condition, the remaining OPERABLE channel or train is adequate to perform the safety function

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<TSTF-418 not shown> (16)

BASES

ACTIONS (continued)

C.1, C.2.1, and C.2.2

Condition C applies to the following reactor trip Functions in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted:

- Manual Reactor Trip,
- RTBs,
- RTB Undervoltage and Shunt Trip Mechanisms, and
- Automatic Trip Logic.

This action addresses the train orientation of the SSPS for these Functions. With one channel or train inoperable, the inoperable channel or train must be restored to OPERABLE status within 48 hours. If the affected Function(s) cannot be restored to OPERABLE status within the allowed 48 hour Completion Time, the unit must be placed in a MODE in which the requirement does not apply. To achieve this status, action must be initiated within the same 48 hours to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour. The additional hour provides sufficient time to accomplish the action in an orderly manner. With rods fully inserted and the Rod Control System incapable of rod withdrawal, these Functions are no longer required.

The Completion Time is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function, and given the low probability of an event occurring during this interval. (5)

(C) D.1.1, D.1.2, D.2.1, D.2.2, and D.3 (and C) (5)

Condition D (C) applies to the Power Range Neutron Flux - High Function.

The NIS power range detectors provide input to the Rod Control System and the SG Water Level Control System and, therefore, have a two-out-of-four trip logic. A known inoperable channel must be placed in the tripped condition. This results in a partial trip condition requiring only one-out-of-three logic for actuation. The 6 hours allowed to place the inoperable channel in the tripped condition is justified in WCAP-10271-P-A (Ref. 7 (10)). (1)

(TSTF-418 not shown) (1b)

BASES

ACTIONS (continued)

In addition to placing the inoperable channel in the tripped condition, THERMAL POWER must be reduced to ≤ 75% RTP within 12 hours. Reducing the power level prevents operation of the core with radial power distributions beyond the design limits. With one of the NIS power range detectors inoperable, 1/4 of the radial power distribution monitoring capability is lost. ← INSERT 41A (5)

As an alternative to the above actions, the inoperable channel can be placed in the tripped condition within 6 hours and the QPTR monitored once every 12 hours as per SR 3.2.4.2, QPTR verification. Calculating QPTR every 12 hours compensates for the lost monitoring capability due to the inoperable NIS power range channel and allows continued unit operation at power levels ≥ 75% RTP. The 6 hour Completion Time and the 12 hour Frequency are consistent with LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)."

As an alternative to the above Actions, the plant must be placed in a MODE where this Function is no longer required OPERABLE. Twelve hours are allowed to place the plant in MODE 3. This is a reasonable time, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging plant systems. If Required Actions cannot be completed within their allowed Completion Times, LCO 3.0.3 must be entered. (5)

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypass condition for up to 4 hours while performing routine surveillance testing of other channels. The Note also allows placing the inoperable channel in the bypass condition to allow setpoint adjustments of other channels when required to reduce the setpoint in accordance with other Technical Specifications. The 4 hour time limit is justified in Reference ~~6~~ (10). (1)

~~Required Action D.2.2 has been modified by a Note which only requires~~ SR 3.2.4.2 to be performed if the Power Range Neutron Flux input to QPTR becomes inoperable. Failure of a component in the Power Range Neutron Flux Channel which renders the High Flux Trip Function Inoperable may not affect the capability to monitor QPTR. As such, determining QPTR using this movable incore detectors once per 12 hours may not be necessary. (5)

(5) INSERT 41A

With one of the NIS power range detectors inoperable, 1/4 of the radial power distribution monitoring capability is lost. Therefore, SR 3.2.4.2 must be performed (Required Action C.2) 12 hours from discovery of THERMAL POWER > 75% RTP and once per 12 hours thereafter. Calculating QPTR every 12 hours compensates for the lost monitoring capability due to the inoperable NIS power range channel and allows continued unit operation at power levels > 75% RTP. At power levels less than or equal to 75% RTP, operation of the core with radial power distributions beyond the design limits, at a power level where DNB conditions may exist, is prevented. The 12 hour Completion Time is consistent with the Surveillance Requirement Frequency in LCO 3.2.4, "QUADRANT POWER TILT RATIO (QPTR)." Required Action C.2 has been modified by a Note which only requires SR 3.2.4.2 to be performed if the Power Range Neutron Flux input to QPTR becomes inoperable. Failure of a component in the Power Range Neutron Flux Channel which renders the High Flux Trip Function inoperable may not affect the capability to monitor QPTR. As such, determining QPTR using movable incore detectors may not be necessary.

⟨TSTF-418 not shown⟩ (16)

BASES

ACTIONS (continued)

(5)

(D) E.1 and E.2

Condition E applies to the following reactor trip Functions: (5)

- Power Range Neutron Flux - Low, (11)
- Overtemperature ΔT, (11)
- Overpower ΔT, (11)
- Power Range Neutron Flux - High Positive Rate, (11)
- Power Range Neutron Flux - High Negative Rate, (11)
- Pressurizer Pressure - High, (11)
- SG Water Level - Low Low, and (11)
- SG Water Level - Low coincident with Steam Flow/Feedwater Flow Mismatch. (11)

(5) • Pressurizer Pressure - Low;

(5) INSERT 42

INSERT 42A (5)

A known inoperable channel must be placed in the tripped condition within 6 hours. Placing the channel in the tripped condition results in a partial trip condition requiring only one-out-of-two logic for actuation of the two-out-of-three trips and one-out-of-three logic for actuation of the two-out-of-four trips. The 6 hours allowed to place the inoperable channel in the tripped condition is justified in Reference 7. (10) (1)

~~If the inoperable channel cannot be placed in the trip condition within the specified Completion Time, the unit must be placed in a MODE where these Functions are not required OPERABLE. An additional 6 hours is allowed to place the unit in MODE 3. Six hours is a reasonable time, based on operating experience, to place the unit in MODE 3 from full power in an orderly manner and without challenging unit systems.~~ (5)

The Required Actions have been modified by a Note that allows placing the inoperable channel (5) , except Function 11 channels, in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7. (10) (1)

(5) **INSERT 42**

- Pressurizer Water Level - High;
- Reactor Coolant Flow - Low;
- Reactor Coolant Pump (RCP) Breaker Position;
- Undervoltage RCPs;
- Underfrequency RCPs;

(5) **INSERT 42A**

- Turbine Trip – Low Fluid Oil Pressure; and
- Turbine Trip – Turbine Stop Valve Closure.

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BASES

ACTIONS (continued)

(E) D.1 and D.2 (5)

Condition D applies to the Intermediate Range Neutron Flux trip when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint and one channel is inoperable. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. If THERMAL POWER is greater than the P-6 setpoint but less than the P-10 setpoint, 24 hours is allowed to reduce THERMAL POWER below the P-6 setpoint or increase to THERMAL POWER above the P-10 setpoint. The NIS Intermediate Range Neutron Flux channels must be OPERABLE when the power level is above the capability of the source range, P-6, and below the capability of the power range, P-10. If THERMAL POWER is greater than the P-10 setpoint, the NIS power range detectors perform the monitoring and protection functions and the intermediate range is not required. The Completion Times allow for a slow and controlled power adjustment above P-10 or below P-6 and take into account the redundant capability afforded by the redundant OPERABLE channel, and the low probability of its failure during this period. This action does not require the inoperable channel to be tripped because the Function uses one-out-of-two logic. Tripping one channel would trip the reactor. Thus, the Required Actions specified in this Condition are only applicable when channel failure does not result in reactor trip.

(F) E.1 and E.2 (5)

Condition E applies to two inoperable Intermediate Range Neutron Flux trip channels in MODE 2 when THERMAL POWER is above the P-6 setpoint and below the P-10 setpoint. Required Actions specified in this Condition are only applicable when channel failures do not result in reactor trip. Above the P-6 setpoint and below the P-10 setpoint, the NIS intermediate range detector performs the monitoring Functions. With no intermediate range channels OPERABLE, the Required Actions are to suspend operations involving positive reactivity additions immediately. This will preclude any power level increase since there are no OPERABLE Intermediate Range Neutron Flux channels. The operator must also reduce THERMAL POWER below the P-6 setpoint within two hours. Below P-6, the Source Range Neutron Flux channels will be able to monitor the core power level. The Completion Time of 2 hours will allow a slow and controlled power reduction to less than the P-6 setpoint and takes into account the low probability of occurrence of an event during this period that may require the protection afforded by the NIS Intermediate Range Neutron Flux trip.

BASES

ACTIONS (continued)

Required Action is modified by a note to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SDM.

.1

Condition applies to one inoperable Source Range Neutron Flux trip channel when in MODE 2, below the P-6 setpoint, and performing a reactor startup. With the unit in this condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the two channels inoperable, operations involving positive reactivity additions shall be suspended immediately.

This will preclude any power escalation. With only one source range channel OPERABLE, core protection is severely reduced and any actions that add positive reactivity to the core must be suspended immediately.

Required Action is modified by a note to indicate that normal plant control operations that individually add limited positive reactivity (e.g., temperature or boron fluctuations associated with RCS inventory management or temperature control) are not precluded by this Action, provided they are accounted for in the calculated SDM.

.1

Condition applies to two inoperable Source Range Neutron Flux trip channels when in MODE 2, below the P-6 setpoint, and in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. With the unit in this condition, below P-6, the NIS source range performs the monitoring and protection functions. With both source range channels inoperable, the RTBs must be opened immediately. With the RTBs open, the core is in a more stable condition.

.1, J.2, and J.2.2

Condition applies to one inoperable source range channel in MODE 3, 4, or 5 with the Rod Control System capable of rod withdrawal or one or more rods not fully inserted. With the unit in this condition, below P-6, the NIS source range performs the monitoring and protection functions. With one of the source range channels inoperable, 48 hours is allowed to restore it to an OPERABLE status. If the channel cannot be returned to

<TSTF-418 not shown> (16)

BASES

ACTIONS (continued)

an OPERABLE status, action must be initiated within the same 48 hours to ensure that all rods are fully inserted, and the Rod Control System must be placed in a condition incapable of rod withdrawal within the next hour. The allowance of 48 hours to restore the channel to OPERABLE status, and the additional hour, are justified in Reference 7. (5)

INSERT 43 (1)

K.1 and K.2 (5)

Condition K applies to the following reactor trip Functions:

- Pressurizer Pressure - Low,
- Pressurizer Water Level - High,
- Reactor Coolant Flow - Low
- RCP Breaker Position,
- Undervoltage RCPs, and
- Underfrequency RCPs.

With one channel inoperable, the inoperable channel must be placed in the tripped condition within 6 hours. For the Pressurizer Pressure - Low, Pressurizer Water Level - High, Undervoltage RCPs, and Underfrequency RCPs trip Functions, placing the channel in the tripped condition when above the P-7 setpoint results in a partial trip condition requiring only one additional channel to initiate a reactor trip. For the Reactor Coolant Flow - Low and RCP Breaker Position (Two Loops) trip Functions, placing the channel in the tripped condition when above the P-8 setpoint results in a partial trip condition requiring only one additional channel in the same loop to initiate a reactor trip. For the latter two trip Functions, two tripped channels in two RCS loops are required to initiate a reactor trip when below the P-8 setpoint and above the P-7 setpoint. These Functions do not have to be OPERABLE below the P-7 setpoint because there are no loss of flow trips below the P-7 setpoint. There is insufficient heat production to generate DNB conditions below the P-7 setpoint. The 6 hours allowed to place the channel in the tripped condition is justified in Reference 7. An additional 6 hours is allowed to reduce THERMAL POWER to below P-7 if the inoperable channel cannot be restored to OPERABLE status or placed in trip within the specified Completion Time.

(1)

INSERT 43

is acceptable given the capability of the remaining OPERABLE source range channel.

<TSTF - 418 not shown> (16)

BASES

ACTIONS (continued)

Allowance of this time interval takes into consideration the redundant capability provided by the remaining redundant OPERABLE channel, and the low probability of occurrence of an event during this period that may require the protection afforded by the Functions associated with Condition K.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing routine surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

(5)

L.1 and L.2

Condition L applies to the RCP Breaker Position (Single Loop) reactor trip Function. There is one breaker position device per RCP breaker. With one channel inoperable, the inoperable channel must be restored to OPERABLE status within 6 hours. If the channel cannot be restored to OPERABLE status within the 6 hours, then THERMAL POWER must be reduced below the P-8 setpoint within the next 4 hours.

This places the unit in a MODE where the LCO is no longer applicable. This Function does not have to be OPERABLE below the P-8 setpoint because other RTS Functions provide core protection below the P-8 setpoint. The 6 hours allowed to restore the channel to OPERABLE status and the 4 additional hours allowed to reduce THERMAL POWER to below the P-8 setpoint are justified in Reference 7.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while performing outline surveillance testing of the other channels. The 4 hour time limit is justified in Reference 7.

M.1 and M.2

Condition M applies to Turbine Trip on Low Fluid Oil Pressure or on Turbine Stop Valve Closure. With one channel inoperable, the inoperable channel must be placed in the trip condition within 6 hours. If placed in the tripped condition, this results in a partial trip condition requiring only one additional channel to initiate a reactor trip. If the channel cannot be restored to OPERABLE status or placed in the trip condition, then power must be reduced below the P-9 setpoint within the next 4 hours. The 6 hours allowed to place the inoperable channel in the

<TSTF - 418 not shown> (16)

BASES

ACTIONS (continued)

tripped condition and the 4 hours allowed for reducing power are justified in Reference 7.

The Required Actions have been modified by a Note that allows placing the inoperable channel in the bypassed condition for up to 4 hours while *performing routine surveillance testing of the other channels*. The 4 hour time limit is justified in Reference 7.

N.1 and N.2

Condition N applies to the SI Input from ESFAS reactor trip and the RTS Automatic Trip Logic in MODES 1 and 2. These actions address the train orientation of the RTS for these Functions. With one train inoperable, 6 hours are allowed to restore the train to OPERABLE status (Required Action N.1) or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 6 hours (Required Action N.1) is reasonable considering that in this Condition, the remaining OPERABLE train is adequate to perform the safety function and given the low probability of an event during this interval. The Completion Time of 6 hours (Required Action N.2) is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems.

The Required Actions have been modified by a Note that allows bypassing one train up to 4 hours for surveillance testing, provided the other train is OPERABLE.

O.1 and O.2

Condition O applies to the RTBs in MODES 1 and 2. These actions address the train orientation of the RTS for the RTBs. With one train inoperable, 1 hour is allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the next 6 hours. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function. Placing the unit in MODE 3 results in ACTION C entry while RTB(s) are inoperable.

The Required Actions have been modified by two Notes. Note 1 allows one channel to be bypassed for up to 2 hours for surveillance testing, provided the other channel is OPERABLE. Note 2 allows one RTB to be

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TSTF-411

INSERT 44

for train corrective maintenance

1 TSTF-411

INSERT 45

11

The 24 hour Completion Time is justified in Reference [8].

<TSTF-418 not shown> 16

BASES

ACTIONS (continued)

bypassed for up to 2 hours for maintenance if the other RTB train is OPERABLE. The 2 hour time limit is justified in Reference 7. TSTF-411

P.1 and P.2

Condition P applies to the P-6 and P-10 interlocks. With one or more channels inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed in MODE 3 within the next 6 hours. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power in an orderly manner and without challenging unit systems. The 1 hour and 6 hour Completion Times are equal to the time allowed by LCO 3.0.3 for shutdown actions in the event of a complete loss of RTS Function.

Q.1 and Q.2

Condition Q applies to the P-7, P-8, P-9, and P-13 interlocks. With one or more channels inoperable for one-out-of-two or two-out-of-four coincidence logic, the associated interlock must be verified to be in its required state for the existing unit condition within 1 hour or the unit must be placed in MODE 2 within the next 6 hours. These actions are conservative for the case where power level is being raised. Verifying the interlock status manually accomplishes the interlock's Function. The Completion Time of 1 hour is based on operating experience and the minimum amount of time allowed for manual operator actions. The Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 2 from full power in an orderly manner and without challenging unit systems.

R.1 and R.2

Condition R applies to the RTB Undervoltage and Shunt Trip Mechanisms, or diverse trip features, in MODES 1 and 2. With one of the diverse trip features inoperable, it must be restored to an OPERABLE status within 48 hours or the unit must be placed in a MODE where the requirement does not apply. This is accomplished by placing the unit in MODE 3 within the next 6 hours (54 hours total time). The Completion Time of 6 hours is a reasonable time, based on operating experience, to

<TSTF-418 not shown> (16)

BASES

ACTIONS (continued)

reach MODE 3 from full power in an orderly manner and without challenging unit systems. With the unit in MODE 3, ACTION C would apply to any inoperable RTB trip mechanism. The affected RTB shall not be bypassed while one of the diverse features is inoperable except for the time required to perform maintenance to one of the diverse features. The allowable time for performing maintenance of the diverse features is 2 hours for the reasons stated under Condition Ø. (5)

The Completion Time of 48 hours for Required Action (M) B.1 is reasonable considering that in this Condition there is one remaining diverse feature for the affected RTB, and one OPERABLE RTB capable of performing the safety function and given the low probability of an event occurring during this interval. (5) INSERT 46 (5)

SURVEILLANCE REQUIREMENTS

The SRs for each RTS Function are identified by the SRs column of Table 3.3.1-1 for that Function.

A Note has been added to the SR Table stating that Table 3.3.1-1 determines which SRs apply to which RTS Functions.

Note that each channel of process protection supplies both trains of the RTS. When testing Channel I, Train A and Train B must be examined. Similarly, Train A and Train B must be examined when testing Channel II, Channel III, and Channel IV (if applicable). The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

- REVIEWER'S NOTE -

Certain Frequencies are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Frequencies as required by the staff SER for the topical report. (8)

SR 3.3.1.1

Performance of the CHANNEL CHECK once every 12 hours ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift

(5) INSERT 46

N.1

If any Required Action and associated Completion Time cannot be met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to MODE 1 below the P-7 interlock within 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

O.1

If any Required Action and associated Completion Time cannot be met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to MODE 2 within 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

P.1

If any Required Action and associated Completion Time cannot be met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to MODE 3 within 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

Q.1 and Q.2

If any Required Action and associated Completion Time cannot be met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must immediately initiate action to fully insert all rods and place the Rod Control System incapable of rod withdrawal within 1 hour. The additional hour provides sufficient time to accomplish the action in an orderly manner. With rods fully inserted and the Rod Control System incapable of rod withdrawal, these Functions are no longer required.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

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

SR 3.3.1.2

SR 3.3.1.2 compares the calorimetric heat balance calculation to the NIS channel output every 24 hours. If the calorimetric exceeds the NIS channel output by > 2% RTP, the NIS is not declared inoperable, but must be adjusted. If the NIS channel output cannot be properly adjusted, the channel is declared inoperable.

(5) TSTF-371 not shown

Two Notes modify SR 3.3.1.2. The first Note indicates that the NIS channel output shall be adjusted consistent with the calorimetric results if the absolute difference between the NIS channel output and the calorimetric is > 2% RTP. The second Note clarifies that this Surveillance is required only if reactor power is ≥ 15% RTP and that 12 hours is allowed for performing the first Surveillance after reaching 15% RTP. At lower power levels, calorimetric data are inaccurate.

The Frequency of every 24 hours is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Together these factors demonstrate the change in the absolute difference between NIS and heat balance calculated powers rarely exceeds 2% in any 24 hour period. (2)

In addition, control room operators periodically monitor redundant indications and alarms to detect deviations in channel outputs.

BASES

SURVEILLANCE REQUIREMENTS (continued)

TSTF-371 not shown (5)

SR 3.3.1.3

SR 3.3.1.3 compares the incore system to the NIS channel output every 31 EFPD. If the absolute difference is ≥ 3%, the NIS channel is still OPERABLE, but must be readjusted.

If the NIS channel cannot be properly readjusted, the channel is declared inoperable. This Surveillance is performed to verify the f(ΔI) input to the overtemperature ΔT Function. (6)

Two Notes modify SR 3.3.1.3. Note 1 indicates that the excore NIS channel shall be adjusted if the absolute difference between the incore and excore AFD is ≥ 3%. Note 2 clarifies that the Surveillance is required only if reactor power is ≥ [15%] RTP and that 24 hours is allowed for performing the first Surveillance after reaching [15%] RTP. (4)

The Frequency of every 31 EFPD is adequate. It is based on unit operating experience, considering instrument reliability and operating history data for instrument drift. Also, the slow changes in neutron flux during the fuel cycle can be detected during this interval.

SR 3.3.1.4 TSFF 411 (5)

SR 3.3.1.4 is the performance of a TADOT every ~~31~~ 62 days on a STAGGERED TEST BASIS. This test shall verify OPERABILITY by actuation of the end devices. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The RTB test shall include separate verification of the undervoltage and shunt trip mechanisms. Independent verification of RTB undervoltage and shunt trip Function is not required for the bypass breakers. No capability is provided for performing such a test at power. The independent test for bypass breakers is included in SR 3.3.1.~~14~~ 17. The bypass breaker test shall include a local shunt trip. A Note has been added to indicate that this test must be performed on the bypass breaker prior to placing it in service. (5)

BASES

SURVEILLANCE REQUIREMENTS (continued)

The Frequency of every 31 days on a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

SR 3.3.1.5

SR 3.3.1.5 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 31 days on a STAGGERED TEST BASIS, using the semiautomatic tester. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. The Frequency of every 31 days on a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

SR 3.3.1.6

SR 3.3.1.6 is a calibration of the excore channels to the incore channels. If the measurements do not agree, the excore channels are not declared inoperable but must be calibrated to agree with the incore detector measurements. If the excore channels cannot be adjusted, the channels are declared inoperable. This Surveillance is performed to verify the f(ΔI) input to the overtemperature ΔT Function.

A Note modifies SR 3.3.1.6. The Note states that this Surveillance is required only if reactor power is > 50% RTP and that 24 hours is allowed for performing the first surveillance after reaching 50% RTP.

The Frequency of 92 EFPD is adequate. It is based on industry operating experience, considering instrument reliability and operating history data for instrument drift.

SR 3.3.1.7

SR 3.3.1.7 is the performance of a COT every 92 days.

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the

(5) INSERT 47

SR 3.3.1.6

SR 3.3.1.6 is the performance of a TADOT and is performed every 92 days on a STAGGERED TEST BASIS. This test applies to the SI Input from ESFAS Function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The Frequency of every 92 days on a STAGGERED TEST BASIS is justified in Reference 11.

<TSTF-418 not shown> (16)

BASES

SURVEILLANCE REQUIREMENTS (continued)

relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

Setpoints must be within the Allowable Values specified in Table 3.3.1-1.

The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology. The setpoint shall be left set consistent with the assumptions of the current unit specific setpoint methodology.

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of Reference 9. (8) (1) <TSTF 411 changes not shown>

INSERT 47A

SR 3.3.1.7 is modified by a Note that provides a 4 hours delay in the requirement to perform this Surveillance for source range instrumentation when entering MODE 3 from MODE 2. This Note allows a normal shutdown to proceed without a delay for testing in MODE 2 and for a short time in MODE 3 until the RTBs are open and SR 3.3.1.7 is no longer required to be performed. If the unit is to be in MODE 3 with the RTBs closed for > 4 hours this Surveillance must be performed prior to 4 hours after entry into MODE 3. (5)

The Frequency of [92] days is justified in Reference 8. (4) (1)

INSERT 48 (5)

SR 3.3.1.8 (11)

every 184 days

SR 3.3.1.8 is the performance of a COT as described in SR 3.3.1.7, except it is modified by a Note that this test shall include verification that the P-6 and P-10 interlocks are in their required state for the existing unit condition. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The Frequency is modified by a Note that allows this surveillance to be satisfied if it has been performed within [92] days of the Frequencies prior to reactor startup and four hours after reducing power below P-10 and P-6. The Frequency of "prior to startup" ensures this surveillance is performed prior to critical operations and applies to the source, intermediate and power range low instrument channels. The Frequency of [12] hours after reducing power

(10) INSERT 49 — COT (2)

(5) INSERT SR 3.3.1.10 from page B 3.3.1-49

(10) INSERT 49A

(5) INSERT 50

(4)

(5) **INSERT 47A**

SR 3.3.1.8 is modified by a Note that provides a 12 hour delay in the requirement to perform this Surveillance for Function 2.b channels after reducing THERMAL POWER below the P-10 interlock. The Frequency of 12 hours after reducing power below P-10 allows a normal shutdown to be completed and the unit removed from the MODE of Applicability for this Surveillance without a delay to perform the testing required by this Surveillance.

(5) **INSERT 48**

SR 3.3.1.9

A CHANNEL CALIBRATION is performed every 92 days. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

The Frequency of 92 days is based on the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

This SR is modified by a Note that states that neutron detectors are excluded from the CHANNEL CALIBRATION. Changes in power range neutron detector sensitivity are compensated for by normalization of the channel output based on a power calorimetric and flux map performed above 15% RTP (SR 3.3.1.2).

(10) **INSERT 49**

A COT is performed on each required channel to ensure the entire channel will perform the intended Function.

(10) **INSERT 49A**

Setpoints must be within the Allowable Values specified in Table 3.3.1-1.

The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology. The setpoint shall be left set consistent with the assumptions of the current unit specific setpoint methodology.

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of Reference 8.

(5) **INSERT 50**

two Notes. Note 1 provides a 12 hour delay in the requirement to perform this Surveillance for intermediate range instrumentation after reducing THERMAL POWER below the P-10 interlock.

<TSTF-418 not shown> (16)

BASES

SURVEILLANCE REQUIREMENTS (continued)

below P-10 (applicable to intermediate and power range low channels) and 4 hours after reducing power below P-6 (applicable to source range channels) allows a normal shutdown to be completed and the unit removed from the MODE of Applicability for this surveillance without a delay to perform the testing required by this surveillance. The Frequency of every 92 days thereafter applies if the plant remains in the MODE of Applicability after the initial performances of prior to reactor startup and [12] and four hours after reducing power below P-10 or P-6, respectively. The MODE of Applicability for this surveillance is < P-10 for the power range low and intermediate range channels and < P-6 for the source range channels. Once the unit is in MODE 3, this surveillance is no longer required. If power is to be maintained < P-10 for more than [12] hours or < P-6 for more than 4 hours, then the testing required by this surveillance must be performed prior to the expiration of the time limit. [Twelve] hours and four hours are reasonable times to complete the required testing or place the unit in a MODE where this surveillance is no longer required. This test ensures that the NIS source, intermediate, and power range low channels are OPERABLE prior to taking the reactor critical and after reducing power into the applicable MODE (< P-10 or < P-6) for periods > [12] and 4 hours, respectively.

(5) (2) (5) INSERT 50A

INSERT 51 (5) (5)

(3) move to page B 3.3.1-48 as indicated

SR 3.3.1.9 (10)

SR 3.3.1.9 is the performance of a TADOT and is performed every [92] days, as justified in Reference 7. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

(4) (1)

The SR is modified by a Note that excludes verification of relay setpoints from the TADOT. Since this SR applies to RCP undervoltage and underfrequency relays, setpoint verification requires elaborate bench calibration and is accomplished during the CHANNEL CALIBRATION.

(5)

(1) INSERT 52

INSERT 53 (5)

SR 3.3.1.10 (13)

(5) (7) (F)

A CHANNEL CALIBRATION is performed every [18] (24) months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test

(5) **INSERT 50A**

Note 2 provides a 4 hour delay in the requirement to perform this Surveillance for source range instrumentation after THERMAL POWER is reduced below the P-6 interlock. This Note allows a normal shutdown to proceed without a delay for testing in MODE 2 and for a short time in MODE 3 until the RTBs are open and SR 3.3.1.11 is no longer required to be performed. If the unit is to be in MODE 3 with the RTBs closed for > 4 hours this Surveillance must be performed prior to 4 hours after THERMAL POWER is reduced below the P-6 interlock.

(1) **INSERT 51**

The Frequency of 184 days is justified in Reference 11.

(1) **INSERT 52**

The Frequency of 92 days is justified in Reference 10.

(5) **INSERT 53**

SR 3.3.1.12

A CHANNEL CALIBRATION is performed every 184 days. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

The Frequency of 184 days is based on the assumption of an 184 day calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

verifies that the channel responds to a measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

The Frequency of 18 (24) months is based on the assumption of an 18 (24) month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology. (4)

SR 3.3.1.10 is modified by a Note stating that this test shall include verification that the time constants are adjusted to the prescribed values where applicable. (5)

SR 3.3.1.11 (14) (5)

SR 3.3.1.11 (14) is the performance of a CHANNEL CALIBRATION, as described in SR 3.3.1.10, every 18 (24) months. This SR is modified by a Note stating that neutron detectors are excluded from the CHANNEL CALIBRATION. The CHANNEL CALIBRATION for the power range neutron detectors consists of a normalization of the detectors based on a power calorimetric and flux map performed above 15% RTP. The CHANNEL CALIBRATION for the source range and intermediate range neutron detectors consists of (also includes) obtaining the detector plateau or preamp discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. This Surveillance is not required for the NIS power range detectors for entry into MODE 2 or 1, and is not required for the NIS intermediate range detectors for entry into MODE 2, because the unit must be in at least MODE 2 to perform the test for the intermediate range detectors and MODE 1 for the power range detectors. (INSERT 54) (INSERT 53) The 18 (24) month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed on the 18 (24) month Frequency. (4)

SR 3.3.1.12 (15) (5)

(10) **INSERT 54**

CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor.

(5) **INSERT 55**

Changes in power range neutron detector sensitivity are compensated for by normalization of the channel output based on a power calorimetric and flux map performed above 15% RTP (SR 3.3.1.2). Changes in intermediate range neutron flux detector sensitivity are compensated for by periodically evaluating the compensating voltage setting and making adjustments as necessary. Changes in source range neutron detector sensitivity are compensated for by periodically obtaining the detector plateau or preamp discriminator curves, evaluating those curves, comparing the curves to the manufacturer's data, and adjusting the channel output as necessary.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.12 is the performance of a CHANNEL CALIBRATION, as described in SR 3.3.1.10, every 18 months. This SR is modified by a Note stating that this test shall include verification of the RCS resistance temperature detector (RTD) bypass loop flow rate. Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the resistance temperature detectors (RTD) sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element.

This test will verify the rate lag compensation for flow from the core to the RTDs.

The Frequency is justified by the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.1.13

SR 3.3.1.13 is the performance of a COT of RTS interlocks every 18 months. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The Frequency is based on the known reliability of the interlocks and the multichannel redundancy available, and has been shown to be acceptable through operating experience.

SR 3.3.1.14

SR 3.3.1.14 is the performance of a TADOT of the Manual Reactor Trip, RCP Breaker Position, and the SI Input from ESFAS. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This TADOT is performed every 18 months. The test shall independently verify the OPERABILITY of the undervoltage and shunt trip mechanisms for the

(5) **INSERT 56**

This SR is modified by two Notes.

(5) **INSERT 57**

Note 2 provides a 72 hour delay in the requirement to perform a normalization of the ΔT channels after THERMAL POWER is ≥ 98% RTP. The intent of Note 2 is to maintain reactor power at a nominal 97% RTP to 98% RTP level until the ΔT normalization is complete before increasing reactor power to 100% RTP.

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<TSTF-418 not shown> (16)

BASES

SURVEILLANCE REQUIREMENTS (continued)

Manual Reactor Trip Function for the Reactor Trip Breakers and Reactor Trip Bypass Breakers. The Reactor Trip Bypass Breaker test shall include testing of the automatic undervoltage trip.

The Frequency is based on the known reliability of the Functions and the multichannel redundancy available, and has been shown to be acceptable through operating experience.

The SR is modified by a Note that excludes verification of setpoints from the TADOT. The Functions affected have no setpoints associated with them. (5)

SR 3.3.1.15 (18) (5)

SR 3.3.1.15 is the performance of a TADOT of Turbine Trip Functions. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This TADOT is as described in SR 3.3.1.4, except that this test is performed prior to exceeding the P-9 interlock whenever the unit has been in MODE 3. This Surveillance is not required if it has been performed within the previous 31 days. Verification of the Trip Setpoint does not have to be performed for this Surveillance. Performance of this test will ensure that the turbine trip Function is OPERABLE prior to exceeding the P-9 interlock. (5) (4) (P-7) (4)

SR 3.3.1.16 (19) (5)

SR 3.3.1.16 verifies that the individual channel/train actuation response times are less than or equal to the maximum values assumed in the accident analysis. Response time testing acceptance criteria are included in Technical Requirements Manual, Section 15 (Ref. 6). (UFSAR Table 7.2-6) (12) (1)
Individual component response times are not modeled in the analyses.

The analyses model the overall or total elapsed time, from the point at which the parameter exceeds the trip setpoint value at the sensor to the point at which the equipment reaches the required functional state (i.e., control and shutdown rods fully inserted in the reactor core).

INSERT 58

Not Used

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BASES

SURVEILLANCE REQUIREMENTS (continued)

For channels that include dynamic transfer Functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed with the transfer Function set to one, with the resulting measured response time compared to the appropriate FSAR response time. Alternately, the response time test can be performed with the time constants set to their nominal value, provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured.

\- REVIEWER'S NOTE -
Applicable portions of the following Bases are applicable for plants adopting WCAP-13632-P-A and/or WCAP-14036-P.

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g. vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test.

WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that my adversely affect response time. In general, electrical repair work does not impact response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

<TSTF-418 not shown> (16)

BASES

SURVEILLANCE REQUIREMENTS (continued)

(24) As appropriate, each channel's response must be verified every [18] months on a STAGGERED TEST BASIS. Testing of the final actuation devices is included in the testing. [Response times cannot be determined during unit operation because equipment operation is required to measure response times.] Experience has shown that these components usually pass this surveillance when performed at the (24) [18] month Frequency. Therefore, the Frequency was concluded to be acceptable from a reliability standpoint. (4) (1) (5) (2)

(19) SR 3.3.1.16 is modified by a Note stating that neutron detectors are excluded from RTS RESPONSE TIME testing. This Note is necessary because of the difficulty in generating an appropriate detector input signal. Excluding the detectors is acceptable because the principles of detector operation ensure a virtually instantaneous response. (5) (1)

INSERT 59

REFERENCES

INSERT 6D (1)

1. FSAR, Chapter [7].
2. FSAR, Chapter [6].
3. FSAR, Chapter [15].
4. IEEE-279-1971.
5. 10 CFR 50.49.
6. RTS/ESFAS Setpoint Methodology Study.
7. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990.
8. Technical Requirements Manual, Section 15, "Response Times."
(13) 9. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996. (4)
(14) 10. WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," December 1995. (4)

1 **INSERT 59**

The response time testing of the neutron flux signal portion of the channel shall be measured from either the detector output or the input of the first electronic component in the channel.

1 **INSERT 60**

1. Regulatory Guide 1.105, Revision 3, "Setpoints for Safety Related Instrumentation."
2. UFSAR, Chapter 7.
3. Technical Requirements Manual.
4. IEEE-279, "Proposed Criteria for Nuclear Power Plant Protection Systems," August 1968.
5. UFSAR, Table 7.2-1.
6. UFSAR, Table 14.1-2 (Unit 1) and UFSAR, Table 14.1.0-4 (Unit 2).
7. 10 CFR 50.49.
8. WCAP-12741, "Westinghouse Menu Driven Setpoint Calculation Program (STEPIT)," as approved in Unit 1 and Unit 2 License Amendments 175 and 160, dated May 13, 1994.
9. UFSAR, Chapter 14.
10. WCAP-10271-P-A, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," including Supplement 1, May 1986, and Supplement 2, Rev.1, June 1990.

11 ~~8~~. WCAP-15376, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," October 2000. TSTF-411

12. UFSAR, Table 7.2-6.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.1 BASES, REACTOR TRIP SYSTEM INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. Grammatical/editorial error corrected.

3. The Note, describing an alternative Technical Specification format with respect to Allowable Values and Trip Setpoints, is deleted because it is not intended to be included in the plant specific ITS submittal.

4. The brackets have been removed and the proper plant specific information/value has been provided.

5. Changes are made to reflect changes made to the Specification.

6. Spelling error corrected.

7. Changes are made to reflect the Specifications.

8. The Reviewer's Notes are deleted because they are not intended to be included in the plant specific ITS submittal.

9. The discussion in ISTS SR 3.3.1.11 (ITS SR 3.3.1.14) about the normalization of the power range neutron detectors has been deleted since the adjustment is part of ISTS SR 3.3.1.2 (ITS SR 3.3.1.2).

10. Changes are made for consistency with other places of the Bases.

11. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

12. This statement has been added since the Power Range Neutron Flux and Intermediate Range Neutron Flux instrumentation are not assumed in the accident analyses to prevent automatic or manual rod withdrawal.

13. This statement has been added since this feature is not required for OPERABILITY of the Steam Generator Water Level - Low Low RTS Function.

14. This statement has been deleted since it is not relevant to the discussion.

15. This statement has been added since this feature is not assumed in the safety analyses.

16. TSTF-418, Rev. 2, which incorporates WCAP-14333, has not been adopted.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.1, REACTOR TRIP SYSTEM (RTS) INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 2

ITS 3.3.2, Engineered Safety Features Actuation System (ESFAS) Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

(A.1)

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.2 — 3.3.2.1 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE ~~with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4.~~ (LA.1)

APPLICABILITY: As shown in Table 3.3-3.

ACTION: — Add proposed ACTIONS Note (A.2)

ACTIONS A through G — a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status ~~with the trip setpoint adjusted consistent with the Trip Setpoint value.~~ (LA.1)

ACTION A — b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

SR Table Note — 4.3.2.1.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION, ~~CHANNEL FUNCTIONAL TEST~~ and TRIP ACTUATING DEVICE OPERATIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2. (A.10) (M.12)

Add proposed SR 3.3.2.1 and SR 3.3.2.6

SR 3.3.2.3, For Functions 1.b and 4.b; SR 3.3.2.10 — 4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the automatic actuation logic test. The total interlock function shall be demonstrated OPERABLE at least once per ~~18~~ 24 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. (L.2) (L.3)

Add proposed Note to SR 3.3.2.12 (L.4)

SR 3.3.2.12 — 4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of ~~each~~ ESFAS function shall be demonstrated to be within the limit at least once per ~~18~~ 24 months. ~~Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3.~~ on a STAGGERED TEST BASIS (A.3) (A.4)

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.2 A.5

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1	1. SAFETY INJECTION, TURBINE TRIP, FEEDWATER ISOLATION, AND MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS (LA.3)					
1.a	a. Manual Initiation	See Functional Unit 9 (LA.2)				
1.b	b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13 C, I
1.c	c. Containment Pressure - High	3	2	2 3	1, 2, 3	14 D
1.d	d. Pressurizer Pressure - Low	3	2	2 3	1, 2, 3#	14 D
1.e.(2)	e. Differential Pressure Between Steam Lines - High (per steam line) (A.2)					
	Four Loops Operating	3/steam line	2/steam line any steam line	2/steam line 3	1, 2, 3##	14 D
	Three Loops Operating	3/operating steam line	1###/steam line, any operating steam line	2/operating steam line	3##	15

A.15

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.2

1.e.(1)	f. Steam Line Pressure - Low		per steam line			A.5
	Four Loops Operating	1 pressure/loop	2 pressures any loops	1 pressure any 3 loops	1, 2, 3##	14 D
	Three Loops Operating	1 pressure/ operating loop	1###/ pressure in any operating loop	1 pressure in any 2 operating loops	3##	15

A.15

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3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	2. CONTAINMENT SPRAY					
2.a	a. Manual	See Functional Unit 9				
2.b	b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13 C, J
2.c	c. Containment Pressure–High-High	4	2	3 4	1, 2, 3	16 E

(LA.2) (A.5) (LA.2) (A.5)

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.2

REQUIRED A.5

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	3. CONTAINMENT ISOLATION					
	a. Phase "A" Isolation					
3.a.(1)	1) Manual	See Functional Unit 9				
3.a.(3)	2) From Safety Injection Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
	b. Phase "B" Isolation					
3.b.(1)	1) Manual	See Functional Unit 9				
3.b.(2)	2) Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13 C, J
3.b.(3)	3) Containment Pressure -- High-High	4	2	3 4	1, 2, 3	16 E
	c. Purge and Exhaust Isolation					
	1) Manual	See Functional Unit 9				
	2) Containment Radioactivity-* High Train A (VRS 1101, ERS-1301, ERS 1305)	3	1	2	1, 2, 3, 4	17
	3) Containment Radioactivity-* High Train B (VRS 1201, ERS-1401, ERS-1405)	3	1	2	1, 2, 3, 4	17

Add proposed Function 3.a.(2) — A.7

LA.2

A.17

LA.2

A.5

See ITS 3.3.6

*This specification only applies during PURGE.

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.2 A.5 LA.2 L.6 A.5 L.6 A.5 L.6 A.2 A.15

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	4. STEAM LINE ISOLATION					
4.a	a. Manual	See Functional Unit 9			Add proposed Footnote (d)	
4.b	b. Automatic Actuation Logic	2	1	2	1, 2, 3	13 C, I
4.c	c. Containment Pressure -- High-High	4	2	3 4	1, 2, 3 Add proposed Foonote (d)	16 E
4.e	d. Steam Flow in Two Steam Lines -- High (per steam line)					
	Four Loops Operating	2/steam line	1/steam line any 2 steam lines	1/steam line 2	1, 2, 3* Add proposed Footnote (d)	14 D
	Three Loops Operating	2/operating steam line	1###/any operating steam line	1/operating steam line	3##	15

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	REQUIRED APPLICABLE MODES	ACTION
	COINCIDENT WITH					
4.e	T_{avg} – Low-Low					
	Four Loops Operating	1 T_{avg}/loop	2 T_{avg} any loops	1 T_{avg} any 3 loops (per loop)	1, 2, 3##	14 D
	Three Loops Operating	1 T_{avg}/operating loop	1### T_{avg} in any operating loop	1 T_{avg} in any two operating loops	3##	15
	e. Steam Line Pressure-Low					
4.d	Four Loops Operating	1 pressure/loop	2 pressures any loops	1 pressure any 3 loops (per steam line)	1, 2, 3##	14 D
	Three Loops Operating	1 pressure/operating loop	1### pressure in any operating loop	1 pressure in any 2 operating loops	3##	15
	5. TURBINE TRIP & FEEDWATER ISOLATION					
5.b	a. Steam Generator Water Level – High-High (per SG)	3/loop	2/loop in any operating loop	3 2/loop in each operating loop	1, 2, 3	14 D

LA.2 A.5 Add proposed Footnote (d) L.6 A.5 A.15

LA.2 Add proposed Footnote (d) L.6 A.5 A.15

LA.2 Add proposed Footnote (f) L.7 A.5

A.2

Add proposed Function 5.a L.8 A.12

Add proposed Function 5.c A.8 L.15

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
6.c	a. Steam Generator Water Level -- Low-Low (per SG)	3/Stm. Gen.	2/Stm. Gen. any Stm. Gen.	2/Stm. Gen. 3	1, 2, 3	14 D
6.e	b. 4 kV Bus Loss of Voltage (per bus)	3/Bus	2/Bus	2/Bus 3	1, 2, 3	14 F
	Pump Start		2/bus (T11A - Train B; T11D - Train A)			
	Valve Actuation (Both trains)		2/bus on (T11A & T11B or 2/busses T11C & T11D)			
6.d	c. Safety Injection	2	1	2	1, 2, 3	18
6.g	d. Loss of Main Feedwater Pumps	2	2	2 per pump	1, 2	18 B, H
	Add proposed Functions 6.a and 6.b					
	7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
6.c	a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	3 2/Stm. Gen.	1, 2, 3	14 D
6.f	b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3 1 per bus	1, 2, 3	19 D
	8. LOSS OF POWER					
	a. 4 kV Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14
	b. 4 kV Bus Degraded Voltage	3/Bus (T11A - Train B; T11D - Train A)	2/Bus (T11A - Train B; T11D - Train A)	2/Bus (T11A - Train B; T11D - Train A)	1, 2, 3, 4	14

See ITS 3.3.5

Add proposed Function 6.a

LA.2, A.5, A.2, A5, A.17, A.16, A.13, L.17, L.18

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ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION (LA.2)

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION	
	9. MANUAL						A.5, L.20
1.a, 5.c, 3.a.(3), 6.d	a. Safety Injection (ECCS) Feedwater Isolation Reactor Trip (SI) Containment Isolation-Phase "A" Containment Purge and Exhaust Isolation Auxiliary Feedwater Pumps Essential Service Water System	2/train	1/train	[1] 2/train	1, 2, 3, 4	18 B, J	LA.3, A.17 (See ITS 3.3.6), LA.3, LA.2
2.a, 3.b.(1)	b. Containment Spray Containment Isolation - Phase "B" Containment Purge and Exhaust Isolation	1/train	1/train	1/train	1, 2, 3, 4	18 B, J	See ITS 3.3.6
3.a.(1)	c. Containment Isolation - Phase "A" Containment Purge and Exhaust Isolation	1/train	1/train	1/train	1, 2, 3, 4	18 B, J	LA.2, See ITS 3.3.6, A.2
4.a	d. Steam Line Isolation (per steam line) (A.2)	2/steam line (1 per train)	2/steam line (1 per train)	2/operating steam line (1 per train) [1]	1, 2, 3 Add proposed Footnote (d)	20 B, K	L.6
7.a	e. Containment Air Recirculation Fan	1/train	1/train	1/train	1, 2, 3, 4	18 B, J	LA.2
	10. CONTAINMENT AIR RECIRCULATION FAN						
7.a	a. Manual	See Functional Unit 9					
7.b	b. Automatic Actuation Logic	2	1	2	1, 2, 3	13 C, I	
7.c	c. Containment Pressure - High	3	2	[3] 2	1, 2, 3	14 D	A.5, LA.2

(A.1)

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

TABLE NOTATION

Footnote (a) # Trip function may be bypassed in this MODE below P-11.

Footnote (b) ## Trip function may be bypassed in this MODE below P-12.

~~### The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.~~

~~#### Manually trip all bistables which would be automatically tripped in the event pressure in the associated active loop were less than the pressure in the inactive loop. For example, if loop 1 is the inactive loop then the bistables which indicate low pressure in loops 2, 3 and 4 relative to loop 1 should be tripped.~~ (A.15)

ACTION STATEMENTS

[Add proposed Required Action C.1] (L.9)

ACTION C — ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, [be in HOT STANDBY within 6 hours and] [in COLD SHUTDOWN within the following 30 hours]; [however, one channel may be bypassed for up to [2] hours for surveillance testing per Specification 4.3.2.1.1.] [4] (M.9) (L.5)

ACTIONS I and J; ACTION C Note

[Add proposed ACTION D Note]

ACTIONS D and F — ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, [operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST] provided the inoperable channel is placed in the tripped condition within [1] hour. [6] (L.10) [Add proposed ACTIONS H, I, and J] (M.4) (L.5)

~~ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.~~ (A.15)

ACTION E — ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition [within 6 hours] and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to [2] hours for surveillance testing per Specification 4.3.2.1.1. [4] (L.11) (L.5)

[Add proposed ACTIONS I and J] (M.4)

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(A.1)

ITS

TABLE 3.3-3 (Continued)

ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed. — (See ITS 3.3.6)

ACTION B — ACTION 18 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at

ACTIONS H, I, and J — least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. — (A.14)

ACTION D — ACTION 19 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within [1] hour. [6]

b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to [2] hours for surveillance testing per Specification 4.3.2.1. [4] — (L.5)

Add proposed ACTION K — (M.4)

ACTION B — ACTION 20 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare

ACTION K — the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.

ITS 3.3.2

A.1

ITS

Table 3.3.2-1

A.9

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

ENGINEERED SAFETY FEATURES INTERLOCKS

	DESIGNATION	CONDITION AND SETPOINT	FUNCTION	
8.b	P-11	With 2 of 3 pressurizer pressure channels greater than or equal to 1915 psig.	P-11 prevents or defeats manual block of safety injection actuation on low pressurizer pressure.	LA.4
8.c	P-12	With 2 of 4 T_{avg} channels less than or equal to Setpoint. Setpoint greater than or equal to 541°F (538.8)	P-12 allows the manual block of safety injection actuation on low steam line pressure causes steam line isolation on high steam flow. Affects steam dump blocks. With 3 of 4 T_{avg} channels above the reset point, prevents or defeats the manual block of safety injection actuation on low steam line pressure.	LA.4, L.22

Add proposed Applicability

Add proposed ACTIONS G and I

Add proposed ACTIONS D and I

L.12

Add proposed Function 8.a, including ACTIONS and Surveillance Requirement

M.5

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1 TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
1	1. SAFETY INJECTION, TURBINE TRIP, FEEDWATER ISOLATION, AND MOTOR DRIVEN FEEDWATER PUMPS			LA.1 (Trip Setpoint); LA.3
1.a	a. Manual Initiation	See Functional Unit 9		
1.b	b. Automatic Actuation Logic	Not Applicable	Not Applicable	LA.1
1.c	c. Containment Pressure--High	Less than or equal to 1.1 psig	Less than or equal to 1.2 psig [1.17]	M.11
1.d	d. Pressurizer Pressure--Low	Greater than or equal to 1815 psig	Greater than or equal to 1805 psig [1765]	L.22
1.e.(2)	e. Differential Pressure Between Steam Lines--High	Less than or equal to 100 psi	Less than or equal to 112 psi	
1.e.(1)	f. Steam Line Pressure--Low	Greater than or equal to 500 psig steam line pressure	Greater than or equal to 480 psig [481.3] steam line pressure	M.11

(per steam line) — A.2

Add proposed Footnote (c) — M.1

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS (LA.1)

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
	2. CONTAINMENT SPRAY			
2.a	a. Manual Initiation	See Functional Unit 9		LA.1
2.b	b. Automatic Actuation Logic	Not Applicable	Not Applicable	
2.c	c. Containment Pressure--High-High	Less than or equal to 2.9 psig	Less than or equal to [3] 2.97 psig	M.11
	3. CONTAINMENT ISOLATION			
	a. Phase "A" Isolation			
3.a.(1)	1. Manual	See Functional Unit 9		LA.1
3.a.(3)	2. From Safety Injection Automatic Actuation Logic	Not Applicable	Not Applicable	A.17
	b. Phase "B" Isolation			
3.b.(1)	1. Manual	See Functional Unit 9		LA.1
3.b.(2)	2. Automatic Actuation Logic	Not Applicable	Not Applicable	
3.b.(3)	3. Containment Pressure--High-High	Less than or equal to 2.9 psig	Less than or equal to [3] 2.97 psig	M.11
	c. Purge and Exhaust Isolation			
	1. Manual	See Functional Unit 9		See ITS 3.3.6

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ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS (LA.1)

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
	2. Containment Radio-activity–High Train A (VRS-1101, ERS-1301, ERS-1305)	See Table 3.3-6	Not Applicable	See ITS 3.3.6
	3. Containment Radio-activity–High Train B (VRS-1201, ERS-1401, ERS-1405)	See Table 3.3-6	Not Applicable	
	4. STEAM LINE ISOLATION			
4.a	a. Manual	See Functional Unit 9		LA.1
4.b	b. Automatic Actuation Logic	Not Applicable	Not Applicable	
4.c	c. Containment Pressure–High-High	Less than or equal to 2.9 psig	Less than or equal to 3 psig (2.97)	M.11
4.e	d. Steam Flow in Two Steam Lines–High Coincident with T_{avg}–Low-Low (per steam line) (A.2)	Less than or equal to 1.42 x 10^6 lbs/hr from 0% load to 20% load. Linear from 1.42 x 10^6 lbs/hr at 20% load to 3.88 x 10^6 lbs/hr at 100% load.	Less than or equal to 1.56 x 10^6 lbs/hr from 0% load to 20% load. Linear from 1.56 x 10^6 lbs/hr at 20% load to 3.93 10^6 lbs/hr at 100% load. (538.8)	L.22
		T_{avg} greater than or equal to 541°F	T_{avg} greater than or equal to 539°F (481.3)	M.11
4.d	e. Steam Line Pressure–Low	Greater than or equal to 500 psig steam line pressure	Greater than or equal to 480 psig steam line pressure (Add proposed Footnote (c))	M.1
	5. TURBINE TRIP AND FEEDWATER ISOLATION			
5.b	a. Steam Generator Water Level–High-High (per SG) (A.2)	Less than or equal to 67% of narrow-range instrument span each steam generator	Less than or equal to 68% of narrow-range instrument span each steam generator	LA.5

COOK NUCLEAR PLANT-UNIT 1 Page 3/4 3-26 AMENDMENT 94, 126, 153, 214

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS (LA.1)

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
	6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS			
6.c	a. Steam Generator Water Level–Low-Low (per SG) (A.2)	Greater than or equal to 17% of narrow-range instrument span each steam generator	Greater than or equal to 16% [4.0] of narrow-range instrument span each steam generator	L.22, LA.5
6.e	b. 4 kv Bus Loss of Voltage (per bus)	3286 volts with a time delay of 2 seconds	≥ 3245 [3238.9] volts and ≤ 3328 [3332.6] volts with a time delay of 2 ± 0.2 seconds	L.22
6.d	c. Safety Injection	Not Applicable	Not Applicable	A.17
6.g	d. Loss of Main Feedwater Pumps	Not Applicable	Not Applicable	
	7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS			
6.c	a. Steam Generator Water Level–Low-Low	Greater than or equal to 17% of narrow-range instrument span each steam generator	Greater than or equal to 16% [4.0] of narrow-range instrument span each steam generator	L.22, LA.5
6.f	b. Reactor Coolant Pump Bus Undervoltage	Greater than or equal 2750 Volts–each bus	Greater than or equal to 2725 Volts–each bus	LA.1
	8. LOSS OF POWER			See ITS 3.3.5
	a. 4 kv Bus Loss of Voltage	3286 volts with a time delay of 2 seconds	≥ 3245 volts and ≤ 3328 volts with a time delay of 2 ± 0.2 seconds	
	b. 4 kv Bus Degraded Voltage	3959 volts with a time delay of 9 seconds when a steam generator water level low-low or a safety injection signal is present	≥ 3910 volts and ≤ 4000 volts with a time delay of 9 ± 0.25 seconds when a steam generator water level low-low or a safety injection signal is present	

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

LA.1

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
	9. Manual (LA.3)			
1.a	a. Safety Injection (ECCS)	N.A.	N.A.	
5.c	Feedwater Isolation	N.A.	N.A.	
	Reactor Trip (SI)	N.A.	N.A.	A.17
3.a.(3)	Containment Isolation - Phase "A"	N.A.	N.A.	
	Containment Purge and Exhaust Isolation	N.A.	N.A.	See ITS 3.3.6
6.d	Auxiliary Feedwater Pumps	N.A.	N.A.	
	Essential Service Water System (LA.3)	N.A.	N.A.	LA.1
2.a	b. Containment Spray	N.A.	N.A.	
3.b.(1)	Containment Isolation - Phase "B"	N.A.	N.A.	
	Containment Purge and Exhaust Isolation	N.A.	N.A.	See ITS 3.3.6
				LA.1
3.a.(1)	c. Containment Isolation - Phase "A"	N.A.	N.A.	
	Containment Purge and Exhaust Isolation	N.A.	N.A.	See ITS 3.3.6
4.a	d. Steam Line Isolation (per steam line) (A.2)	N.A.	N.A.	LA.1
7.a	e. Containment Air Recirculation Fan	N.A.	N.A.	
	10. CONTAINMENT AIR RECIRCULATION FAN			
7.a	a. Manual	See Functional Unit 9		LA.1
7.b	b. Automatic Actuation Logic	Not Applicable	Not Applicable	
7.c	c. Containment Pressure - High	Less than or equal to 1.1 psig	Less than or equal to ~~1/2~~ 1.17 psig	M.11

A.1

TABLE 3.3-5

Table Intentionally Deleted

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A.1

TABLE 3.3-5 (Continued)

Table Intentionally Deleted

A.1

TABLE 3.3-5 (Continued)

Table Intentionally Deleted

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A.1

TABLE 3.3-5 (Continued)

Table Intentionally Deleted

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ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-2

Table 3.3.2-1

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A.10 LA.3 L.2 M.6 LA.6

ITS	FUNCTIONAL UNIT	SR 3.3.2.1 CHANNEL CHECK	SR 3.3.2.10 CHANNEL CALIBRATION	SR 3.3.2.3, SR 3.3.2.6 CHANNEL FUNCTIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	1. SAFETY INJECTION, TURBINE TRIP, FEEDWATER ISOLATION, AND MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
	Add proposed SR 3.3.2.4 and SR 3.3.2.8					
1.a	a. Manual Initiation	See Functional Unit 9				
1.b	b. Automatic Actuation Logic	N.A.	N.A.	Q (2)-3	N.A.	1, 2, 3, 4
1.c	c. Containment Pressure-- High	S-1	24 months [R]-10	SA[Q]-6	N.A.	1, 2, 3
1.d	d. Pressurizer Pressure--Low	S-1	[R]-10	SA-6	N.A.	1, 2, 3
1.e.(2)	e. Differential Pressure Between Steam Lines-- High (per steam line)	S-1	[R]-10	SA-6	N.A.	1, 2, 3
1.e.(1)	f. Steam Line Pressure--Low	S-1	[R]-10	SA-6	N.A.	1, 2, 3
	2. CONTAINMENT SPRAY					
	Add proposed SR 3.3.2.4 and SR 3.3.2.8					
2.a	a. Manual Initiation	See Functional Unit 9				
2.b	b. Automatic Actuation Logic	N.A.	N.A.	Q (2)-3	N.A.	1, 2, 3, 4
2.c	c. Containment Pressure-- High-High	S-1	[R]-10	SA[Q]-6	N.A.	1, 2, 3

A.2

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A.10

ITS	FUNCTIONAL UNIT	SR 3.3.2.1 CHANNEL CHECK	SR 3.3.2.10 CHANNEL CALIBRATION	SR 3.3.2.3, SR 3.3.2.6 CHANNEL FUNCTIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	3. CONTAINMENT ISOLATION					
	a. Phase "A" Isolation					
3.a.(1)	1) Manual	See Functional Unit 9				
3.a.(3)	2) From Safety Injection Automatic Actuation Logic	N.A.	N.A.	Q (2)	N.A.	1, 2, 3, 4
	b. Phase "B" Isolation					
3.b.(1)	1) Manual	See Functional Unit 9				
3.b.(2)	2) Automatic Actuation Logic	N.A.	N.A.	Q (2)-3	N.A.	1, 2, 3, 4
3.b.(3)	3) Containment Pressure--High-High	S -1	R -10 (24 months)	SA [B] -6	N.A.	1, 2, 3
	c. Purge and Exhaust Isolation					
	1) Manual	See Functional Unit 9				
	2) Containment Radioactivity--High	S	R	Q	N.A.	1, 2, 3, 4

Add proposed SRs 3.3.2.3, 3.3.2.4, and 3.3.2.8 for Function 3.a (2) — M.8

A.17

Add proposed SR 3.3.2.4 and SR 3.3.2.8 — M.6

L.2

LA.6

See ITS 3.3.6

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ITS	FUNCTIONAL UNIT	SR 3.3.2.1 CHANNEL CHECK	SR 3.3.2.7, SR 3.3.2.10 CHANNEL CALIBRATION	SR 3.3.2.2, SR 3.3.2.3, SR 3.3.2.6, SR 3.3.2.9 CHANNEL FUNCTIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	4. STEAM LINE ISOLATION					
4.a	a. Manual	See Functional Unit 9				
4.b	b. Automatic Actuation Logic	N.A.	N.A.	Q (2) -3	N.A.	1, 2, 3.
4.c	c. Containment Pressure-- High-High	S-1	R -10	SA M -6	N.A.	1, 2, 3
4.e	d. Steam Flow in Two Steam Lines--High Coincident with T_{avg}--Low-Low	S-1	R -10	SA -6	N.A.	1, 2, 3
4.d	e. Steam Line Pressure-Low	S-1	R -10	SA -6	N.A.	1, 2, 3
	5. TURBINE TRIP AND FEEDWATER ISOLATION					
5.b	a. Steam Generator Water Level--High-High	S -1	R -10	SA-6	N.A.	1, 2, 3
	6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
6.c	a. Steam Generator Water Level--Low-Low	S -1	R -10	SA-6	N.A.	1, 2, 3
6.e	b. 4 kv Bus Loss of Voltage	S -1	R -7	M -2	N.A.	1, 2, 3
6.d	c. Safety Injection	N.A.	N.A.	Q (2)	N.A.	1, 2, 3
6.g	d. Loss of Main Feed Pumps	N.A.	N.A.	R -9	N.A.	1, 2

Annotations:
- A.10
- L.2
- Add proposed SR 3.3.2.4 and SR 3.3.2.8 (M.6)
- L.6 — Add proposed Footnote (d)
- A.2 — (per steam line); (per SG); (per bus)
- 24 months
- LA.6
- Add proposed Footnote (d) (L.6)
- Add proposed Footnote (f) (L.7)
- M.2
- Add proposed SRs 3.3.2.3, 3.3.2.4, and 3.3.2.8 for Function 5.a (A.8)
- Add proposed Function 5.c (M.10)
- 184 days
- 24 months (L.2)
- Add proposed Note to SR 3.3.2.2 (A.11)
- A.17
- 24 months (L.13)
- Add proposed SRs 3.3.2.3, 3.3.2.4, and 3.3.2.8 for Function 6.a
- Add proposed SR 3.3.2.11 for Function 6.b (M.3)

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

ITS	FUNCTIONAL UNIT	SR 3.3.2.1 CHANNEL CHECK	SR 3.3.2.7, SR 3.3.2.10 CHANNEL CALIBRATION	SR 3.3.2.5, SR 3.3.2.6 CHANNEL FUNCTIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS		24 months	92 days		
6.c	a. Steam Generator Water Level--Low-Low	S -1	R -10	SA -6	N.A.	1, 2, 3
				Add proposed Note to SR 3.3.2.5		
6.f	b. Reactor Coolant Pump Bus Undervoltage	N.A.	R -7	M -5	N.A.	1, 2, 3
		184 days				
	8. LOSS OF POWER					
	a. 4 kv Bus Loss of Voltage	S	R	M	N.A.	1, 2, 3, 4
	b. 4 kv Bus Degraded Voltage	S	R	M	N.A.	1, 2, 3, 4

Add proposed SRs 3.3.2.3, 3.3.2.4, and 3.3.2.8 for Function 6.a

A.10 L.2 L.19 A.11 L.18 M.10 M.3

See ITS 3.3.5

A.1

ITS 3.3.2

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ITS	FUNCTIONAL UNIT	CHANNEL CHECK	SR 3.3.2.10 CHANNEL CALIBRATION	SR 3.3.2.3 SR 3.3.2.6 CHANNEL FUNCTIONAL TEST	SR 3.3.2.9 TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	9. Manual					
1.a 5.c 3.a.(3) 6.d	a. Safety Injection (ECCS) Feedwater Isolation ~~Reactor Trip (SI)~~ ~~Containment Isolation-Phase "A"~~ ~~Containment Purge and Exhaust Isolation~~ Auxiliary Feedwater Pumps ~~Essential Service Water System~~	N.A.	N.A.	N.A.	~~R~~ 24 months -9	1, 2, 3, 4
2.a 3.b.(1)	b. Containment Spray Containment Isolation-Phase "B" ~~Containment Purge and Exhaust Isolation~~	N.A.	N.A.	N.A.	~~R~~ 24 months -9	1, 2, 3, 4
3.a.(1)	c. Containment Isolation-Phase "A" ~~Containment Purge and Exhaust Isolation~~	N.A.	N.A.	N.A.	~~R~~ 24 months -9	1, 2, 3, 4
4.a	d. Steam Line Isolation (per steam line)	N.A.	N.A.	~~R~~	~~R~~ 24 months -9	1, 2, 3 (d)
7.a	e. Containment Air Recirculation Fan	N.A.	N.A.	N.A.	~~R~~ 24 months -9	1, 2, 3, 4
	10. CONTAINMENT AIR RECIRCULATION FAN					
7.a	a. Manual	See Functional Unit 9				
7.b	b. Automatic Actuation Logic	N.A.	N.A.	Q ~~(2)~~ -3	N.A.	1, 2, 3
7.c	c. Containment Pressure - High	S -1	~~R~~ 24 months -10	SA (3) -6	N.A.	1, 2, 3

Annotations: LA.3; A.10; L.13; A.17; See ITS 3.3.6; L.6 (Add proposed Footnote (d)); L.14; A.2; M.6 (Add proposed SR 3.3.2.4 and SR 3.3.2.8); LA.6; L.2

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-2 (Continued)

TABLE NOTATION

(1) Deleted

SR 3.3.2.3 (2) Each train or logic channel shall be tested at least every other 92 days. A.10

SR 3.3.2.6 Note (3) The CHANNEL FUNCTIONAL TEST shall include exercising the transmitter by applying either a vacuum or pressure to the appropriate side of the transmitter. LA.6

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ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.2 — 3.3.2.1 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4. (LA.1)

APPLICABILITY: As shown in Table 3.3-3.

ACTION: — Add proposed ACTIONS Note (A.2)

ACTIONS A through G — a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value. (LA.1)

ACTION A — b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

SR Table Note — 4.3.2.1.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION, CHANNEL FUNCTIONAL TEST and TRIP ACTUATING DEVICE OPERATIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2. (A.10) (M.12)

Add proposed SR 3.3.2.1 and SR 3.3.2.6

SR 3.3.2.3 for Functions 1.b and 4.b; SR 3.3.2.10 — 4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the automatic actuation logic test. The total interlock function shall be demonstrated OPERABLE at least once per 18 [24] months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. (L.2) (L.3)

Add proposed Note to SR 3.3.2.12 (L.4)

SR 3.3.2.12 — 4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 [24] months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3. (A.3)

on a STAGGERED TEST BASIS (A.4)

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A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.2 A.5 LA.3 A.2 A.15

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1	1. SAFETY INJECTION, ~~TURBINE TRIP, FEEDWATER ISOLATION, AND MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS~~					
1.a	a. Manual Initiation	See Functional Unit 9				
1.b	b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13 C, J
1.c	c. Containment Pressure - High	3	2	~~2~~ 3	1, 2, 3	14 D
1.d	d. Pressurizer Pressure - Low	3	2	~~2~~ 3	1, 2, 3#	14 D
1.e.(2)	e. Differential Pressure Between Steam Lines - High (per steam line)					
	~~Four Loops Operating~~	3/steam line	2/steam line any steam line	~~2/steam line~~ 3	1, 2, 3##	14 D
	~~Three Loops Operating~~	~~3/operating steam line~~	~~1###/steam line, any operating steam line~~	~~2/operating steam line~~	~~3##~~	~~15~~
1.e.(1)	f. Steam Line Pressure - Low					
	~~Four Loops Operating~~	1 pressure/loop	2 pressures any loops	~~1/pressure any 3 loops~~ per steam line	1, 2, 3##	14 D
	~~Three Loops Operating~~	~~1 pressure/ operating loop~~	~~1###/ pressure in any operating loop~~	~~1 pressure in any 2 operating loops~~	~~3##~~	~~15~~

ITS 3.3.2

A.1

ITS

Table 3.3.2-1

TABLE 3.3-3 (Continued)
ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.2

REQUIRED — A.5

	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	2. CONTAINMENT SPRAY					
2.a	a. Manual	See Functional Unit 9				
2.b	b. Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13 C, J
2.c	c. Containment Pressure--High-High	4	2	3 4	1, 2, 3	16 E

LA.2

A.5

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

LA.2 A.5 A.7 LA.2 A.17 LA.2 A.5

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	3. CONTAINMENT ISOLATION (Add proposed Function 3.a.(2))					
	a. Phase "A" Isolation					
3.a.(1)	1) Manual	See Functional Unit 9				
3.a.(3)	2) From Safety Injection Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
	b. Phase "B" Isolation					
3.b.(1)	1) Manual	See Functional Unit 9				
3.b.(2)	2) Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13 C, J
3.b.(3)	3) Containment Pressure -- High-High	4	2	3 4	1, 2, 3	16 E
	c. Purge and Exhaust Isolation (See ITS 3.3.6)					
	1) Manual	See Functional Unit 9				
	2) Containment Radioactivity-* High Train A (VRS-2101, ERS-2301, ERS-2305)	3	1	2	1, 2, 3, 4	17
	3) Containment Radioactivity-* High Train B (VRS-2201, ERS-2401, ERS-2405)	3	1	2	1, 2, 3, 4	17

*This specification only applies during PURGE.

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.2 A.5 L.6 LA.2 A.5 L.6 A.5 L.6 A.15 LA.2 L.6 A.5 A.15 A.2

	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	4. STEAM LINE ISOLATION				Add proposed Footnote (d)	
4.a	a. Manual	See Functional Unit 9				
4.b	b. Automatic Actuation Logic	2	1	2	1, 2, 3	13 C, I
4.c	c. Containment Pressure -- High-High	4	2	~~3~~ 4	1, 2, 3 (Add proposed Foonote (d))	16 E
4.e	d. Steam Flow in Two Steam Lines -- High (per steam line)					
	~~Four Loops Operating~~	2/steam line	1/steam line any 2 steam lines	~~1/steam line~~ 2	1, 2, 3## (Add proposed Footnote (d))	14 D
	~~Three Loops Operating~~	~~2/operating steam line~~	~~1###/any operating steam line~~	~~1/operating steam line~~	~~3##~~	~~15~~
	COINCIDENT WITH					
	T_{avg} -- Low-Low				Add proposed Footnote (d)	
	~~Four Loops Operating~~	1 T_{avg}/loop	2 T_{avg} any loops	1 T_{avg} ~~any 3 loops~~ per loop	1, 2, 3###	14 D
	~~Three Loops Operating~~	~~1 T_{avg}/operating loop~~	~~1### T_{avg} in any operating loop~~	~~1 T_{avg} in any two operating loops~~	~~3##~~	~~15~~

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ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM [REQUIRED] CHANNELS OPERABLE	APPLICABLE MODES	ACTION
4.d	e. Steam Line Pressure-Low [Add proposed Footnote (d)]					
	Four Loops Operating	1 pressure/loop	2 pressures any loops	1/pressure any 3 loops [per steam line]	1, 2, 3*	14 D
	Three Loops Operating	1 pressure/ operating loop	1*** pressure in any operating loop	1 pressure in any 2 operating loops	3** 15	
	5. TURBINE TRIP & FEEDWATER ISOLATION					
5.b	a. Steam Generator Water Level – High-High (per SG) [Add proposed Footnote (f)]	3/loop	2/loop in any operating loop	2/loop in each operating loop [3]	1, 2, 3	14 D
	6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS [Add proposed Function 5.a] [Add proposed Function 5.c]					
6.c	a. Steam Generator Water Level – Low-Low	3/Stm. Gen.	2/Stm. Gen. any Stm. Gen.	2/Stm. Gen. [3]	1, 2, 3	14 D
6.e	b. 4 kV Bus Loss of Voltage (per bus)	3/Bus	2/Bus	2/Bus [3]	1, 2, 3	14 F
	Pump Start		2/bus (T21A - Train B; T21D - Train A)			
	Valve Actuation (Both trains)		2/bus on (T21A & T21B or 2/busses T21C & T21D)			
6.d	c. Safety Injection	2	1	2	1, 2, 3	18
6.g	d. Loss of Main Feedwater Pumps	2	2	2 [1 per pump]	1, 2	18 B,H

Add proposed Functions 6.a and 6.b

Annotations: LA.2, A.5, L.6, A.5, A.15, LA.2, A.2, L.7, A.5, L.8, A.12, A.8, L.15, A.5, A.2, LA.2, A.17, A.16, LA.2, A.13, L.17

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.2 A.5 REQUIRED

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
6.c	a. Steam Generator Water Level – Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	2 [3]/Stm. Gen.	1, 2, 3	14 D
6.f	b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3 [1 per bus]	1, 2 [1]	19 D
	Add proposed Function 6.a					
	8. LOSS OF POWER					
	a. 4 kV Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14
	b. 4 kV Bus Degraded Voltage	3/Bus (T21A - Train B) (T21D – Train A)	2/Bus (T21A-Train B) (T21D-Train A)	2/Bus (T21A-Train B) (T21D-Train A)	1, 2, 3, 4	14
	9. MANUAL					
1.a 5.c 3.a.(3) 6.d	a. Safety Injection (ECCS) Feedwater Isolation Reactor Trip (SI) Containment Isolation-Phase "A" Containment Purge and Exhaust Isolation Auxiliary Feedwater Pumps Essential Service Water System	2/train	1/train	2 [1]/train	1, 2, 3, 4	18 B, J
2.a 3.b.(1)	b. Containment Spray Containment Isolation - Phase "B" Containment Purge and Exhaust Isolation	1/train	1/train	1/train	1, 2, 3, 4	18 B, J
3.a.(1)	c. Containment Isolation - Phase "A" Containment Purge and Exhaust Isolation	1/train	1/train	1/train	1, 2, 3, 4	18 B, J
4.a	d. Steam Line Isolation (per steam line)	2/steam line (1 per train)	2/steam line (1 per train)	2/operating steam line (1 per train)	1, 2, 3 (Add proposed Footnote (d))	20 B, K

LA.2 L.18 A.13 L.17 See ITS 3.3.5 LA.2 L.20 LA.3 A.17 See ITS 3.3.6 LA.3 LA.2 See ITS 3.3.6 LA.2 See ITS 3.3.6 L.6 A.2 A.2 LA.2

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A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.2

A.5

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	~~MINIMUM~~ REQUIRED CHANNELS OPERABLE	APPLICABLE MODES	ACTION
7.a	e. Containment Air Recirculation Fan	~~1/train~~	~~1/train~~	1/train	1, 2, 3, 4	18 B, J
	10. CONTAINMENT AIR RECIRCULATION FAN					
7.a	a. Manual	See Functional Unit 9				
7.b	b. Automatic Actuation Logic	~~2~~	~~1~~	2	1, 2, 3	13 C, I
7.c	c. Containment Pressure - High	~~3~~	~~2~~	~~2~~ 3	1, 2, 3	14 D

A.5

LA.2

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-3 (Continued)

TABLE NOTATION

Footnote (a) # Trip function may be bypassed in this MODE below P-11.

Footnote (b) ## Trip function may be bypassed in this MODE below P-12.

The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.

Manually trip all bistables which would be automatically tripped in the event pressure in the associated active loop were less than the pressure in the inactive loop. For example, if loop 1 is the inactive loop then the bistables which indicate low pressure in loops 2, 3 and 4 relative to loop 1 should be tripped.

A.15

ACTION STATEMENTS

Add proposed Required Action C.1 — L.9

ACTION C / ACTIONS I and J / ACTION C Note — ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 [4] hours for surveillance testing per Specification 4.3.2.1.1.

M.9 — L.5 — Add proposed ACTION D Note

ACTIONS D and F — ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 [6] hour.

L.10 — L.5

ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

Add proposed ACTIONS H, I, and J — M.4

A.15

ACTION E — ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition [within 6 hours] and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 2 [4] hours for surveillance testing per Specification 4.3.2.1.1.

L.11 — L.5

Add proposed ACTIONS I and J — M.4

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ITS 3.3.2

A.1

ITS

TABLE 3.3-3 (Continued)

ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed. — See ITS 3.3.6

ACTION B — ACTION 18 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or be in at

ACTIONS H, I, and J — least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. — A.14

ACTION D — ACTION 19 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 1 hour. — 6 — L.5

b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1. — 4 — L.5

Add proposed ACTION K — M.4

ACTION B — ACTION 20 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare

ACTION K — the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.

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A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

A.9

ENGINEERED SAFETY FEATURES INTERLOCKS

LA.4

DESIGNATION	CONDITION AND SETPOINT	FUNCTION
P-11	With 2 of 3 pressurizer pressure channels greater than or equal to 1915 psig.	P-11 prevents or defeats manual block of safety injection actuation on low pressurizer pressure.
P-12	With 2 of 4 T_{avg} channels less than or equal to Setpoint. Setpoint greater than or equal to 541 °F.	P-12 allows manual block of safety injection actuation on low steam line pressure. Causes steam line isolation on high steam flow. Affects steam dump blocks. With 3 of 4 T_{avg} channels above the reset point, prevents or defeats the manual block of safety injection actuation on low steam line pressure.

Add proposed Applicability

Add proposed ACTIONS G and I

Add proposed ACTIONS D and I

538.8

LA.4

L.22

L.12

Add proposed Function 8.a, including ACTIONS and Surveillance Requirement

M.5

ITS 3.3.2

(A.1)

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

(LA.1)

ITS		FUNCTIONAL UNIT	TRIP SETPOINTS	ALLOWABLE VALUES	
1	1.	SAFETY INJECTION, TURBINE TRIP, FEEDWATER ISOLATION AND MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS			(LA.3)
1.a	a.	Manual Initiation	See Functional Unit 9		
1.b	b.	Automatic Actuation Logic	Not Applicable	Not Applicable	(LA.1)
1.c	c.	Containment Pressure High	Less than or equal to 1.1 psig	Less than or equal to 1.2 psig [1.17]	(M.11)
1.d	d.	Pressurizer Pressure--Low	Greater than or equal to 1815 psig	Greater than or equal to 1805 psig [1765]	(L.22)
1.e.(2)	e.	Differential Pressure Between Steam Lines--High (per steam line)	Less than or equal to 100 psi	Less than or equal to 112 psi	
1.e.(1)	f.	Steam Line Pressure--Low	Greater than or equal to 600 psig steam line pressure	Greater than or equal to 585 [481.3] psig steam line pressure [Add proposed Footnote (c)]	(M.1)

(A.2)

COOK NUCLEAR PLANT-UNIT 2 Page 3/4 3-23 Amendment No. ~~1, 11, 28, 134, 137~~, 263

A.1

ITS

Table 3.3.2-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

ITS	FUNCTIONAL UNIT	TRIP SETPOINTS	ALLOWABLE VALUES	
	2. CONTAINMENT SPRAY			LA.1
2.a	a. Manual Initiation	See Functional Unit 9		LA.1
2.b	b. Automatic Actuation Logic	Not Applicable	Not Applicable	
2.c	c. Containment Pressure--High-High	Less than or equal to 2.9 psig	Less than or equal to 3.0 psig (2.97)	M.11
	3. CONTAINMENT ISOLATION			
	a. Phase "A" Isolation			LA.1
3.a.(1)	1. Manual	See Functional Unit 9		
3.a.(3)	2. From Safety Injection Automatic Actuation Logic	Not Applicable	Not Applicable	A.17
	b. Phase "B" Isolation			LA.1
3.b.(1)	1. Manual	See Functional Unit 9		
3.b.(2)	2. Automatic Actuation Logic	Not Applicable	Not Applicable	
3.b.(3)	3. Containment Pressure-High-High	Less than or equal to 2.9 psig	Less than or equal to 3.0 psig (2.97)	M.11
	c. Purge and Exhaust Isolation			See ITS 3.3.6
	1. Manual	See Functional Unit 9		
	2. Containment Radioactivity--High Train A (VRS-2101, ERS-2301, ERS-2305)	See Table 3.3-6	Not Applicable	
	3. Containment Radioactivity--High Train B (VRS-2201, ERS-2401, ERS-2405)	See Table 3.3-6	Not Applicable	

ITS 3.3.2

(A.1)

ITS

Table 3.3.2-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

(LA.1)

ITS	FUNCTIONAL UNIT	~~TRIP SETPOINTS~~	ALLOWABLE VALUES	
	4. STEAM LINE ISOLATION			
4.a	a. Manual	------------- See Functional Unit 9 ----------		(LA.1)
4.b	b. Automatic Actuation Logic	~~Not Applicable~~	Not Applicable	
4.c	c. Containment Pressure--High-High	~~Less than or equal to 2.9 psig~~	Less than or equal to ~~3.0~~ [2.97] psig	(M.11)
4.e	d. Steam Flow in Two Steam Lines--High (per steam line), Coincident With Tavg--Low-Low	~~Less than or equal to a function defined as follows: A Delta-p corresponding to 1.6 x 10^6 lbs/hr steam flow between 0% and 20% load and then a Delta-p increasing linearly to a Delta-p corresponding to 4.5 x 10^6 lbs/hr at full load.~~	Less than or equal to a function defined as follows: A Delta-p corresponding to 1.73 x 10^6 lbs/hr steam flow between 0% and 20% load and then a Delta-p increasing linearly to a Delta-p corresponding to to 4.55 x 10^6 lbs/hr at full load.	(A.2)
		~~T_{avg} greater than or equal to 541°F~~	T_{avg} greater than or equal to ~~539~~ [538.8] °F	(L.22)
4.d	e. Steam Line Pressure--Low	~~Greater than or equal to 600 psig steam line pressure~~	Greater than or equal to ~~585~~ [481.3] psig steam line pressure [Add proposed Footnote (c)]	(L.22) (M.1)
	5. TURBINE TRIP AND FEEDWATER ISOLATION			
5.b	a. Steam Generator Water Level--High-High (per SG)	~~Less than or equal to 67% of narrow range instrument span each steam generator~~	Less than or equal to ~~67%~~ [71.6] of ~~narrow range instrument span each~~ steam generator	(LA.5) (L.22)

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ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
	6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS			LA.1
6.c	a. Steam Generator Water Level-- Low-Low (per SG)	Greater than or equal to 21% of narrow range instrument span each steam generator	Greater than or equal to 19.2 [20.8]% of narrow range instrument span each steam generator	M.11, LA.5, A.2
6.e	b. 4 kV Bus Loss of Voltage (per bus)	3241 volts with a time delay of 2 seconds	≥ 3195 [3207.2] volts and ≤ 3280 [3302.7] volts with a time delay of 2 ± 0.2 seconds	L.22
6.d	c. Safety Injection	Not Applicable	Not Applicable	A.17
6.g	d. Loss of Main Feedwater Pumps	Not Applicable	Not Applicable	LA.1
	7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS			
6.c	a. Steam Generator Water Level - - Low-Low	Greater than or equal to 21% of narrow range instrument span each steam generator	Greater than or equal to 19.2 [20.8]% of narrow range instrument span each steam generator	M.11, LA.5
6.f	b. Reactor Coolant Pump Bus Undervoltage	Greater than or equal to 2750 Volts -- each bus	Greater than or equal to 2725 Volts -- each bus	
	8. LOSS OF POWER			See ITS 3.3.5
	a. 4 kV Bus Loss of Voltage	3241 volts with a time delay of 2 seconds	≥ 3195 volts and ≤ 3280 volts with a time delay of 2 ± 0.2 seconds	
	b. 4 kV Bus Degraded Voltage	3959 volts with a time delay of 9 seconds when a steam generator water level low-low or a safety injection signal is present	≥ 3910 volts and ≤ 4000 volts with a time delay of 9 ± 0.25 seconds when a steam generator water level low-low or a safety injection signal is present	

ITS 3.3.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS (LA.1)

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
	9. Manual (LA.3)			
1.a	a. Safety Injection (ECCS)	N.A.	N.A.	
5.c	Feedwater Isolation	N.A.	N.A.	
	Reactor Trip (SI)	N.A.	N.A.	
3.a.(3)	Containment Isolation - Phase "A"	N/A	N.A.	A.17
	Containment Purge and Exhaust Isolation	N.A.	N.A.	See ITS 3.3.6
6.d	Auxiliary Feedwater Pumps	N.A.	N.A.	
	Essential Service Water System (LA.3)	N.A.	N.A.	LA.1
2.a	b. Containment Spray	N.A.	N.A.	
3.b.(1)	Containment Isolation - Phase "B"	N.A.	N.A.	
	Containment Purge and Exhaust Isolation	N.A.	N.A.	See ITS 3.3.6
3.a.(1)	c. Containment Isolation - Phase "A"	N.A.	N.A.	LA.1
	Containment Purge and Exhaust Isolation	N.A.	N.A.	See ITS 3.3.6
4.a	d. Steam Line Isolation (per steam line)	N.A.	N.A.	LA.1, A.2
7.a	e. Containment Air Recirculation Fan	N.A.	N.A.	
	10. CONTAINMENT AIR RECIRCULATION FAN			
7.a	a. Manual	See Functional Unit 9		LA.1
7.b	b. Automatic Actuation Logic	Not Applicable	Not Applicable	
7.c	c. Containment Pressure - High	Less than or equal to 1.1 psig	Less than or equal to 1.2 psig (1.17)	M.11

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-5

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TABLE 3.3-5 (Continued)

Table Intentionally Deleted

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A.1

TABLE 3.3-5 (Continued)

Table Intentionally Deleted

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A.1

TABLE 3.3-5 (Continued)

Table Intentionally Deleted

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A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 4.3-2
ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

A.10 LA.3 L.2

ITS	FUNCTIONAL UNIT	SR 3.3.2.1 CHANNEL CHECK	SR 3.3.2.10 CHANNEL CALIBRATION	SR 3.3.2.3, SR 3.3.2.6 CHANNEL FUNCTIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	1. SAFETY INJECTION, ~~TURBINE TRIP, FEEDWATER ISOLATION, AND MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS~~					
1.a	a. Manual Initiation	See Functional Unit 9				
1.b	b. Automatic Actuation Logic	N.A.	N.A. (24 months)	Q (2)-3	N.A.	1, 2, 3, 4
1.c	c. Containment Pressure -- High	S -1	[R]-10	SA [(3)] -6	N.A.	1, 2, 3
1.d	d. Pressurizer Pressure -- Low	S -1	[R]-10	SA -6	N.A.	1, 2, 3
1.e.(2)	e. Differential Pressure Between Steam Lines -- High	S -1	[R]-10	SA -6	N.A.	1, 2, 3
1.e.(1)	f. Steam Line Pressure -- Low (per steam line)	S -1	[R]-10	SA -6	N.A.	1, 2, 3
	2. CONTAINMENT SPRAY					
2.a	a. Manual Initiation	See Functional Unit 9				
2.b	b. Automatic Actuation Logic	N.A.	N.A.	Q (2)-3	N.A.	1, 2, 3, 4
2.c	c. Containment Pressure -- High-High	S -1	[R]-10	SA [(3)]-6	N.A.	1, 2, 3
	3. CONTAINMENT ISOLATION					
	a. Phase "A" Isolation					
3.a.(1)	1) Manual	See Functional Unit 9				
3.a.(3)	~~2) From Safety Injection Automatic Actuation Logic~~	~~N.A.~~	~~N.A.~~	~~Q (2)~~	~~N.A.~~	~~1, 2, 3, 4~~
	b. Phase "B" Isolation					
3.b.(1)	1) Manual	See Functional Unit 9				
3.b.(2)	2) Automatic Actuation Logic	N.A.	N.A. (24 months)	Q (2)-3	N.A.	1, 2, 3, 4
3.b.(3)	3) Containment Pressure-- High-High	S -1	[R]-10	SA [(3)]-6	N.A.	1, 2, 3

M.6 — Add proposed SR 3.3.2.4 and SR 3.3.2.8

LA.6

A.2

M.6 — Add proposed SR 3.3.2.4 and SR 3.3.2.8

LA.6

M.8 — Add proposed SRs 3.3.2.3, 3.3.2.4, and 3.3.2.8 for Function 3.a.(2)

A.17

M.6 — Add proposed SR 3.3.2.4 and SR 3.3.2.8

L.2

LA.6

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ITS 3.3.2

A.1

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3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A.10

ITS	FUNCTIONAL UNIT	CHANNEL CHECK (SR 3.3.2.1)	CHANNEL CALIBRATION (SR 3.3.2.7, SR 3.3.2.10)	CHANNEL FUNCTIONAL TEST (SR 3.3.2.2, SR 3.3.2.3, SR 3.3.2.6, SR 3.3.2.9)	TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	c. Purge and Exhaust Isolation					
	1) Manual	See Functional Unit 9				
	2) Containment Radioactivity – High	S	R	Q	N.A.	1, 2, 3, 4
	4. STEAM LINE ISOLATION					
4.a	a. Manual	See Functional Unit 9				
4.b	b. Automatic Actuation Logic	N.A.	N.A.	Q (2)-3	N.A.	1, 2, 3
4.c	c. Containment Pressure – High-High	S -1	[R]-10	SA [Q]-6	N.A.	1, 2, 3
4.e	d. Steam Flow in Two Steam Lines – High Coincident with T_{avg} – Low-Low	S -1	[R]-10	SA-6	N.A.	1, 2, 3
4.d	e. Steam Line Pressure – Low	S -1	[R]-10	SA-6	N.A.	1, 2, 3
	5. TURBINE TRIP AND FEEDWATER ISOLATION					
5.b	a. Steam Generator Water Level – High-High	S -1	[R]-10	SA-6	N.A.	1, 2, 3
	6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
6.c	a. Steam Generator Water Level – Low-Low	S -1	[R]-10	SA-6	N.A.	1, 2, 3
6.e	b. 4 kV Bus Loss of Voltage	S -1	[R]-7	M-2	N.A.	1, 2, 3
6.d	~~c. Safety Injection~~	~~N.A.~~	~~N.A.~~	~~Q (2)~~	~~N.A.~~	~~1, 2, 3~~
6.g	d. Loss of Main Feed Pumps	N.A.	N.A.	[R] -9	N.A.	1, 2

Annotations:
- See ITS 3.3.6
- L.2, M.6: Add proposed SR 3.3.2.4 and SR 3.3.2.8
- L.6: Add proposed Footnote (d)
- LA.6
- L.6: Add proposed Footnote (d)
- (per steam line)
- 24 months
- L.7: Add proposed Footnote (f)
- A.2
- M.2: Add proposed SRs 3.3.2.3, 3.3.2.4, SR 3.3.2.8 for Function 5.a
- A.8: Add proposed Function 5.c
- L.2
- (per SG)
- M.10: 184 days
- 24 months
- A.11: Add proposed Note to SR 3.3.2.2
- A.17
- (per bus)
- L.13: 24 months
- M.3: Add proposed SRs 3.3.2.3, 3.3.2.4, and 3.3.2.8 for Function 6.a; Add proposed SR 3.3.2.11 for Function 6.b

A.1

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3/4.3 INSTRUMENTATION

Table 3.3.2-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS (A.10)

ITS	FUNCTIONAL UNIT	CHANNEL CHECK (SR 3.3.2.1)	CHANNEL CALIBRATION (SR 3.3.2.7, SR 3.3.2.10)	CHANNEL FUNCTIONAL TEST (SR 3.3.2.3, SR 3.3.2.5, SR 3.3.2.6)	TRIP ACTUATING DEVICE OPERATIONAL TEST (SR 3.3.2.9)	MODES IN WHICH SURVEILLANCE REQUIRED
	7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMP					
6.c	a. Steam Generator Water Level – Low-Low	S -1 (184 days) (M.10)	R -10 (24 months) (L.2)	SA-6 (92 days) (L.19)	N.A.	1, 2, 3
6.f	b. Reactor Coolant Pump Bus Undervoltage	N.A.	R -7	R -5 (Add proposed Note to SR 3.3.2.5) (A.11)	N.A.	1, 2 [3] (L.18)
	Add proposed SRs 3.3.2.3, 3.3.2.4, and 3.3.2.8 for Function 6.a (M.3)					
	~~8. LOSS OF POWER~~					See ITS 3.3.5
	~~a. 4 kv Bus Loss of Voltage~~	S	R	M	N.A.	1, 2, 3, 4
	~~b. 4 kv Bus Degraded Voltage~~	S	R	M	N.A.	1, 2, 3, 4
	9. MANUAL					
1.a	a. Safety Injection (ECCS)	N.A.	N.A.	N.A.	R -9 (24 months) (L.13)	1, 2, 3, 4
5.c	Feedwater Isolation					
	~~Reactor Trip (SI)~~ (LA.3)					
3.a.(3)	Containment Isolation - Phase "A" (A.17)					
	Containment Purge and Exhaust Isolation (See ITS 3.3.6)					
6.d	Auxiliary Feedwater Pumps					
	~~Essential Service Water System~~ (LA.3)					
2.a	b. Containment Spray	N.A.	N.A.	N.A.	R -9 (24 months) (L.13)	1, 2, 3, 4
3.b.(1)	Containment Isolation - Phase "B"					
	Containment Purge and Exhaust Isolation (See ITS 3.3.6)					
3.a.(1)	c. Containment Isolation - Phase "A"	N.A.	N.A.	N.A.	R -9 (24 months) (L.13)	1, 2, 3, 4
	Containment Purge and Exhaust Isolation					
4.a	d. Steam Line Isolation (per steam line)	N.A.	N.A.	[0]	R -9 (24 months) (L.6)	1, 2, 3 (Add proposed Footnote (d))
7.a	e. Containment Air Recirculation Fan	N.A.	N.A.	N.A.	R -9	1, 2, 3, 4 (L.14)
	10. CONTAINMENT AIR RECIRCULATION FAN					
7.a	a. Manual	See Functional Unit 9				
7.b	b. Automatic Actuation Logic	N.A.	N.A.	Q (2) -3 (Add proposed SR 3.3.2.4 and SR 3.3.2.8) (M.6)	N.A.	1, 2, 3
7.c	c. Containment Pressure – High	S -1	R -10 (24 months) (L.2)	SA [Q] -6 (LA.6)	N.A.	1, 2, 3

A.2

(A.1)

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-2 (Continued)

TABLE NOTATION

ITS			
	(1)	Deleted	
SR 3.3.2.3	(2)	Each train or logic channel shall be tested at least every other 92 days.	(A.10)
SR 3.3.2.6 Note	(3)	The CHANNEL FUNCTIONAL TEST shall include exercising the transmitter by applying either a vacuum or pressure to the appropriate side of the transmitter.	(LA.6)

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ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.3.2.1 Actions and CTS Table 3.3-3 provide the compensatory actions to take when ESFAS instrumentation is inoperable. ITS 3.3.2 ACTIONS provide the compensatory actions for inoperable ESFAS Instrumentation. The ITS 3.3.2 ACTIONS include a Note that allows separate Condition entry for each Function. In addition, due to the manner in which the titles of Functions 1.e.(2), 4.a, 4.e, 5.b, 6.c, and 6.e are presented, separate Condition entry is allowed within a Function as follows: (a) for Function 1.e.(2) (High Differential Pressure Between Steam Lines (per steam line)), Function 4.a (Steam Line Isolation Manual Initiation (per steam line)), and Function 4.e (High Steam Line Flow in Two Steam Lines (per steam line)) on a steam line basis; (b) for Function 5.b (SG Water Level - High High (per SG)) and Function 6.c (SG Water Level - Low Low (per SG)) on a steam generator basis; and (c) for Function 6.e (Loss of Voltage (per bus)) on a bus basis. This modifies the CTS by providing a specific allowance to enter the Action for each inoperable ESFAS instrumentation Function and for certain Functions on a steam line, steam generator, or bus basis. Furthermore, the word "operating" in CTS Functional Unit 9.d is not included in the ITS.

This change is acceptable because it clearly states the current requirement. The CTS considers each ESFAS instrumentation Function to be separate and independent from the others. In addition, the channels associated with Functions 1.e.(2), 4.a, 4.e, 5.b, 6.c, and 6.e are allowed separate Condition entry on the specified basis (i.e., steam line, steam generator, or bus) since the channels associated with each steam line, steam generator, or bus will provide the associated ESFAS actuation based on the logic associated with the channels on the specified basis. The CTS Functional Unit 9.d amplifying information that the steam line is "operating" is redundant since all steam lines are normally operating. This change is designated as administrative because it does not result in technical changes to the CTS.

A.3 CTS 4.3.2.1.3 requires ENGINEERED SAFETY FEATURES (ESF) RESPONSE TIME testing of "each" ESFAS function. ITS SR 3.3.2.12 is the ESF RESPONSE TIME testing Surveillance, but in ITS Table 3.3.2-1, it is only required for Functions 1.c (Safety Injection Containment Pressure - High), 1.d (Safety Injection Pressurizer Pressure - Low), 1.e.(1) (Safety Injection Steam Line Pressure - Low), 2.c (Containment Spray Containment Pressure - High High), 4.c (Steam Line Isolation Containment Pressure - High High), 4.d (Steam Line Isolation Steam Line Pressure - Low), 5.b (Turbine Trip and Feedwater Isolation SG Water Level - High High), 5.c (Turbine Trip and Feedwater Isolation SI Input

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

from ESFAS), 6.c (Auxiliary Feedwater SG Water Level - Low Low), 6.e (Auxiliary Feedwater Loss of Voltage), 6.f (Auxiliary Feedwater Undervoltage Reactor Coolant Pump), 6.g (Auxiliary Feedwater Trip of All Main Feedwater Pumps), and 7.c (CEQ System Containment Pressure - High). This changes the CTS by specifically stating that the Surveillance is only applicable to certain Functions, not "each" function.

The purpose of CTS 4.3.2.1.3 is to ensure that the actuation response times are less than or equal to the maximum values assumed in the accident analysis. UFSAR Table 7.2-7, which was previously in CTS 3.3.2 as Table 3.3-5, only specifies response times for those ESFAS Functions assumed in the CNP safety analyses. These response times were removed from CTS 3.3.2 and placed under CNP control as documented in the NRC Safety Evaluation Report for License Amendments 202 (Unit 1) and 187 (Unit 2). This change is acceptable since ITS 3.3.2 requires ESF RESPONSE TIME testing (ITS SR 3.3.2.12) for only those Functions listed in UFSAR Table 7.2-7. This change is designated as administrative because it does not result in technical changes to the CTS.

A.4 CTS 4.3.2.1.3 states, in part, that the ESF RESPONSE TIME of each trip function shall be demonstrated to be within its limit at least once per 18 months. The requirement specifies that each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months, where N is the total number of redundant channels in a specific ESFAS Function as shown in the "TOTAL NO. OF CHANNELS" column of Table 3.3-3. ITS SR 3.3.2.12 requires the verification of ESF RESPONSE TIME every 24 months "on a STAGGERED TEST BASIS." The ITS definition of STAGGERED TEST BASIS is consistent with the CTS testing Frequency. This changes the CTS by utilizing the ITS definition of STAGGERED TEST BASIS. The extension in the Surveillance Frequency from 18 months to 24 months is discussed in DOC L.4.

This change is acceptable because the requirements for ESF RESPONSE TIME testing for the ESFAS channels remain unchanged. The ITS definition of STAGGERED TEST BASIS and its application in this requirement do not change the current testing frequency requirements. This change is designated as administrative because it does not result in technical changes to the CTS.

A.5 CTS Table 3.3-3 specifies the "TOTAL NO. OF CHANNELS" and the "MINIMUM CHANNELS OPERABLE" associated with each ESFAS Functional Unit. For CTS Table 3.3-3 Functional Units 1.c, 1.d, 1.e, 1.f, 2.c, 3.b.3), 4.c, 4.d, 4.e, 5.a, 6.a, 6.b, 7.a, 7.b, and 10.c, the number of channels listed in the "TOTAL NO. OF CHANNELS" column is greater than that listed in the "MINIMUM CHANNELS OPERABLE" column. CTS Table 3.3-3 Actions 14, 16, 19, and 20 specify the actions to take with the number of channels OPERABLE one less than required by the "TOTAL NO. OF CHANNELS" column. ITS LCO 3.3.2 requires the ESFAS instrumentation for each Function in Table 3.3.2-1 to be OPERABLE, and ITS Table 3.3.2-1 includes only one column titled "REQUIRED CHANNELS." For the associated ITS Table 3.3.2-1 Functions, the number of channels listed in the "REQUIRED CHANNELS" column is equal to the number of channels listed in CTS "TOTAL NO. OF CHANNELS" column. The ITS 3.3.2 ACTIONS require

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

entry when the OPERABLE channels are one less than required by the "REQUIRED CHANNELS" column. In addition, the description in the CTS Table 3.3-3 "MINIMUM CHANNELS OPERABLE" column includes: a) the phrase "/steam line" for Functional Units 1.e and 4.d; b) the word "loops" for Functional Units 1.f and 4.e; c) the phrase "/loop in each operating loop" for Functional Unit 5.a; d) the phrase "/Stm. Gen." for Functional Unit 6.a; and e) the phrase "/bus" for Functional Unit 6.b. In ITS Table 3.3.2-1, the only phrases used are "per steam line" for Functions 1.e.(1) and 4.d. The remaining phrases are not used in the ITS Table 3.3.2-1 REQUIRED CHANNELS OPERABLE column since similar phrases are used in the titles of the Functions, as discussed in DOC A.2. This changes the CTS by changing the title of the "MINIMUM CHANNELS OPERABLE" column to "REQUIRED CHANNELS" and increases the number of channels listed to match the number listed in the "TOTAL NO. OF CHANNELS" column. It also changes the CTS by modifying some of the descriptions in the "MINIMUM CHANNELS OPERABLE" column.

This change is acceptable because the requirements for when actions must be taken remain unchanged. The "REQUIRED CHANNELS" column reflects the current requirements in the CTS Actions for when actions are required to be taken. The "MINIMUM CHANNELS OPERABLE" column for CTS Table 3.3-3 Functional Units 1.c, 1.d, 1.e, 2.c, 3.b.3), 4.c, 4.d, 5.a, 6.a, 6.b, 7.a, 7.b, and 10.c have changed to correspond to the number of channels in the "TOTAL NO. OF CHANNELS" column as reflected in ITS Table 3.3.2-1 Functions 1.c, 1.d, 1.e.(2), 2.c, 3.b.(3), 4.c, 4.e, 5.b, 6.c, 6.e, 6.f, and 7.c. This change is designated as administrative because it does not result in technical changes to the CTS.

A.6 Not used.

A.7 CTS Table 3.3-3 Functional Unit 3.a (Containment Isolation Phase "A" Isolation) does not specifically include the Automatic Actuation Logic and Actuation Relays Function. ITS Table 3.3.2-1 Function 3.a.(2) requires the two Automatic Actuation Logic and Actuation Relay trains to be OPERABLE in MODES 1, 2, 3, and 4. ITS 3.3.2 ACTIONS C and I have been included for this Function, and provide 6 hours to restore an inoperable train if one train is inoperable (ACTION C), and if not restored, provide a shutdown requirement (ACTION J). This changes the CTS by adding Function 3.a.(2) (Containment Isolation Phase A Isolation Automatic Actuation Logic and Actuation Relays) to the Technical Specifications including the LCO, number of channels (2 trains), and appropriate ACTIONS.

This change is considered acceptable because the Containment Isolation Phase A Isolation Function utilizes the relays associated with the Automatic Actuation Logic and Actuation Relays to initiate the Manual Initiation Function (CTS Table 3.3-3 Functional Units 3.a.1) and 9.c) and the SI Automatic Actuation Logic Function (CTS Table 3.3-3 Functional Unit 3.a.2)). The proposed requirements are consistent with the requirements for both of these Functions. The Manual Initiation Function currently requires one manual initiation channel in each train. For each Manual Initiation train to function properly the associated Automatic Actuation Logic and Actuation Relays must also operate as designed. The SI Automatic Actuation Logic also requires two trains. If the relays associated with Train A of the Automatic Actuation Logic and Actuation Relays were inoperable, the current Action is to enter Action 13 (CTS Table 3.3-3 Functional Unit 3.a.2), SI Automatic Actuation Logic) and Action 18 (CTS Table 3.3-3 Functional Unit 9.a, Manual Initiation) since the relays affect both the Manual Initiation Function and the Automatic Actuation Logic. The proposed Action for ITS Table 3.3.2-1 Function 3.a.(2) is ACTION C since it is more restrictive of the two actions. Changes to CTS Table 3.3-3 Action 13 is discussed in DOC L.9. Since the number of channels are consistent with the number of channels for the Manual Initiation and SI Automatic Actuation Logic Functions, and since changes to the Actions are discussed in DOC L.9, this change is considered administrative. This change is designated as administrative because it does not result in a technical change to the CTS.

A.8 CTS Table 3.3-3 Functional Unit 5, Turbine Trip and Feedwater Isolation, does not explicitly contain the OPERABILITY requirements for the SI Input from ESFAS Function. CTS Table 3.3-3 Functional Unit 1 requires the Safety Injection Function to also provide input to the Turbine Trip and Feedwater Isolation Function, as indicated in the title of CTS Table 3.3-3 Functional Unit 1. ITS Table 3.3.2-1 Function 5.c, SI Input from ESFAS, requires the SI Input from ESFAS Function to be OPERABLE in MODE 1, and MODES 2 and 3 except when all MFIVs or MFRVs are closed and de-activated or isolated by a closed manual valve. It also states to refer to Function 1 for all initiation functions and requirements, including ACTIONS and Surveillances. This changes the CTS by adding the explicit requirement that the SI Input from ESFAS must support the Turbine Trip and Feedwater Isolation. The change related to the Applicability associated with this Function is discussed in DOC L.15.

The purpose of ITS Table 3.3.2-1 Function 5.c is to ensure the SI Input from ESFAS Function is OPERABLE to support the Turbine Trip and Feedwater Isolation Function. CTS Table 3.3-3 Functional Unit 1 states that the Safety Injection signals must support the Turbine Trip and Feedwater Isolation Function. Therefore, the requirement to have the SI Input from ESFAS Function OPERABLE to support the Turbine Trip and Feedwater Isolation Function is acceptable. This change is designated as administrative because it does not result in a technical change to the CTS.

A.9 CTS LCO 3.3.2.1 states that the interlocks of Table 3.3-3 shall be OPERABLE. However, CTS Table 3.3-3 provides no specific Applicability requirements for the P-11 and P-12 interlocks. ITS Table 3.3.2-1 specifies MODES 1, 2, and 3 as the Applicability for the P-11 interlock (Function 8.b) and MODES 1, 2, and 3 above the P-12 (T_{avg} – Low Low) interlock for the P-12 interlock (Function 8.c). This changes the CTS by adding a specific Applicability for the P-11 and P-12 interlocks.

This change is acceptable because the change provides more explicit conditions for when the interlocks are required to be OPERABLE, and are consistent with the ESFAS Functions they support. This change is designated as administrative because it does not result in a technical change to the CTS.

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ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

A.10 CTS 4.3.2.1.1 requires that the ESFAS instrumentation channels be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-2. ITS 3.3.2 requires the performance of either a CHANNEL OPERATIONAL TEST (COT), a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT), or, in the case of the Automatic Actuation Logic, an ACTUATION LOGIC TEST. This changes the CTS by changing the CHANNEL FUNCTIONAL TEST requirements to either a COT, a TADOT, or an ACTUATION LOGIC TEST.

This change is acceptable because the COT, TADOT, and ACTUATION LOGIC TEST continue to perform tests similar to the current CHANNEL FUNCTIONAL TEST. The change is one of format only and any technical change to the requirements is specifically addressed in an individual Discussion of Change. This change is designated as administrative because it does not result in technical changes to the CTS.

A.11 CTS Table 4.3-2 requires a CHANNEL FUNCTIONAL TEST be performed for Functional Unit 6.b (4 kV Bus Loss of Voltage) and Functional Unit 7.b (Reactor Coolant Pump Bus Undervoltage). ITS Table 3.3.2-1 Function 6.e (Loss of Voltage) requires performance of SR 3.3.2.2, a TADOT, and Function 6.f (Undervoltage Reactor Coolant Pump) requires performance of SR 3.3.2.5, a TADOT. However, each Surveillance is modified by a Note that states that a verification of the relay setpoints is not required. This changes the CTS by explicitly stating that relay setpoint verification is not part of the TADOT. The change from a CHANNEL FUNCTIONAL TEST to a TADOT is discussed in DOC A.10.

The CTS definition of CHANNEL FUNCTIONAL TEST does not require a setpoint verification. However, the ITS definition of TADOT does include a setpoint verification. Therefore, to be consistent with the current requirements and with current practice, the Note has been added. Since a setpoint verification is not currently required during performance of this test, this change is acceptable. This change is designated as administrative because it does not result in a technical change to the CTS.

A.12 CTS Table 3.3-3 Functional Unit 5, Turbine Trip and Feedwater Isolation, does not specifically include the Automatic Actuation Logic and Actuation Relay Function. ITS Table 3.3.2-1 Function 5.a requires the two Automatic Actuation Logic and Actuation Relay trains to be OPERABLE in MODE 1, and MODES 2 and 3 except when all MFIVs or MFRVs are closed and de-activated or isolated by a closed manual valve. This changes the CTS by explicitly requiring the two trains of the Automatic Actuation Logic and Actuation Relays Functions for Turbine Trip and Feedwater Isolation to be OPERABLE in MODE 1, and MODES 2 and 3 except when all MFIVs or MFRVs are closed and de-activated or isolated by a closed manual valve.

This change is considered acceptable because the Turbine Trip and Feedwater Isolation Functions require the Automatic Actuation Logic and Actuation Relays to operate properly in order to actuate Turbine Trip and Feedwater Isolation. Two trains are required to be OPERABLE to help ensure a single failure of a

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

logic train does not prevent the actuation of the Turbine Trip and Feedwater Isolation. The proposed Applicability is consistent with the Applicability of the Functions listed under CTS Table 3.3-3 Functional Unit 5 as modified by DOC L.7. This change is designated as administrative because it does not result in a technical change to the CTS.

A.13 CTS Table 3.3-3 Functional Unit 6, Motor Driven Auxiliary Feedwater Pumps, and Functional Unit 7, Turbine Driven Auxiliary Feedwater Pumps, do not include the Automatic Actuation Logic and Actuation Relays Function. ITS Table 3.3.2-1 Function 6.a includes the requirements for the Automatic Actuation Logic and Actuation Relays (Solid State Protection System) and Function 6.b includes the requirements for the Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS). The Applicability of these Functions is MODES 1, 2, and 3 and two trains of each Function are required to be OPERABLE. This changes the CTS by explicitly requiring the two trains of the Automatic Actuation Logic and Actuation Relays Functions (Solid State Protection System and Balance of Plant ESFAS) for the Auxiliary Feedwater System to be OPERABLE in MODES 1, 2, and 3.

This change is considered acceptable because the Auxiliary Feedwater Pump Functions either requires the Automatic Actuation Logic and Actuation Relays (Solid State Protection System) or the Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS) to operate properly in order to start the associated auxiliary feedwater pump. Two trains are required to be OPERABLE to help ensure a single failure of a logic train does not prevent the actuation of the Auxiliary Feedwater Function. The proposed Applicability is consistent with the Applicability of the Functions listed under CTS Table 3.3-3 Functional Units 6 and 7. This change is designated as administrative because it does not result in a technical change to the CTS.

A.14 CTS Table 3.3-1 Action 18 requires the unit to be in MODE 3 within 6 hours and MODE 5 within the following 30 hours if a Functional Unit 6.d, Loss of Main Feedwater Pumps, channel is inoperable and not restored within 48 hours. However, CTS Table 3.3-3 Functional Unit 6.d is applicable only in MODES 1 and 2. Thus, as described in CTS 3.0.1, CTS Table 3.3-3 Action 18 is only applicable in MODES 1 and 2 for Functional Unit 6.d. ITS 3.3.2 ACTION H is the associated shutdown action for the above Function (ITS Table 3.3.2-1 Function 6.g), and it only requires the unit to be in MODE 3 within 6 hours. This changes the CTS by explicitly specifying that the unit is only required to be shut down to MODE 3.

The purpose of CTS Table 3.3-3 Action 18 is to place the unit in a MODE in which Functional Unit 6.d does not apply. The change is acceptable because the CTS 3.0.1 specifically states that the Actions are only applicable in the MODES specified by the LCO. Thus, a shutdown only to MODE 3 is actually required by CTS Table 3.3-3 Action 18 for this Function. This change is designated as administrative because it does not result in a technical change to the CTS.

A.15 CTS Table 3.3-3 Functional Unit 1.e specifies the requirements for the Differential Pressure Between Steam Lines - High Function for four loop

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operation and three (n-1) loop operation (in MODE 3 above P-12). CTS Table 3.3-3 Functional Units 1.f and 4.e specify the requirements for the Steam Line Pressure - Low Function for four loop operation and three (n-1) loop operation (in MODE 3 above P-12). CTS Table 3.3-3 Functional Unit 4.d specifies the requirements for the Steam Flow in Two Steam Lines - High Function coincident with Tavg - Low Low for four loop operation and three (n-1) loop operation (in MODE 3 above P-12). Each of these CTS Table 3.3-3 Functional Units "CHANNELS TO TRIP" column is modified by CTS Table 3.3-3 Note ### or ####, as applicable. These Notes require certain channels to be tripped during three (n-1) loop operation. In addition, CTS Table 3.3-3 Action 15 is provided for these three (n-1) loop operation instrumentation requirements. ITS Table 3.3.2-1 Functions 1.e.(2) (Steam Line Pressure - High Differential Pressure Between Steam Lines), 1.e.(1) and 4.d (Steam Line Pressure - Low), and 4.e (High Steam Flow in Two Steam Lines coincident with Tavg - Low Low) specify requirements for these Functions based only upon the four loop operation requirements from the CTS. This changes the CTS by eliminating the ESFAS instrumentation requirements that are only associated with three (n-1) loop operation.

The current CNP CTS requirements to trip the instrumentation channels associated with a non-operating RCS loop are based on NUREG-0452, Revision 4. All revisions of NUREG-0452 included these requirements in anticipation of future NRC approval for n-1 loop operation for nuclear power plants that were currently being licensed to operate. However, no nuclear power plant, including CNP, has ever obtained NRC approval for n-1 loop operation, and no interest in requesting NRC approval is evident in the industry. Because of this lack of interest, these requirements were eliminated during the development of NUREG-1431, as reviewed and approved by the NRC. Consequently, ISTS Table 3.3.2-1 Functions 1.e.(1), 1.e.(2), 1.f, 1.g, 4.d.(1), 4.d.(2), 4.e, 4.f, 4.g, and 4.h do not address requirements for n-1 loop operation. Since CNP is not currently licensed for n-1 loop operation, the proposed ITS do not include requirements for n-1 loop operation consistent with the ISTS. This change is designated as administrative since this change eliminates requirements that are not applicable to CNP and is consistent with the NUREG-1431 ISTS requirements.

A.16 CTS Table 3.3-3, Functional Unit 6.d (Loss of Main Feedwater Pumps) requires 2 channels to be OPERABLE. Unit 1 ITS Table 3.3.2-1 Function 6.g requires 2 channels per pump to be OPERABLE and Unit 2 ITS Table 3.3.2-1 Function 6.g requires 1 channel per pump to be OPERABLE. This changes the CTS by stating the number of channels required OPERABLE in ITS terminology.

For the Unit 1 design, each turbine driven MFW pump is equipped with a low and high pressure steam stop valve. Each stop valve contains a limit switch that actuates when the associated stop valve is closed. Both of the stop valve limit switches must actuate to indicate a turbine driven MFW pump has tripped. In the CTS, these two switches for each pump are considered a channel; thus the CTS requires two channels (i.e., one from each pump) to be OPERABLE. In the ITS, each switch is considered a channel, thus two channels per pump are required. For the Unit 2 design, each turbine driven MFW pump is equipped with a single steam stop valve. The stop valve contains a limit switch that actuates when the stop valve is closed. In the CTS, each switch (one from each pump) is considered a channel; thus the CTS requires two channels to be OPERABLE. In the ITS, each switch is also considered a channel, thus one channel per pump is required. Therefore, this change is a presentation preference only to conform to the ITS terminology and is considered acceptable. This change is designated as administrative because it does not result in technical changes to the CTS.

A.17 CTS Tables 3.3-3, 3.3-4, and 4.3-2 provide specific requirements, including Applicability, number of channels, ACTIONS, and Surveillances, for Functional Units 3.a.2), 6.c, and 9.a, which are the Functional Units for the Safety Injection (SI) signals generated from ESFAS to the Containment Isolation and Motor Driven Auxiliary Feedwater Pumps. ITS Table 3.3.2-1 Functions 3.a.(3) and 6.d, which are the same Functions, also provides the specific requirements for the SI Input from ESFAS. However, the ITS only specifies the Applicabilities for these two Functions; it refers to the requirements of ITS Table 3.3.2-1 Function 1 for the remainder of the requirements. This changes the CTS by providing a cross-reference to the requirements of the various SI Functions in lieu of listing them all for the Containment Isolation and Auxiliary Feedwater Pumps.

The purpose of CTS Functional Units 3.a.2), 6.c, and 9.a is to provide proper requirements to ensure the SI signal from ESFAS will actuate the Containment Phase A Isolation and Motor Driven Auxiliary Feedwater Pumps. The ITS requirements state to refer to Function 1 for all initiation functions and requirements, except the Applicability. Thus, in the ITS, all portions of the SI Input from ESFAS that actuate the Containment Phase A Isolation and Auxiliary Feedwater Pumps is governed by the requirements of ITS Table 3.3.2-1 Function 1. This is acceptable, since ITS Table 3.3.2-1 Function 1 provides requirements consistent with the current CTS requirements. The CTS requires 2 trains to be OPERABLE. For CTS Functional Units 3.a.2) and 6.c, this requirement is covered by CTS Functional Unit 1.b (ITS Table 3.3.2-1 Function 1.b), the Automatic Actuation Logic and Actuation Relays Function, since the SI Input from ESFAS for the Containment Phase A Isolation and Auxiliary Feedwater Pumps is through the Solid State Protection System logic. For CTS Functional Unit 9.a, this requirement is covered by CTS Functional Unit 1.a (ITS Table 3.3.2-1 Function 1.a), since this is the Manual SI Initiation Functional Unit. The ACTIONS provided for CTS Functional Units 3.a.2) and 9.a are the same as the CTS Functional Units for Safety Injection and any changes to the ACTIONS are discussed and justified in other DOCs. For CTS Functional Unit 6.c, the CTS ACTION for the Safety Injection Function is more restrictive, however, in all likelihood, if Functional Unit 6.c is inoperable, CTS Functional Unit 1.b would also be inoperable and its more restrictive ACTIONS would have to be taken. CTS Functional Units 3.a.2) and 6.c require a CHANNEL FUNCTIONAL TEST every 92 days on a STAGGERED TEST BASIS (as shown in Table 4.3-2 and Note 2). This Surveillance and Frequency are consistent with the Surveillance and Frequency required by CTS Functional Unit 1.b. CTS Functional Unit 9.a requires a TADOT every 18 months, which is also consistent with the Manual SI Initiation Functional Unit requirements (changed to 24 months in the ITS as discussed in DOC L.13). Therefore, this change is acceptable and

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designated as an administrative change because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS Table 3.3-4 provides Allowable Values for Functional Units 1.f (Safety Injection Steam Line Pressure - Low) and 4.e (Steam Line Isolation Steam Line Pressure - Low), but does not explicitly provide requirements for the time constants of the lead/lag controllers associated with these Functional Units. ITS Table 3.3.2-1 Footnote (c) is applied to each of these Functions (ITS Table 3.3.2-1 Functions 1.e.(1) and 4.d) and provides requirements for the time constants for these lead/lag controllers. This changes the CTS by providing explicit values for the time constants of the Steam Line Pressure - Low lead/lag controllers.

This change is acceptable because proper settings of the time constants of the lead/lag controllers are necessary to support the OPERABILITY of the Steam Line Pressure - Low Functions. As such, explicitly including the values for these time constants in the Technical Specifications provides additional assurance that the OPERABILITY of the Safety Injection Steam Line Pressure - Low and Steam Line Isolation Steam Line Pressure - Low Functions will be maintained. The addition of the time constants of the Steam Line Pressure - Low lead/lag controllers is acceptable since these requirements are currently administratively controlled in procedures. The requirements for the Safety Injection Steam Line Pressure - Low and Steam Line Isolation Steam Line Pressure - Low Functions continue to require the time constants of the lead/lag controller to be within required limits to ensure that these instruments function as assumed in the safety analyses. This change is designated as more restrictive because it adds explicit Allowable Values for the time constants of the Steam Line Pressure - Low lead/lag controllers to the CTS.

M.2 CTS Table 4.3-2 Functional Unit 5, which provides the Surveillance Requirements for the Turbine Trip and Feedwater Isolation instrumentation, does not include an Automatic Actuation Logic and Actuation Relays Function. ITS Table 3.3.2-1 Function 5.a requires the two Automatic Actuation Logic and Actuation Relays trains to be OPERABLE and requires the performance of SR 3.3.2.3, an ACTUATION LOGIC TEST, and SR 3.3.2.4, a MASTER RELAY TEST, every 92 days on a STAGGERED TEST BASIS, and SR 3.3.2.8, a SLAVE RELAY TEST, every 24 months. This changes the CTS by adding the explicit Surveillances for proposed Function 5.a, Automatic Actuation Logic and Actuation Relays, to the Technical Specifications. The addition of the LCO, number of channels, and ACTIONS is discussed in DOCs A.12 and L.8.

This change is acceptable because the Automatic Actuation Logic and Actuation Relays Function is required to support the OPERABILITY of Turbine Trip and Feedwater Isolation function. As such, explicitly including requirements for the Automatic Actuation Logic and Actuation Relays Function in the Technical Specifications provides additional assurance that the OPERABILITY of the Turbine Trip and Feedwater Isolation function will be maintained. The change

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provides explicit requirements for testing the Automatic Actuation Logic and Actuation Relays Function (ITS Table 3.3.2-1 Function 5.a). The addition of SR 3.3.2.3 (an ACTUATION LOGIC TEST), SR 3.3.2.4 (a MASTER RELAY TEST), and SR 3.3.2.8 (a SLAVE RELAY TEST) is acceptable since the proposed Surveillance Requirements are consistent with current practice. The proposed Frequencies of testing of the actuation logic and master relays is consistent with the current Frequency of testing of the CHANNEL FUNCTIONAL TEST associated with the Automatic Actuation Logic and Actuation Relays for other Functions. The Frequency proposed for the slave relays is consistent with the Frequency for current testing requirements for the simulated actuation tests. This change is designated as more restrictive because it adds SRs for the Automatic Actuation Logic and Actuation Relays Function to the CTS.

M.3 CTS Table 4.3-2 Functional Unit 6, which provides the ESFAS instrumentation Surveillance Requirements for the motor driven AFW Pumps, and CTS Table 4.3-2 Functional Unit 7, which provides the ESFAS instrumentation Surveillance Requirements for the turbine driven AFW pump, do not provide any explicit requirements for the motor driven or turbine auxiliary feedwater (AFW) pump ESFAS Automatic Actuation Logic and Actuation Relays Function. ITS Table 3.3.2-1 Function 6.a requires the two Automatic Actuation Logic and Actuation Relays (Solid State Protection System) trains to be OPERABLE and requires the performance of SR 3.3.2.3, an ACTUATION LOGIC TEST, and SR 3.3.2.4, a MASTER RELAY TEST, every 92 days on a STAGGERED TEST BASIS, and SR 3.3.2.8, a SLAVE RELAY TEST, every 24 months. ITS Table 3.3.2-1 Function 6.b requires the two Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS) trains to be OPERABLE and requires the performance of SR 3.3.2.11, an ACTUATION LOGIC TEST, every 24 months. This changes the CTS by adding the explicit Surveillances for proposed Functions 6.a, Auxiliary Feedwater (AFW) Automatic Actuation Logic and Actuation Relays (Solid State Protection System) and 6.b, AFW Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS) to the Technical Specifications. The addition of the LCO, number of channels, and ACTIONS is discussed in DOCs A.13 and L.17.

This change is acceptable because the Automatic Actuation Logic and Actuation Relays Functions are required to support the OPERABILITY of other AFW System instrumentation Functions. As such, explicitly including requirements for the Automatic Actuation Logic and Actuation Relays Functions in the Technical Specifications provides additional assurance that the OPERABILITY of the other AFW System instrumentation Functions will be maintained. The change provides explicit requirements for testing the AFW Automatic Actuation Logic and Actuation Relays (Solid State Protection System) Function (ITS Table 3.3.2-1 Function 6.a) and the AFW Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS) Function (ITS Table 3.3.2-1 Function 6.b). The addition of SR 3.3.2.3 (an ACTUATION LOGIC TEST), SR 3.3.2.4 (a MASTER RELAY TEST), SR 3.3.2.8 (a SLAVE RELAY TEST), and SR 3.3.2.11 (an ACTUATION LOGIC TEST) is acceptable since the proposed Surveillance Requirements are consistent with current practice. The proposed Frequencies of testing of the actuation logic and master relays associated with the Solid State Protection System is consistent with the Frequency of testing of the CHANNEL

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FUNCTIONAL TEST associated with the Automatic Actuation Logic for other Functions. The Frequency proposed for the balance of plant ESFAS ACTUATION LOGIC TEST is consistent with the Frequency proposed for the simulated actuation tests. The Frequency proposed for the slave relays is consistent with the Frequency for current testing requirements for the simulated actuation tests. This change is designated as more restrictive because it adds explicit OPERABILITY requirements and SRs for the AFW Automatic Actuation Logic and Actuation Relays Functions to the CTS.

M.4 CTS Table 3.3-3 Action 14 states that with the number of OPERABLE Functional Units 1.c through 1.f, 4.d, 4.e, 5.a, 6.a, 6.b, 7.a, or 10.c channels one less than the total number of channels, operations may proceed provided the inoperable channel is placed in the tripped condition within 1 hour. CTS Table 3.3-3 Action 16 states that with the number of OPERABLE Functional Units 2.c, 3.b.3), or 4.c channels one less than the total number of channels, operations may proceed provided the inoperable channel is placed in the bypassed condition. CTS Table 3.3-3 Action 19 states that with less than the minimum number of Functional Unit 7.b channels OPERABLE, startup and power operations may proceed provided the inoperable channel is placed in the tripped condition within 1 hour. If CTS Table 3.3-3 Action 14, Action 16, or Action 19 is not met, entry into CTS 3.0.3 is required since no further actions are specified. CTS 3.0.3 allows 1 hour to initiate action, 7 hours for the unit to be placed in MODE 3, 13 hours for the unit to be in MODE 4, and 37 hours for the unit to be in MODE 5. ITS 3.3.2 ACTION H requires the unit to be placed in MODE 3 in 6 hours, ITS 3.3.2 ACTION I requires the unit to be placed in MODE 3 in 6 hours and MODE 4 in 12 hours, and ITS 3.3.2 ACTION J requires the unit to be placed in MODE 3 in 6 hours and MODE 5 in 36 hours. This changes the CTS by providing a specific default condition instead of requiring entry into CTS 3.0.3, and reducing the time allowed to reach the applicable conditions.

This change is acceptable because the CTS requirements are modified to provide the necessary Required Actions and appropriate Completion Times. The Completion Time of 6 hours to reach MODE 3, 12 hours to reach MODE 4, and 36 hours to reach MODE 5 from 100% RTP, in a safe manner without challenging unit systems, is consistent with other CTS and ITS requirements. This change is designated as more restrictive because the Completion Times for the unit to be placed in the specified MODES have been decreased by 1 hour.

M.5 CTS Table 3.3-3 includes the ESFAS interlocks. The Table does not include the requirements for the P-4 interlock. ITS LCO 3.3.2 and Table 3.3.2-1 Function 8.a requires the OPERABILITY of the Reactor Trip P-4 interlock. This interlock requires one channel per train of this Function in MODES 1, 2, and 3. If one channel is inoperable, ITS 3.3.2 ACTION B provides 48 hours to restore the train to OPERABLE status. If not restored, ACTION I requires a unit shutdown to MODE 4. In addition, a requirement has been added to perform a TADOT (SR 3.3.2.9) every 24 months. This changes the CTS by adding the requirements for the P-4 interlock.

The purpose of the P-4 interlock is to provide the appropriate interlock when the Reactor Trip Breaker and its corresponding bypass breaker are open. The

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interlock is assumed to block re-actuation of safety injection after manual reset of Safety Injection actuation signal. This function is necessary to meet the accident and transient analyses. This change is designated as more restrictive because it adds an explicit LCO, Applicability, ACTIONS, and Surveillance Requirements for the P-4 interlock to the Technical Specifications.

M.6 CTS Table 4.3-2 Functional Units 1.b, 2.b, 3.b.2), 4.b, and 10.b provide the Surveillance Requirements for the Automatic Actuation Logic. CTS Table 4.3-2 does not provide requirements to test the master and slave relays associated with this logic. ITS Table 3.3.2-1 Functions 1.b, 2.b, 3.b.(2), 4.b, and 7.b (the Automatic Actuation Logic and Actuation Relays Functions) require the performance of a MASTER RELAY TEST (SR 3.3.2.4) every 92 days on a STAGGERED TEST BASIS and a SLAVE RELAY TEST (SR 3.3.2.8) every 24 months. This changes the CTS by explicitly requiring the master and slave relays to be tested at the specified Frequencies.

This change is acceptable because these relays are required to support the Automatic Actuation Logic required to support the OPERABILITY of the associated equipment. As such, explicitly including requirements for the master and slave relays in the Technical Specifications provides additional assurance that the OPERABILITY of the associated ESFAS Automatic Actuation Logic and Actuation Relays Functions will be maintained. The proposed Frequencies of testing of the master relays is consistent with the current Frequency of testing of the CHANNEL FUNCTIONAL TEST associated with the Automatic Actuation Logic. The Frequency proposed for the slave relays is consistent with the Frequency for current testing requirements for the simulated actuation tests. This change is designated as more restrictive because it adds explicit Surveillance Requirements to the Technical Specifications for the master and slave relays associated with ESFAS instrumentation Functions.

M.7 Not used.

M.8 CTS Table 4.3-2 Functional Unit 3.a, Containment Isolation Phase "A" Isolation, does not include the Automatic Actuation Logic and Actuation Relays Function. ITS Table 3.3.2-1 Function 3.a.(2) requires the two Automatic Actuation Logic and Actuation Relays trains to be OPERABLE and requires the performance of SR 3.3.2.3, an ACTUATION LOGIC TEST, and SR 3.3.2.4, a MASTER RELAY TEST, every 92 days on a STAGGERED TEST BASIS and SR 3.3.2.8, a SLAVE RELAY TEST, every 24 months. This changes the CTS by adding the explicit Surveillances for proposed ITS Table 3.3.2-1 Function 3.a.(2), Containment Isolation Phase A Isolation Automatic Actuation Logic and Actuation Relays, to the Technical Specifications. The addition of the LCO, number of channels, and ACTIONS is discussed in DOC A.7.

This change is acceptable because the Automatic Actuation Logic and Actuation Relays Function is required to support the OPERABILITY of the Containment Isolation Phase "A" Isolation Function. As such, explicitly including requirements for the Automatic Actuation Logic and Actuation Relays Function in the Technical Specifications provides additional assurance that the OPERABILITY of the Containment Isolation Phase "A" Isolation Function will be maintained. The

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change provides explicit requirements for testing the Automatic Actuation Logic and Actuation Relays Function (ITS Table 3.3.2-1 Function 3.a.(2)). The addition of SR 3.3.2.3 (an ACTUATION LOGIC TEST), SR 3.3.2.4 (a MASTER RELAY TEST), and SR 3.3.2.8 (a SLAVE RELAY TEST) is acceptable since currently the requirements of SR 3.3.2.3 and SR 3.3.2.4 are satisfied during the 92 day performance of the CHANNEL FUNCTIONAL TEST for CTS Table 4.3-2 Functional Unit 3.a.2) (From Safety Injection Automatic Actuation Logic) channels, and the requirements of SR 3.3.2.8 are satisfied during the performance of the TADOT associated with the Manual Initiation Function. This change is designated as more restrictive because it adds SRs for the Automatic Actuation Logic and Actuation Relays Function to the CTS.

M.9 CTS Table 3.3-3 Action 13 requires the unit to be in MODE 3 within 6 hours and MODE 5 within the following 30 hours if a Functional Unit 4.b, Steam Line Isolation Automatic Actuation Logic, or Functional Unit 10.b, Containment Air Recirculation Fan Automatic Actuation Logic, channel is inoperable (DOC L.9 *discusses the addition of an allowable outage time prior to requiring a unit* shutdown). However, CTS Table 3.3-3 Functional Units 4.b and 10.b are applicable only in MODES 1, 2, and 3. Thus, as described in CTS 3.0.1, CTS Table 3.3-3 Action 13 is only applicable in MODES 1, 2, and 3 for Functional Units 4.b and 10.b. ITS 3.3.2 ACTION I is the associated shutdown action for the above Functions, and it only requires the unit to be in MODE 3 within 6 hours and MODE 4 within 12 hours. This changes the CTS by explicitly specifying that the unit is only required to be shut down to MODE 4, and that it must be performed within 12 hours, not 36 hours.

The purpose of CTS Table 3.3-3 Action 13 is to place the unit in a MODE in which Functional Unit 4.b or 10.b does not apply. The change is acceptable because the 12 hour time to reach MODE 4 is consistent with other CTS and ITS requirements, and provides adequate time to reach the MODE in a safe manner without challenging unit systems. This change is designated as more restrictive because the Completion Time for the unit to reach MODE 4 has been decreased by 24 hours.

M.10 CTS Table 4.3-2, Functional Unit 6.b (Motor Driven AFW Pumps 4 kV Bus Loss of Voltage) and Functional Unit 7.b (Turbine Driven AFW Pump Reactor Coolant Pump Bus Undervoltage) require the performance of a CHANNEL CALIBRATION every 18 months, however the Surveillances are currently being performed more frequently. ITS Table 3.3.2-1 Function 6.e (Auxiliary Feedwater Loss of Voltage) and Function 6.f (Auxiliary Feedwater Undervoltage Reactor Coolant Pump) require the performance of a CHANNEL CALIBRATION every 184 days (ITS SR 3.3.2.7). This changes the CTS by changing the Frequency of the Surveillance from 18 months to 184 days.

The purpose of the CHANNEL CALIBRATION is to ensure the Motor Driven AFW Pumps 4 kV Bus Loss of Voltage and Turbine Driven AFW Pump Reactor Coolant Pump Bus Undervoltage channels will function as designed during an analyzed event. Changing the SR Frequency is acceptable because a 184 day calibration interval is assumed in the setpoint analysis. This change is

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designated as more restrictive because Surveillances will be performed more frequently under the ITS than under the CTS.

M.11 CTS Table 3.3-4 provides the Allowable Values for Functional Unit 1.c (Safety Injection Containment Pressure - High), Functional Unit 1.f (Safety Injection Steam Line Pressure - Low) (Unit 1 only), Functional Unit 2.c (Containment Spray - Containment Pressure - High High), Functional Unit 3.b.3 (Containment Isolation Phase "B" Containment Pressure - High High), Functional Unit 4.c (Steam Line Isolation Containment Pressure – High High), Functional Unit 4.e (Steam Line Isolation Steam Line Pressure - Low) (Unit 1 only), Functional Unit 6.a (Motor Driven Auxiliary Feedwater Pumps Steam Generator Water Level - Low Low) (Unit 2 only), Functional Unit 7.a (Turbine Driven Auxiliary Feedwater Pumps Steam Generator Water Level - Low Low) (Unit 2 only), and Functional Unit 10.c (Containment Pressure - High). ITS Table 3.3.2-1 provides the Allowable Values for all the ESFAS Instrumentation Functions, including ITS Table 3.3.2-1 Functions 1.c, 1.e.(1), 2.c, 3.b.(3), 4.c, 4.d, 6.c, and 7.c. This change revises the above specified CTS ESFAS Table 3.3-4 Allowable Values to the ITS Allowable Values.

The purpose of the Allowable Values is to ensure the instruments function as assumed in the safety analyses. ITS 3.3.2 reflects Allowable Values consistent with the philosophy of Westinghouse ISTS, NUREG-1431. These Allowable Values have been established consistent with the methods described in AEP's Instrument Setpoint Methodology (EG-IC-004, "Instrument Setpoint Uncertainty," Rev. 4). For all cases where a SAL exists, the Allowable Value determinations were calculated using plant specific operating and surveillance trend data. For all other cases, existing Allowable Values were converted directly to the ITS Allowable Values. The Allowable Value verification used actual plant operating and surveillance trend information to ensure the validity of the developed Allowable Value. There were no changes to SALs required due to instrument performance. All design limits applied in the methodologies were confirmed as ensuring that applicable design requirements of the associated systems and equipment are maintained. The methodologies used have been compared with the guidance of ANSI/ISA S67.04-Part I-1994 and ANSI/ISA RP67.04-Part II-1994. Plant calibration procedures will ensure that the assumptions regarding calibration accuracy, measurement and test equipment accuracy, and setting tolerance are maintained. Setpoints for each SAL have been established by accounting for the applicable instrument accuracy, calibration and drift uncertainties, environmental effects, power supply fluctuations, as well as uncertainties related to process and primary element measurement accuracy using the instrument setpoint methodology. The Allowable Values have also been established from each SAL by combining the errors associated with the CHANNEL OPERATIONAL TEST (COT) (e.g., device accuracy, setting tolerance, and drift) with the calculated Nominal Trip Setpoint using the instrument setpoint methodology. Where a SAL exists, trigger values are used to ensure that the Allowable Value provides sufficient margin from the SAL to account for any associated errors not confirmed by the COT. Use of the previously discussed methodologies for determining Allowable Values, NTSPs, and analyzing channel/instrument performance ensure that the design basis and associated SALs will not be exceeded during plant operation. These evaluations, determinations, and analyses now form a portion of the CNP design bases. Additionally, each applicable channel/instrument has been evaluated and analyzed to support a fuel cycle extension to a 24 month interval. These drift evaluations and drift analyses have been performed utilizing the guidance provided in EPRI TR-103335, "Statistical Analysis of Instrument Calibration Data/ Guidelines for Instrument Calibration Extension/Reduction Programs," Rev. 1. The EPRI guidance was used to demonstrate that the data collected by the operating plant (from Surveillance testing) has remained acceptable and reasonable with regard to the manufacturers design specifications. Therefore, based on the above discussion, the changes to the Allowable Values are acceptable. This change is designated as more restrictive because more stringent Allowable Values are being applied in the ITS than were applied in the CTS.

M.12 CTS 4.3.2.1.2 requires the logic for the P-11 and P-12 interlocks to be tested during the automatic actuation logic test for the affected ESFAS Functions. It also requires the remainder of the interlock Functions to be tested during the CHANNEL CALIBRATION testing of the affected ESFAS Functions. These requirements are maintained in the ITS as SR 3.3.2.3 (for ITS Table 3.3.2-1 Function 1.b) and SR 3.3.2.10 (for ITS Table 3.3.2-1 Functions 8.b and 8.c). However, these same interlock Functions (ITS Table 3.3.2-1 Functions 8.b and 8.c) will now require performance of ITS SR 3.3.2.1 (a CHANNEL CHECK) every 12 hours and SR 3.3.2.6 (a CHANNEL OPERATIONAL TEST) every 184 days. This changes the CTS by adding two new Surveillance Requirements for these two interlock Functions.

The purpose of the two new Surveillance is to ensure the interlocks will perform their assumed safety functions. These two Surveillances will help ensure the two interlock functions are OPERABLE, therefore their addition in the ITS is acceptable. The Frequencies proposed for these tests are consistent with Frequencies for similar instruments, therefore the proposed Frequencies are also acceptable. This change is designated as more restrictive because it adds SRs for the P-11 and P-12 ESFAS interlock Functions to the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS LCO 3.3.2.1 requires the ESFAS instrumentation setpoints to be set consistent with the Trip Setpoint values shown in Table 3.3-4. CTS 3.3.2.1 Action a is required to be entered when the setpoint is less conservative than the Allowable Value. The channel is to be declared inoperable until adjusted consistent with the Trip Setpoint value. CTS Table 3.3-4 specifies the Trip Setpoints and Allowable Values for the ESFAS Instrumentation Functional Units. ITS 3.3.2 requires the ESFAS instrumentation for each

Function in Table 3.3.2-1 to be OPERABLE. ITS Table 3.3.2-1 specifies the Allowable Values for the ESFAS Instrumentation Functions. This changes the CTS by moving the Trip Setpoints and associated requirements to the Technical Requirements Manual (TRM).

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the Allowable Values associated with the ESFAS Instrumentation. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA.2 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-3 for ESFAS instrumentation has three columns stating various requirements for each Functional Unit. These columns are labeled, "TOTAL NO. OF CHANNELS," "CHANNELS TO TRIP," and "MINIMUM CHANNELS OPERABLE." In addition, the titles for CTS Table 3.3-3 Functional Units 6 and 7 provide clarifying information concerning motor driven and turbine driven AFW pump logic, and CTS Table 3.3-3 Functional Unit 6.b provides clarifying information concerning motor driven AFW pump and valve actuation logic, and CTS Table 3.3-3 Functional Unit 9.a MINIMUM CHANNELS OPERABLE column provides a parenthetical statement concerning the number of channels per train. ITS Table 3.3.2-1 does not retain the "TOTAL NO. OF CHANNELS" or "CHANNELS TO TRIP" columns, nor the logic description for the motor driven AFW pumps and valves and turbine driven AFW pumps, and the manual steam line isolation. This changes the CTS by moving the information of the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns and the logic description for the motor driven AFW pumps and valves and turbine driven AFW pump, and the manual steam line isolation to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.3 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Tables 3.3-3, 3.3-4, and 4.3-2 Functional Unit 1 provides the ESFAS actuation Functions associated with Safety Injection, Turbine Trip,

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Feedwater Isolation, and Motor Driven Auxiliary Feedwater Pumps. CTS Tables 3.3-3, 3.3-4, and 4.3-2 Functional Unit 9.a states, in part, the Manual Initiation Function is associated with Reactor Trip (SI) and Essential Service Water System. ITS Table 3.3.2-1 Function 1 provides all the Functions associated with Safety Injection including the Manual Initiation Function. This changes the CTS by moving the details of the logic initiation from the Specification to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements for the Functions to be OPERABLE. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.4 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-3 specifies the functions and logic of the P-11 and P-12 interlocks. ITS Table 3.3.2-1 Functions 8.b and 8.c do not include this information. The ITS only specifies that there are 3 channels for P-11 interlock and 4 channels for P-12 interlock. This changes the CTS by moving the functional description and logic associated with each of the interlocks specified in the Table to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements for the interlocks to be OPERABLE, and specifies the number of required channels. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.5 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-4 Functional Unit 5.a provides an Allowable Value of ≤ 68% of narrow range instrument span for the Steam Generator Water Level - High High channels. CTS Table 3.3-4 Functional Units 6.a and 7.a provides an Allowable Value of ≥ 16% (Unit 1) and ≥ 19.2% (Unit 2) of narrow range instrument span for the Steam Generator Water Level - Low Low channels. ITS Table 3.3.2-1 Function 5.b provides an Allowable Value for the Steam Generator Water Level - High High channels in terms of percent, but does not include the detail of the associated narrow range instrument span. ITS Table 3.3.2-1

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Function 6.c provides an Allowable Value for the Steam Generator Water Level - Low Low channels in terms of percent, but does not include the detail of the associated narrow range instrument span. This changes the CTS by moving the details of what the setting in % is based upon to the Technical Requirements Manual (TRM).

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the value for each of the Allowable Values. Also, this change is acceptable because the removed information will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.6 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS Table 4.3-2, including Note 3, requires a CHANNEL FUNCTIONAL TEST for Functional Units 1.c and 10.c (Containment Pressure - High), and Functional Units 2.c, 3.b.3), and 4.c (Containment Pressure - High High), and includes requirements for exercising the transmitter "by applying a vacuum or pressure to the appropriate side of the transmitter." ITS SR 3.3.2.6 and associated Note requires the performance of a COT and the exercising of the transmitter, but does not include the information relating to the method of exercising the transmitter. This changes the CTS by moving the explicit method for performing the transmitter exercise to the Bases. The change which changes this test from a CHANNEL FUNCTIONAL TEST to a COT is discussed in DOC A.10.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements that the Containment Pressure - High and Containment Pressure - High High channels remain OPERABLE and a COT and transmitter exercise is still required to be performed. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L.1 Not used.

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L.2 *(Category 11 – 18 to 24 Month Surveillance Frequency Change, Channel Calibration Type)* CTS 4.3.2.1.2 requires the total interlock function to be demonstrated OPERABLE at least once per 18 months. CTS Table 4.3-2 requires a CHANNEL CALIBRATION of Functional Units 1.c through 1.f, 2.c, 3.b.3), 4.c through 4.e, 5.a, 6.a, 7.a, and 10.c every 18 months. ITS Table 3.3.2-1 Functions 1.c, 1.d, 1.e.(1), 1.e.(2), 2.c, 3.b.(3), 4.c through 4.e, 5.b, 6.c, 7.c, 8.b, and 8.c require the performance of a CHANNEL CALIBRATION every 24 months (ITS SR 3.3.2.10). This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

The purpose of the CHANNEL CALIBRATION required by CTS 4.3.2.1.2 and Table 4.3-2 is to ensure the ESFAS instrumentation and interlocks be calibrated correctly to ensure the safety analysis can be met. This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. This change is acceptable because the ESFAS, including the actuation logic, is designed to be single failure proof, therefore ensuring system availability in the event of a failure of one of the channel components. Furthermore, the impacted ESFAS instrumentation has been evaluated for drift using both quantitative and qualitative analysis, based on manufacturer and model number to determine that the instrumentation's actual drift falls within the design allowance in the associated setpoint calculation.

Functional Units 1.c, 10.c, Containment Pressure - High

This function is performed by a Foxboro (N-)E11 Series Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

Functional Unit 1.d, Pressurizer Pressure - Low

This function is performed by a Foxboro (N-)E11 Series Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the

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Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

Functional Unit 1.e, Differential Pressure Between Steam Lines - High

This function is performed by a Foxboro (N-)E11 Series Transmitter with the signal conditioned by Foxboro N-2AI-H2V Input Cards and Foxboro N-2CCA-DC Control Cards performing the trip functions. The signal conditioners and control cards are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

Functional Units 1.f, 4.e, Steam Line Pressure - Low

This function is performed by a Foxboro (N-)E11 Series Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioners and control cards are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitters' drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

Functional Units 2.c, 3.b.3), 4.c, Containment Pressure - High High

This function is performed by a Foxboro (N-)E11 Series Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

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Functional Unit 4.d, Steam Flow in Two Steam Lines - High coincident with T_{avg} - Low Low

This function is performed by a loop consisting of 200Ω Platinum RTDs and Foxboro N-E13 Series Differential Pressure Transmitters with the signals conditioned by Foxboro N-2AI-H2V and N-2AI-P2V Input Cards with a Foxboro N-2CCA-DC Control Card performing the trip functions. The trip setpoint is generated using a Foxboro N-2CCA-DC Control Card based on Turbine Impulse Pressure. The Turbine Impulse Pressure portion of the function is performed by a Foxboro E11 Series Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card. The Foxboro N-2CCA-DC Control Card generates the setpoint signal. The input and Control Cards are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified by a COT every 184 days, and if necessary, recalibrated (with the exception of the generated setpoint signal which is calibrated every 24 months). These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The RTDs are not calibrated, and as such, instrument drift does not apply to these devices. Response of the RTDs to temperature variations during normal plant operation and during the more frequent testing verifies proper operation of the input signal. The Foxboro Transmitters' drift, (for Differential Pressure and Pressure Transmitters) was determined by quantitative analysis as was the drift for the rack equipment used to generate the setpoint. The drift values determined have been used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of these analyses will support a 24 month Surveillance interval.

Functional Unit 5.a, Steam Generator Water Level - High High

This function is performed by a Foxboro (N-)E13 Series Differential Pressure Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Differential Pressure Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

Functional Units 6.a, 7.a, Steam Generator Water Level - Low Low

This function is performed by a Foxboro (N-)E13 Series Differential Pressure Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital

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rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Differential Pressure Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

P-11 Interlock

This function is performed by a Foxboro (N-)E11 Series Transmitter with the signal conditioned by a Foxboro N-2AI-H2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioner and control card are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The Foxboro Transmitter's drift was determined by quantitative analysis. The drift value determined will be used in the development of, confirmation of, or revision to the current plant setpoint and the Technical Specification Allowable Value. The results of this analysis will support a 24 month surveillance interval.

P-12 Interlock

This function is performed by a loop consisting of a 200Ω Platinum RTD as the sensing element with the signal conditioned by a Foxboro N-2AI-P2V Input Card and a Foxboro N-2CCA-DC Control Card performing the trip functions. The signal conditioners and control cards are a part of the Foxboro Spec 200 Micro digital rack. The racks are functionally checked and setpoint verified more frequently, and if necessary, recalibrated. These more frequent testing requirements remain unchanged. Therefore, an increase in the calibration surveillance interval does not affect the Foxboro rack components with respect to drift. The RTD sensing element is not subject to drift nor is it calibratable; therefore a quantitative analysis for the sensing element was not required. The results of this analysis will support a 24 month surveillance interval.

Based on the design of the instrumentation and the drift evaluations, it is concluded that the impact, if any, from this change on system availability is minimal. A review of the Surveillance test history was performed to validate the above conclusion. This review demonstrates that there are no failures that would invalidate the conclusion that the impact, if any, on system availability from this change is minimal. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the plant licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

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L.3 *(Category 6 – Relaxation of Surveillance Requirement Acceptance Criteria)* CTS 4.3.2.1.3 requires the ESF RESPONSE TIME of each ESFAS function to be demonstrated to be within limit. ITS SR 3.3.2.12 requires the same test, however a Note is included that allows a delay in the performance of the test for the turbine driven AFW pump until 24 hours after the required steam pressure of ≥ 850 psig is reached. This changes the CTS by providing an allowance for delaying the performance of required testing without requiring the turbine driven AFW pump to be declared inoperable.

The purpose of CTS 4.3.2.1.3 is to ensure the ESF RESPONSE times are within limit. The allowance provides for entry into MODE 3 before requiring the testing of the pump. This change is acceptable because it has been determined that the relaxed Surveillance Requirement acceptance criteria are not necessary for verification that the equipment used to meet the LCO can perform its required functions. This change is necessary because the main steam pressure may be insufficient in MODE 4 to accurately test the pump, and only a short time is allowed without verification of the required testing. The majority of SRs demonstrate equipment is, in fact, OPERABLE when the tests are performed. Inconsistent testing results may result if testing of the turbine driven AFW pump is required before establishing a sufficient steam pressure. The allowance will permit the establishment of stable unit conditions and sufficient steam pressure to test the pump and will allow an accurate and consistent method for the testing. This change is designated as less restrictive because less stringent Surveillance Requirements are being applied in the ITS than were applied in the CTS.

L.4 *(Category 10 – 18 to 24 Month Surveillance Frequency Change, Non-Channel Calibration Type)* CTS 4.3.2.1.3 requires the ESF RESPONSE TIME of each ESFAS function to be demonstrated to be within limit at least once per 18 months. ITS SR 3.3.2.12 requires the same test at a 24 month Frequency. This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

The purpose of CTS 4.3.2.1.3 is to ensure the actuation response times are less than or equal to the maximum values assumed in the accident analysis. This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Reviews of historical surveillance data and maintenance data sufficient to determine failure modes have shown that these tests normally pass their Surveillances at the current Frequency. An evaluation has been performed using this data, and it has been determined that the effect on safety due to the extended Surveillance Frequency will be minimal. Extending the Surveillance test interval for the ESF RESPONSE TIME test is acceptable because the ESFAS instrumentation is verified to be operating properly throughout the operating cycle by the performance of CHANNEL OPERATIONAL TESTS and, in some cases, CHANNEL CHECKS. This testing ensures that a significant portion of the ESFAS circuitry is operating properly and will detect significant failures of this circuitry. Additional justification

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for extending the Surveillance test interval is that the ESFAS, including the actuating logic, is designed to be single failure proof, therefore ensuring system availability in the event of a failure of one of the channel components. Based on the inherent system and component reliability and the testing performed during the operating cycle, the impact, if any, from this change on system availability is minimal. The review of historical surveillance data also demonstrated that there are no failures that would invalidate this conclusion. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the plant licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.5 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-3 Action 13, which applies when a Functional Unit 1.b (Safety Injection Automatic Actuation Logic), 2.b (Containment Spray Automatic Actuation Logic), 3.b.2) (Containment Isolation Phase "B" Isolation Automatic Actuation Logic), 4.b (Steam Line Isolation Automatic Actuation Logic), or 10.b (Containment Air Recirculation Fan Automatic Actuation Logic) channel is inoperable, allows one channel to be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1. CTS Table 3.3-3 Action 14, which applies when a Functional Unit 1.c (Safety Injection Containment Pressure - High), 1.d (Safety Injection Pressurizer Pressure - Low), 1.e (Safety Injection Differential Pressure Between Steam Lines - High), 1.f (Safety Injection Steam Line Pressure - Low), 4.d (Steam Line Isolation Steam Flow in Two Steam Lines - High Coincident with T_{avg} - Low Low), 4.e (Steam Line Isolation Steam Line Pressure - Low), 5.a (Turbine Trip and Feedwater Isolation Steam Generator Water Level - High High), 6.a (Motor Driven Auxiliary Feedwater Pumps Steam Generator Water Level - Low Low), 7.a (Turbine Driven Auxiliary Feedwater Pumps Steam Generator Water Level - Low Low), or 10.c (Containment Air Recirculation Fan Containment Pressure - High) channel is inoperable, requires the inoperable channel to be placed in trip within 1 hour. No allowance is provided in this Action to allow an inoperable channel to be bypassed for surveillance testing. CTS Table 3.3-3 Action 16, which applies when a Functional Unit 2.c (Containment Spray Containment Pressure - High High), 3.b.3) (Containment Isolation Phase "B" Isolation Containment Pressure - High High), or 4.c (Steam Line Isolation Containment Pressure - High High) channel is inoperable, allows one channel to be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1. CTS Table 3.3-3 Action 19, which applies when a Functional Unit 7.b (Turbine Driven Auxiliary Feedwater Pumps Reactor Coolant Pump Bus Undervoltage) channel is inoperable, requires the inoperable channel to be tripped within 1 hour and allows one channel to be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1. ITS 3.3.2 ACTION C, which applies to one train inoperable for ITS Table 3.3.2-1 Functional Units 1.b, 2.b, 3.b.(2), 4.b, and 7.b, includes an allowance to bypass one train for up to 4 hours for surveillance testing provided the other train is OPERABLE. ITS 3.3.2 ACTION D, which applies to one channel inoperable for ITS Table 3.3.2-1 Functions 1.c, 1.d, 1.e.(1), 1.e.(2), 4.d, 4.e, 5.b, 6.c, 6.f, and 7.c, requires the inoperable channel be placed in the tripped condition within 6 hours and includes an allowance to bypass one channel for up to 4 hours for surveillance testing of other channels.

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ITS 3.3.2 ACTION E, which applies to one channel inoperable for ITS Table 3.3.2-1 Functions 2.c, 3.b.(3), and 4.c, includes an allowance to bypass one train for up to 4 hours for surveillance testing provided the other train is OPERABLE. This changes the CTS by: a) extending the time allowed to bypass an inoperable channel (specified as an inoperable train in the ITS) from 2 hours to 4 hours for CTS Table 3.3-3 Functional Units 1.b, 2.b, 3.b.2), 4.b, and 10.b; b) extending the time allowed to place an inoperable CTS Table 3.3-3 Functional Units 1.c, 1.d, 1.e, 1.f, 4.d, 4.e, 5.a, 6.a, 7.a, and 10.c channel in the tripped condition from 1 hour to 6 hours and adding an allowance to bypass an inoperable channels of the above CTS Functional Units for 4 hours; c) extending the time allowed to bypass an inoperable channel from 2 hours to 4 hours for CTS Table 3.3-3 Functional Units 2.c, 3.b.3), and 4.c; and d) extending the time allowed to place an inoperable CTS Table 3.3-3 Functional Unit 7.b channel in the tripped condition from 1 hour to 6 hours and extending the time allowed to bypass an inoperable CTS Table 3.3-3 Functional Unit 7.b channel from 2 hours to 4 hours.

The purpose of the current Actions is to provide a short period of time to restore the inoperable channel or train to OPERABLE status. The proposed bypass time of 4 hours in ITS 3.3.2 ACTIONS C, D, and E is a sufficient time to perform train or channel surveillance. The 4 hour time period is acceptable since it is considered an acceptable amount of time based on the risk analysis of WCAP-10271-P "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System." The 6 hour Completion Time specified in ITS 3.3.2 ACTIONS C, D, and E is also acceptable since the change results in a small and therefore acceptable impact on plant risk as stated in the NRC Safety Evaluation Reports (SERs) associated with WCAP-10271-P. I&M has performed an evaluation to ensure that the conditions of the three NRC SERs supporting WCAP-10271-P, including Supplements 1 and 2 and Supplement 2, Rev. 1, have been met for the proposed ITS Completion Time and/or bypass time. Specifically, the NRC imposed five conditions on utilities seeking to implement the Technical Specification changes approved generically as a result of their review of WCAP-10271 and WCAP-10271 Supplement 1, and two conditions as a result of their review of WCAP-10271 Supplement 2 and Supplement 2, Rev. 1. Two of the conditions imposed in the Reactor Trip System (RTS) SER are now not applicable due to approvals given in the ESFAS SER. Conditions given in the RTS SER are considered to apply equally to the ESFAS Functions and equipment, and the conditions given in the ESFAS SER are considered to apply equally to the RTS Functions and equipment. I&M provided results of this evaluation to the NRC by application dated August 30, 2002 as supplemented by letters dated February 27, April 7, April 29, and May 2, 2003, that requested approval for increasing the CHANNEL OPERATIONAL TEST Surveillance intervals for analog channels, logic cabinets, and reactor trip breakers, and increasing the Completion Time and bypass time for the reactor trip breakers, as allowed by WCAP-15376-P, Rev. 0, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," and the Nuclear Regulatory Commission (NRC) staff's approved Technical Specification Task Force (TSTF) Traveler TSTF-411, Rev. 1, "Surveillance Test Interval Extension for Components of the Reactor Protection System." The NRC granted approval for these new requirements based upon

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WCAP-15376 by issuing License Amendments 277 (Unit 1) and 260 (Unit 2) on May 23, 2003. In the NRC SER for these amendments, the NRC stated that the December 20, 2002 acceptance letter for WCAP-15376 noted that this topical report was built on the foundation established by WCAP 10271-P and WCAP-14333, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times." As a result, the NRC staff's review of I&M's application, as supplemented, verified that the applicable implementation requirements associated with the NRC staff acceptance of WCAP-10271 was also adequately addressed by I&M. Therefore, this change is considered acceptable. The WCAP-10271-P analysis did not review the Containment Air Recirculation Fan Automatic Actuation Logic and Containment Pressure - High Functions. However, since the design of these Functions are similar to the Safety Injection Actuation Logic and Containment Pressure - High Functions, the risk associated with increasing the Completion Times and bypass time are considered acceptable. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.6 *(Category 2 – Relaxation of Applicability)* CTS Tables 3.3-3 and 4.3-2 require Functional Units 4.b (Steam Line Isolation Automatic Actuation Logic), 4.c (Steam Line Isolation Containment Pressure - High High), 4.d (Steam Line Isolation Steam Line Flow in Two Steam Lines - High), 4.e (Steam Line Isolation Steam Line Pressure - Low), and 9.d (Steam Line Isolation Manual Initiation) to be OPERABLE in MODES 1, 2, and 3. ITS Table 3.3.2-1, including Footnote (d), requires these same Functions (ITS Table 3.3.2-1 Functions 4.a, 4.b, 4.c, 4.d, and 4.e) to be OPERABLE in MODE 1, and in MODES 2 and 3 except when all steam generator stop valves (SGSVs) are closed. This changes the CTS by making the Specification for these Functions not applicable in MODES 2 and 3 when all SGSVs are closed.

The purpose of the ITS Table 3.3.2-1 Function 4 Applicability exception is to clarify that the Steam Line Isolation instrumentation Functions are not required when the SGSVs are in a position that supports the safety analyses. This change is acceptable because the requirements continue to ensure that the structures, systems, and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. When all the valves are in the closed position, they are in their assumed accident position, thus the isolation instrumentation is not needed. In addition, the SGSVs are not required to be OPERABLE in MODES 2 and 3 when the valves are closed, thus there is no purpose in requiring the instrumentation that closes the valves to be OPERABLE. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L.7 *(Category 2 – Relaxation of Applicability)* CTS Tables 3.3-3 and 4.3-2 require Functional Unit 5.a (Turbine Trip and Feedwater Isolation Steam Generator Water Level - High High) to be OPERABLE in MODES 1, 2, and 3. ITS Table 3.3.2-1 requires the same Function (ITS Table 3.3.2-1 Function 5.b) to be OPERABLE in MODE 1, and in MODES 2 and 3 except when all MFIVs or MFRVs are closed and de-activated or isolated by a closed manual valve. This changes the CTS by not requiring the instrumentation to be OPERABLE when all

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MFIVs or MFRVs are closed and de-activated or isolated by a closed manual valve.

The purpose of the ITS Table 3.3.2-1 Function 5.b Applicability exception is to clarify that the Turbine Trip and Feedwater Isolation Steam Generator Water Level - High High instrumentation is not required when all MFIVs or MFRVs are closed and de-activated or isolated by a closed manual valve. In this condition, the Function will not need to function since the valves are in a position that supports the safety analyses. This change is acceptable because the requirements continue to ensure that the structures, systems, and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. When all the valves are in the closed position, they are in their assumed accident position. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L.8 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-3 Functional Unit 5, Turbine Trip and Feedwater Isolation, does not include the Automatic Actuation Logic and Actuation Relay Function. ITS Table 3.3.2-1 Function 5.a requires two Automatic Actuation Logic and Actuation Relay trains to be OPERABLE in MODE 1, and MODES 2 and 3 except when all MFIVs or MFRVs are closed and de-activated or isolated by a closed manual valve. This addition is discussed in DOC A.12. ITS 3.3.2 ACTIONS C and I have been included for this Function and provide 6 hours to restore an inoperable train to OPERABLE status if one train is inoperable (ACTION C), and if not restored, provide a shutdown requirement (ACTION H). This changes the CTS by providing specific ACTIONS to take when an Automatic Actuation Logic and Actuation Relays Function associated with Turbine Trip and Feedwater Isolation instrumentation is inoperable.

The purpose of the ITS 3.3.2 ACTION C is to provide a short period of time to restore an inoperable Automatic Actuation Logic and Actuation Relays train and the purpose of ITS 3.3.2 ACTION I is to place the unit outside the Applicability of the Turbine Trip and Feedwater Isolation instrumentation. Currently, if the Automatic Actuation Logic and Actuation Relays Function is inoperable, the affected Turbine Trip and Feedwater Isolation instrumentation channels would be required to be declared inoperable, resulting in entry into CTS 3.0.3 since no Action is provided for this case. CTS 3.0.3 allows 1 hour to initiate action, 7 hours for the unit to be placed in MODE 3, and 13 hours for the unit to be placed in MODE 4. If a train is inoperable, ITS 3.3.2 provides 6 hours to restore the train to OPERABLE status (ACTION C), and if not restored, provides a shutdown requirement (ACTION I). ITS 3.3.2 ACTION I requires the unit to be placed in MODE 3 in 6 hours and MODE 4 in 12 hours. The proposed Completion Time of 6 hours in ITS 3.3.2 ACTION C is acceptable considering that there is another train OPERABLE and the low probability of an event occurring during this interval. The Completion Time of 6 hours to reach MODE 3 and 12 hours to reach MODE 4, in a safe manner without challenging unit systems, is consistent with other CTS and ITS requirements. In addition, this change is consistent with NUREG-1431. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

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L.9 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-3 Action 13, which applies when a Functional Unit 1.b (Safety Injection Automatic Actuation Logic), 2.b (Containment Spray Automatic Actuation Logic), 3.b.2) (Containment Isolation Phase "B" Isolation Automatic Actuation Logic), 4.b (Steam Line Isolation Automatic Actuation Logic), or 10.b (Containment Air Recirculation Fan Automatic Actuation Logic) train is inoperable, does not provide any time to restore the inoperable train. ITS 3.3.2 Required Action C.1 will allow 6 hours to restore an inoperable Function 1.b, 2.b, 3.b.(2), 4.b, or 7.b train to OPERABLE status prior to requiring a unit shutdown. This changes the CTS by allowing 6 hours to restore the affected train to OPERABLE status prior to commencing a shutdown.

The purpose of the ITS 3.3.2 ACTION C is to provide a short period of time to restore the inoperable train. The proposed Completion Time of 6 hours in ITS 3.3.2 ACTION C is acceptable considering that there is another train OPERABLE and the low probability of an event occurring during this interval. In addition, this change is consistent with NUREG-1431. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.10 *(Category 4 - Relaxation of Required Action)* CTS Table 3.3-3 Action 14 states, in part, that with the number of OPERABLE channels one less than the total number of channels, operations may proceed "until performance of the next required CHANNEL FUNCTIONAL TEST." This CTS Action applies to CTS Table 3.3-3 Functional Units 1.c through 1.f, 4.d, 4.e, 5.a, 6.a, 6.b, 7.a, and 10.c. ITS 3.3.2 ACTION D is the applicable ACTION for the above Functions except Functional Unit 6.b, and ITS 3.3.2 ACTION F is the applicable ACTION for Functional Unit 6.b, when one channel is inoperable, and do not include the restoration time limit of "until performance of the next required CHANNEL FUNCTIONAL TEST." This changes the CTS by allowing operation with an inoperable channel for an unlimited amount of time provided the inoperable channel is in the tripped condition.

The purpose of CTS Table 3.3-3 Action 14 is to only allow operation until performance of the next required CHANNEL FUNCTIONAL TEST. This requirement is based upon the assumption that when it is time to test the other OPERABLE channels in the associated Function, the OPERABLE channels cannot be tested with the inoperable channel in trip. However, CTS 3.0.6 (ITS LCO 3.0.5) is a generic allowance that will allow the inoperable channel to be restored to service in order to perform Surveillances on the other OPERABLE channels in the associated Function. Thus, using this generic allowance, it is possible to test the remaining OPERABLE channels in the associated Function and there is no reason to restrict the generic allowance from applying to these specific channels. As such, the CTS Table 3.3-3 Action 14 statement is not necessary and has been deleted. The administrative controls required by ITS LCO 3.0.5 will ensure the time the channel is returned to service in conflict with the requirements of ITS 3.3.2 ACTIONS D and F are limited to the time absolutely necessary to perform the required testing to demonstrate OPERABILITY of the other channels. In addition, this specific example (taking

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an inoperable channel out of the tripped condition) is discussed in the Bases of ISTS SR 3.0.5. Therefore, this change is acceptable for the above described reasons. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.11 *(Category 4 - Relaxation of Required Action)* CTS Table 3.3-3 Action 16 states that with the number of OPERABLE Functional Unit 2.c, 3.b.3), or 4.c channels one less than the total number of channels, operations may proceed provided the inoperable channel is placed in the bypassed condition. ITS 3.3.2 ACTION E includes the same requirement, however a Completion Time of 6 hours has been added for placing the inoperable channel in bypass. This changes the CTS by allowing 6 hours to place the inoperable channel in the bypass condition.

The purpose of the CTS Table 3.3-3 Action 16 is to provide compensatory measures when the Containment Pressure - High High channels are inoperable. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a design basis accident occurring during the repair period. In addition, this change is consistent with NUREG-1431. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.12 *(Category 4 - Relaxation of Required Action)* CTS LCO 3.3.2.1 states that the interlocks of Table 3.3-3 shall be OPERABLE. However, no specific Actions are provided for when an interlock is inoperable. Therefore, all affected ESFAS instrumentation would be required to be declared inoperable, resulting in a CTS 3.0.3 entry. CTS 3.0.3 allows 1 hour to initiate action and then requires the unit to be in MODES 3, 4, and 5 within the following 6 hours, 12 hours, and 36 hours, respectively. ITS 3.3.2 ACTION G provides the actions for when one or more P-11 interlock channels are inoperable. ITS 3.3.2 ACTION G requires a verification that the interlock is in the required state for existing unit conditions within 1 hour. ITS 3.3.2 ACTION D provides the actions for when one P-12 interlock channel is inoperable. ITS 3.3.2 ACTION D requires the channel be placed in trip within 6 hours. If any of these two actions are not met, ITS 3.3.2 ACTION I requires the unit to be shut down to MODE 4. This changes the CTS by allowing continued operation as long as the P-12 interlock channel is placed in trip or as long as the P-11 interlock channel is placed in the correct state and providing shutdown actions if the inoperable interlock is not placed in the correct state.

The purpose of the interlocks is to ensure the associated ESFAS instrumentation is automatically enabled or disabled when required. This change is acceptable since the proposed ACTIONS ensure that the interlock is either tripped or manually placed in the correct state for the existing unit conditions, or the unit is placed in a MODE outside the Applicability of the associated interlock. ITS 3.3.2

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ACTION D requires the interlock channel to be place in trip (i.e., this performs the intended function of the interlock). ITS 3.3.2 ACTION G requires the interlock to be placed in the same state as it would be normally placed in if it were automatically functioning (i.e., this performs the intended function of the interlock). If any of these actions are not accomplished within 1 hour or 6 hours, respectively, then ITS 3.3.2 ACTION I requires the unit to be placed in MODE 4, which is outside the Applicability of the associated interlock. The Required Actions and Completion Times for placing the unit in the MODE outside the Applicability of the interlocks are consistent with the Required Actions and Completion Times associated with exiting the Applicabilities for ESFAS Instrumentation Functions supported by the interlocks. With the unit placed in a MODE that is outside the Applicability of the associated interlock, the interlock is no longer required to function to support the required OPERABILITY of the associated ESFAS Instrumentation Function. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.13 *(Category 10 – 18 to 24 Month Surveillance Frequency Change, Non-Channel Calibration Type)* CTS Table 4.3-2 Functional Unit 6.d (Loss of Main Feed Pumps) requires the performance of a CHANNEL FUNCTIONAL TEST every 18 months. CTS Table 4.3-2 Functional Units 9.a, 9.b, 9.c, 9.d, and 9.e (Manual Initiation) require the performance of a TADOT every 18 months. ITS Table 3.3.2-1 Functions 1.a, 2.a, 3.a.(1), 3.b.(1), 4.a, 6.g, and 7.a require the performance of SR 3.3.2.9, a TADOT, every 24 months. This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2). The change from a CHANNEL FUNCTIONAL TEST to a TADOT for CTS Table 4.3-2 Function 6.d is discussed in DOC A.10.

The purpose of the CHANNEL FUNCTIONAL TEST and the TADOT required by CTS Table 4.3-2 is to ensure the ESFAS instrumentation can perform its intended function. This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Reviews of historical surveillance data and maintenance data sufficient to determine failure modes have shown that these tests normally pass their Surveillances at the current Frequency. An evaluation has been performed using this data, and it has been determined that the effect on safety due to the extended Surveillance Frequency will be minimal. Based on the inherent system and component reliability, the impact, if any, from this change on system availability is minimal. The review of historical surveillance data also demonstrated that there are no failures that would invalidate this conclusion. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the plant licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

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L.14 *(Category 5 – Deletion of Surveillance Requirement)* CTS Table 4.3-2 Functional Unit 9.d (Steam Line Isolation Manual Initiation) requires the performance of a CHANNEL FUNCTIONAL TEST every 92 days. ITS Table 3.3.2-1 Function 4.a does not require this test. This changes the CTS by deleting the quarterly CHANNEL FUNCTIONAL TEST of the Steam Line Isolation Manual Initiation Function.

The purpose of the quarterly CHANNEL FUNCTIONAL TEST associated with CTS Table 4.3-2 Functional Unit 9.d is to ensure all circuitry associated with the Steam Line Isolation Manual Initiation Function channels are OPERABLE except for the manual actuation switches. The Manual Initiation Function design includes two redundant manual actuation switches per steam line, each of which can close the associated steam generator stop valve. CTS Table 4.3-2 for Functional Unit 9.d also requires the performance of a TADOT every 18 months. The TADOT verifies the complete circuitry associated with the Manual Initiation Function channels. The Frequency of testing of the TADOT has been changed from 18 months to 24 months as discussed in DOC L.13. In reviewing the test history it has been determined that the performance of the TADOT is sufficient to ensure the circuitry remains OPERABLE. This change is designated as less restrictive because Surveillances which are required in the CTS will not be required in the ITS.

L.15 *(Category 2 – Relaxation of Applicability)* CTS Table 3.3-3 Functional Unit 5 specifies the requirements for the Turbine Trip and Feedwater Isolation. It does not contain the OPERABILITY requirements for the SI input from ESFAS. CTS Table 3.3-3 Functional Unit 1 requires the Safety Injection Function to also provide input to the Turbine Trip and Feedwater Isolation Function. The Applicability of CTS Table 3.3-3 Functional Unit 1.b, Automatic Actuation Logic is MODES 1, 2, 3, and 4. A new requirement was added as ITS Table 3.3.2-1 Function 5.c, SI Input from ESFAS, as discussed in DOC A.8. ITS Table 3.3.2-1 will require the SI Input from ESFAS Function capable of supporting the Turbine Trip and Feedwater Isolation instrumentation in MODE 1, and MODES 2 and 3 except when all main feedwater isolation valves (MFIVs) or main feedwater regulation valves (MFRVs) are closed and de-activated or isolated by a closed manual valve. This changes the CTS by making the SI Input from ESFAS Function only applicable in MODE 1, and MODES 2 and 3 except when MFIVs or MFRVs are closed and de-activated or isolated by a closed manual valve.

The purpose of the CTS Table 3.3-3 Applicability is to ensure that the SI Input from ESFAS Function that supports the Turbine Trip and Feedwater Isolation instrumentation is OPERABLE when it is needed to support the safety analyses. This change is acceptable because the requirements continue to ensure that the structures, systems, and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. When all the MFIVs or MFRVs are in the closed position or isolated, they are essentially in their assumed accident position. In addition, when in MODE 4, the Turbine and Main Feedwater System are not in operation, thus the trip and isolation are also not needed. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

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L.16 Not used.

L.17 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-3 Functional Units 6 (Motor Driven Auxiliary Feedwater Pumps) and 7 (Turbine Driven Auxiliary Feedwater Pumps) do not include the Automatic Actuation Logic and Actuation Relays Function. New requirements were added as ITS Table 3.3.2-1 Function 6.a, the Automatic Actuation Logic and Actuation Relays (Solid State Protection System) and Function 6.b, the Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS). The Applicability of these Functions is MODES 1, 2, and 3 and two trains of each Function are required to be OPERABLE, as discussed in DOC A.13. ITS 3.3.2 ACTIONS C and I have been included for these Functions and provide 6 hours to restore an inoperable train to OPERABLE status if one train is inoperable (ACTION C), and if not restored, provide a shutdown requirement (ACTION I). In addition, ITS 3.3.2 ACTION C includes an allowance to bypass one train for up to 4 hours for Surveillance testing provided the other train is OPERABLE. ITS 3.3.2 ACTION I requires the unit to be placed in MODE 3 in 6 hours and MODE 4 in 12 hours. This changes the CTS by providing specific ACTIONS to enter when an Automatic Actuation Logic and Actuation Relays Function associated with AFW instrumentation is inoperable.

The purpose of the ITS 3.3.2 ACTION C is to provide a short period of time to restore an inoperable Automatic Actuation Logic and Actuation Relays train and the purpose of ITS 3.3.2 ACTION I is to place the unit outside the Applicability of the Auxiliary Feedwater instrumentation. The purpose of the proposed bypass time of 4 hours in ITS 3.3.2 ACTION C is to provide sufficient time to perform a train Surveillance. Currently, if an Automatic Actuation Logic and Actuation Relays Function is inoperable, the affected Auxiliary Feedwater instrumentation channels would be required to be declared inoperable, resulting in entry into CTS 3.0.3 since no Action is provided for this case. CTS 3.0.3 allows 1 hour to initiate action, 7 hours for the unit to be placed in MODE 3, and 13 hours for the unit to be placed in MODE 4. If a train is inoperable, ITS 3.3.2 provides 6 hours to restore the train to OPERABLE status (ACTION C), and if not restored, provides a shutdown requirement (ACTION I). ITS 3.3.2 ACTION I requires the unit to be placed in MODE 3 in 6 hours and MODE 4 in 12 hours. The proposed Completion Time of 6 hours in ITS 3.3.2 ACTION C is acceptable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. The Completion Time of 6 hours to reach MODE 3 and 12 hours to reach MODE 4, in a safe manner without challenging unit systems, is consistent with other CTS and ITS requirements. The 4 hour bypass time period is acceptable since it is considered an acceptable amount of time based on the risk analysis of WCAP-10271-P, "Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System." I&M has performed an evaluation to ensure that the conditions of the three NRC SERs supporting WCAP-10271-P, including Supplements 1 and 2 and Supplement 2, Rev. 1, have been met for the proposed ITS Completion Time and/or bypass time. Specifically, the NRC imposed five conditions on utilities seeking to implement the Technical Specification changes approved generically as a result of their review of WCAP-10271 and WCAP-10271 Supplement 1, and two conditions as a result of their review of WCAP-10271 Supplement 2 and

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Supplement 2, Rev. 1. Two of the conditions imposed in the Reactor Trip System (RTS) SER are now not applicable due to approvals given in the ESFAS SER. Conditions given in the RTS SER are considered to apply equally to the ESFAS Functions and equipment, and the conditions given in the ESFAS SER are considered to apply equally to the RTS Functions and equipment. I&M provided results of this evaluation to the NRC by application dated August 30, 2002, as supplemented by letters dated February 27, April 7, April 29, and May 2, 2003, that requested approval for increasing the CHANNEL OPERATIONAL TEST surveillance intervals for analog channels, logic cabinets, and reactor trip breakers, and increasing the Completion Time and bypass time for the reactor trip breakers, as allowed by WCAP-15376-P, Rev. 0, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Test Intervals and Reactor Trip Breaker Test and Completion Times," and the Nuclear Regulatory Commission (NRC) staff's approved Technical Specification Task Force (TSTF) Traveler TSTF-411, Rev. 1, "Surveillance Test Interval Extension for Components of the Reactor Protection System." The NRC granted approval for these new requirements based upon WCAP-15376 by issuing License Amendments 277 (Unit 1) and 260 (Unit 2) on May 23, 2003. In the NRC SER for these amendments, the NRC stated that the December 20, 2002 acceptance letter for WCAP-15376 noted that this topical report was built on the foundation established by WCAP 10271-P and WCAP-14333, "Probabilistic Risk Analysis of the RPS and ESFAS Test Times and Completion Times." As a result, the NRC staff's review of I&M's application, as supplemented, verified that the applicable implementation requirements associated with the NRC staff acceptance of WCAP-10271 was also adequately addressed by I&M. Therefore this change is considered acceptable. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.18 *(Category 2 – Relaxation of Applicability)* CTS Table 3.3-3 Functional Unit 7.b, Reactor Coolant Pump Bus Undervoltage, which actuates the Turbine Driven Auxiliary Feedwater Pumps, is required to be OPERABLE during MODES 1, 2, and 3. ITS Table 3.3.2-1 Function 6.f (AFW Undervoltage Reactor Coolant Pump) is required to be OPERABLE only in MODES 1 and 2. This changes the CTS by reducing the applicable MODES in which the Reactor Coolant Pump Bus Undervoltage channels must be OPERABLE.

The purpose of CTS Table 3.3-3 Functional Unit 7.b, Reactor Coolant Pump Bus Undervoltage, is to ensure that a loss of power on the buses that provide power to the reactor coolant pumps provides indication of a pending loss of reactor coolant pump forced flow in the Reactor Coolant System (RCS). This change is acceptable because the requirements continue to ensure that the components are maintained in the MODES and other specified conditions assumed in the safety analyses. In MODES 1 and 2, all reactor coolant loops are required to be OPERABLE and in operation (ITS 3.4.4). In MODES 3, two RCS loops are required to be OPERABLE, and either two RCS loops are required to be in operation when the Rod Control System is capable of rod withdrawal or one RCS loop is required to be in operation when the Rod Control System is not capable of rod withdrawal (ITS 3.4.5). Therefore, the Reactor Coolant Pump Bus Undervoltage Function does not actually provide any protection in MODE 3 since all RCS loops are not required to be in operation. Therefore, reducing the applicable MODES from MODES 1, 2, and 3 to MODES 1 and 2 is acceptable. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L.19 *(Category 9 – Surveillance Frequency Change Using GL 91-04 Guidelines, Non-24 Month Type Change)* CTS Table 4.3-2 requires a CHANNEL FUNCTIONAL TEST of Turbine Driven Auxiliary Feedwater Pump Reactor Coolant Pump Bus Undervoltage instrumentation every 31 days. ITS SR 3.3.2.5 requires the performance of a TADOT for the Undervoltage Reactor Coolant Pump instrumentation every 92 days. This changes the CTS by extending the Frequency of the Surveillance from 31 days (i.e., a maximum of 38.75 days accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 92 days (i.e., a maximum of 115 days accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2). The change from a CHANNEL FUNCTIONAL TEST to a TADOT is discussed in DOC A.10.

The purpose of the CHANNEL FUNCTIONAL TEST requirement in CTS Table 4.3-2 is to ensure the channels of the Turbine Driven Auxiliary Feedwater Pump Reactor Coolant Pump Bus Undervoltage Function will function as designed during an analyzed event. An evaluation of the surveillance interval extension was performed, based on the same approach described in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Reviews of historical surveillance data and maintenance data sufficient to determine failure modes have shown that these tests normally pass their Surveillances at the current Frequency. An evaluation has been performed using this data, and it has been determined that the effect on safety due to the extended Surveillance Frequency will be minimal. Extending the Surveillance test interval for this CHANNEL FUNCTIONAL TEST (i.e., TADOT) is acceptable because the probability of significant variations of the pump power supply is remote, due to the plant electrical system and the offsite grid reliability. Based on the power supply reliability and on the inherent system and component reliability the impact, if any, from this change on system availability is minimal. The review of historical surveillance data also demonstrated that there are no failures that would invalidate this conclusion. In addition, the proposed 92 day Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (115 days) does not invalidate any assumptions in the plant licensing basis. In addition, this Surveillance was specifically evaluated in WCAP-18271-P, Supplement 2 and found to be acceptable. This change is designated as less restrictive because Surveillances may be performed less frequently under the ITS than under the CTS.

L.20 CTS Table 3.3-3, Functional Unit 9.a (Safety Injection, Manual Initiation) requires a total of two channels per train to be OPERABLE. ITS Table 3.3.2-1, Function 1.a requires only one channel per train to be OPERABLE. This changes the CTS by decreasing the number of manual channels required OPERABLE from two per train to one per train.

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The purpose of Safety Injection (SI) Manual Initiation Function is to ensure the capability exists to manually initiate the Safety Injection trains. The SI Manual Initiation Function at CNP is provided by four switches, two per train. Each switch will actuate the associated SI train (i.e., the two train A switches are fully redundant to each other and the two train B switches are fully redundant to each other). The only difference between the two switches within a train are their location within the control room. NUREG-1431 only requires two Manual Initiation channels to be OPERABLE, since a typical Westinghouse plant only has two channels installed. This change is acceptable since each channel within a train is fully redundant to the other channel in that train for the SI Manual Initiation Function, and the fact that it is consistent with the NUREG-1431 requirements. In addition, if the single required manual initiation switch does not function, the associated SI train can still be initiated using the individual component control switches that exist in the control room. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L.21 Not used.

L.22 *(Category 14 – Changing Instrumentation Allowable Values)* CTS Table 3.3-4 provides the Allowable Values for Functional Unit 1.d (Pressurizer Pressure - Low), Functional Unit 1.f (Steam Line Pressure - Low) (Unit 2 only), Functional Unit 4.d (Steam Line Isolation Steam Flow in Two Steam Lines - High Coincident with T_{avg} - Low Low) (T_{avg} - Low Low portion only is covered by this change), Functional Unit 4.e (Steam Line Isolation Steam Line Pressure - Low) (Unit 2 only), Functional Unit 5.a (Turbine Trip and Feedwater Isolation Steam Generator Water Level - High High) (Unit 2 only), Functional Unit 6.a (Motor Driven Auxiliary Feedwater Pumps Steam Generator Water Level - Low Low) (Unit 1 only), Functional Unit 6.b (Motor Driven Auxiliary Feedwater Pumps 4 kV Bus Loss of Voltage), and Functional Unit 7.a (Turbine Driven Auxiliary Feedwater Pumps Steam Generator Water Level - Low Low) (Unit 1 only). CTS Table 3.3-3 provides the Setpoint (i.e., Allowable Value) for the P-12 Interlock (T_{avg} - Low Low). ITS Table 3.3.2-1 provides the Allowable Values for all the ESFAS Instrumentation Functions, including ITS Table 3.3.2-1 Functions 1.d, 1.e.(1), 4.d, 4.e, 5.b, 6.c, 6.e, and 8.c. This change revises the above specified CTS ESFAS Table 3.3-4 Allowable Values to the ITS Allowable Values.

The purpose of the Allowable Values is to ensure the instruments function as assumed in the safety analyses. ITS 3.3.2 reflects Allowable Values consistent with the philosophy of Westinghouse ISTS, NUREG-1431. These Allowable Values have been established consistent with the methods described in AEP's Instrument Setpoint Methodology (EG-IC-004, "Instrument Setpoint Uncertainty," Rev. 4). For all cases where an S A L exists, the Allowable Value determinations were calculated using plant specific operating and surveillance trend data. For all other cases, existing Allowable Values were converted directly to the ITS Allowable Values.. The Allowable Value verification used actual plant operating and surveillance trend information to ensure the validity of the developed Allowable Value. There were no changes to SALs required due to instrument performance. All design limits applied in the methodologies were confirmed as ensuring that applicable design requirements of the associated systems and

DISCUSSION OF CHANGES
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

equipment are maintained. The methodologies used have been compared with the guidance of ANSI/ISA S67.04-Part I-1994 and ANSI/ISA RP67.04-Part II-1994. Plant calibration procedures will ensure that the assumptions regarding calibration accuracy, measurement and test equipment accuracy, and setting tolerance are maintained. Setpoints for each SAL have been established by accounting for the applicable instrument accuracy, calibration and drift uncertainties, environmental effects, power supply fluctuations, as well as uncertainties related to process and primary element measurement accuracy using the instrument setpoint methodology. The Allowable Values have also been established from each SAL by combining the errors associated with the COT (e.g., device accuracy, setting tolerance, and drift) with the calculated NTSP using the instrument setpoint methodology. Where a SAL exists, trigger values are used to ensure that the Allowable Value provides sufficient margin from the SAL to account for any associated errors not confirmed by the COT. Use of the previously discussed methodologies for determining Allowable Values, NTSPs, and analyzing channel/instrument performance ensure that the design basis and associated SALs will not be exceeded during plant operation. These evaluations, determinations, and analyses now form a portion of the CNP design bases. Additionally, each applicable channel/instrument has been evaluated and analyzed to support a fuel cycle extension to a 24 month interval. These drift evaluations and drift analyses have been performed utilizing the guidance provided in EPRI TR-103335, "Statistical Analysis of Instrument Calibration Data/ Guidelines for Instrument Calibration Extension/Reduction Programs," Rev. 1. The EPRI guidance was used to demonstrate that the data collected by the operating plant (from surveillance testing) has remained acceptable and reasonable with regard to the manufacturers design specifications. Therefore, based on the above discussion, the changes to the Allowable Values are acceptable. This change is designated as less restrictive because the less stringent Allowable Values are being applied in the ITS than were applied in the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.3 INSTRUMENTATION

3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

LCO 3.3.2.1

LCO 3.3.2 The ESFAS instrumentation for each Function in Table 3.3.2-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.2-1.

ACTIONS

DOC A.2

- NOTE -
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one or more required channels or trains inoperable.	A.1 Enter the Condition referenced in Table 3.3.2-1 for the channel(s) or train(s).	Immediately
B. One channel or train inoperable. (required) (14)	B.1 Restore channel or train to OPERABLE status.	48 hours (required) (14)
	OR	
	B.2.1 Be in MODE 3.	54 hours
	AND	
	B.2.2 Be in MODE 5.	84 hours (2)

Actions a and b

Action a, Table 3.3-3 Actions 18 and 20

INSERT 1

Not Used.

INSERT 1A

Not Used.

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CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One train inoperable.	- NOTE - One train may be bypassed for up to 4 hours for surveillance testing provided the other train is OPERABLE.	
	C.1 Restore train to OPERABLE status.	6 hours
	OR	
	C.2.1 Be in MODE 3.	12 hours
	AND	
	C.2.2 Be in MODE 5.	42 hours
D. One channel inoperable.	- NOTE - The inoperable channel may be bypassed for up to 4 hours for surveillance testing of other channels.	
	D.1 Place channel in trip.	6 hours
	OR	
	D.2.1 Be in MODE 3.	12 hours
	AND	
	D.2.2 Be in MODE 4.	18 hours

Action a, Table 3.3-3 Action 13, DOCs A.7, L.8, L.16, and L.17

Action a, Table 3.3-3 Actions 14 and 19

(12) (3) (6) (24) (TSTF-418) (2) (12) (3) (2)

CTS

Action a, Table 3.3-3 Action 16

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. One Containment Pressure channel inoperable.		- NOTE - One additional channel may be bypassed for up to [4] hours for surveillance testing.	
	E.1	Place channel in bypass.	[6] hours
	OR		
	E.2.1	Be in MODE 3.	12 hours
	AND		
	E.2.2	Be in MODE 4.	18 hours
F. One channel or train inoperable.	F.1	Restore channel or train to OPERABLE status.	48 hours
	OR		
	F.2.1	Be in MODE 3.	54 hours
	AND		
	F.2.2	Be in MODE 4.	60 hours
G. One train inoperable.		- NOTE - One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE.	
	G.1	Restore train to OPERABLE status.	6 hours
	OR		

6 12 3 72 TSTF-418 6 3 2 2 2

F. One channel per bus inoperable.	F.1 Place channel in trip	1 hour

28

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	G.2.1	Be in MODE 3.	12 hours
	AND		
	G.2.2	Be in MODE 4.	18 hours
H. One train inoperable.		- NOTE - One train may be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE.	
	H.1	Restore train to OPERABLE status.	6 hours
	OR		
	H.2	Be in MODE 3.	12 hours
I. One channel inoperable.		- NOTE - The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels.	
	I.1	Place channel in trip.	6 hours
	OR		
	I.2	Be in MODE 3.	12 hours
J. One Main Feedwater Pumps trip channel inoperable.	J.1	Restore channel to OPERABLE status.	48 hours
	OR		
	J.2	Be in MODE 3.	54 hours

(2)

(2)

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
K. One channel inoperable.		- NOTE - One additional channel may be bypassed for up to [4] hours for surveillance testing.	
	K.1	Place channel in bypass.	6 hours
	OR		
	K.2.1	Be in MODE 3.	12 hours
	AND		
	K.2.2	Be in MODE 5.	42 hours
(6) L. One or more channels inoperable.	L.1	Verify interlock is in required state for existing unit condition.	1 hour
	OR		
	L.2.1	Be in MODE 3.	7 hours
	AND		
	L.2.2	Be in MODE 4.	13 hours

(2) (2) (2) DOC L.12

INSERT 2 (2)

SURVEILLANCE REQUIREMENTS

4.3.2.1.1

- NOTE -
Refer to Table 3.3.2-1 to determine which SRs apply for each ESFAS Function.

SURVEILLANCE		FREQUENCY
SR 3.3.2.1	Perform CHANNEL CHECK.	12 hours

Table 4.3-2 Functions 1.c through 1.f, 2.c, 3.b.3), 4.c, 4.d, 4.e, 5.a, 6.a, 6.b, 7.a, 10.c, DOC M.12

CTS

(2) INSERT 2

CTS	CONDITION	REQUIRED ACTION		COMPLETION TIME
Action a, Table 3.3-3 Action 18	H. Required Action and associated Completion Time of Condition B not met for Function 6.g.	H.1	Be in MODE 3.	6 hours
	OR			
DOC M.4	Required Action and associated Completion Time of Condition D not met for Function 6.f.			

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CTS

(2)

INSERT 2 (continued)

CTS	Condition	Required Action	Completion Time
Action a, Table 3.3-3 Action 18, DOC M.5 Action a, Table 3.3-3 Action 13, DOCs L.8, L.16, and L.17 DOC M.4 DOC L.12 DOC M.4 DOC M.4 DOC L.12	I. Required Action and associated Completion Time of Condition B not met for Function 8.a. OR Required Action and associated Completion Time of Condition C not met for Function 4.b, 5.a, 6.a, 6.b, or 7.b. OR Required Action and associated Completion Time of Condition D not met for Function 1.c, 1.d, 1.e.(1), 1.e.(2), 4.d, 4.e, 5.b, 6.c, 7.c, or 8.c. OR Required Action and associated Completion Time of Condition E not met for Function 2.c, 3.b.(3), or 4.c. OR Required Action and associated Completion Time of Condition F not met for Function 6.e. OR Required Action and associated Completion Time of Condition G not met for Function 8.b.	I.1 Be in MODE 3. AND I.2 Be in MODE 4.	6 hours 12 hours

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CTS

(2)

INSERT 2 (continued)

CTS	Condition	Required Action	Completion Time
Action a, Table 3.3-3 Action 18 Action a, Table 3.3-3 Action 13, DOC A.7	J. Required Action and associated Completion Time of Condition B not met for Function 1.a, 2.a, 3.a.(1), 3.b.(1), or 7.a. OR Required Action and associated Completion Time of Condition C not met for Function 1.b, 2.b, 3.a.(2), or 3.b.(2).	J.1 Be in MODE 3. AND J.2 Be in MODE 5.	6 hours 36 hours
Action a, Table 3.3-3 Action 20	K. Required Action and associated Completion Time of Condition B not met for Function 4.a.	K.1 Declare associated steam generator stop valve (SGSV) inoperable.	Immediately

CTS

INSERT 2B

10

SURVEILLANCE REQUIREMENTS (continued)

INSERT 2C — 10

4.3.2.1.2, Table 4.3-2 Functions 1.b, 2.b, 3.b.2), 4.b, 7.b, DOCs M.2, M.3, M.5, M.8

SURVEILLANCE		FREQUENCY
SR 3.3.2.2 ③	Perform ACTUATION LOGIC TEST. ⑨②	31 days on a STAGGERED TEST BASIS — TSTF-411
SR 3.3.2.3	- NOTE - The continuity check may be excluded. Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS — ⑦
SR 3.3.2.4	Perform MASTER RELAY TEST. ⑨②	31 days on a STAGGERED TEST BASIS — TSTF-411
SR 3.3.2.5 ④	Perform COT. INSERT 2A ㉗ ⑱④	92 days — TSTF-411
SR 3.3.2.6 ⑧	Perform SLAVE RELAY TEST.	92 days ← 24 months ③ ⑩
SR 3.3.2.7 ⑤	- NOTE - Verification of relay setpoints not required. Perform TADOT.	92 days — ③
SR 3.3.2.8 ⑨	- NOTE - Verification of setpoint not required for manual initiation functions. Perform TADOT.	㉔ 18 months — ⑧ ⑩ ③
SR 3.3.2.9 ⑩	- NOTE - This Surveillance shall include verification that the time constants are adjusted to the prescribed values. Perform CHANNEL CALIBRATION.	㉔ 18 months — ⑨ ⑩ ③ ⑩

DOCs M.2, M.3, M.6, M.8

Table 4.3-2 Functions 1.c, 1.d, 1.e, 1.f, 2.c, 3.b.3), 4.c, 4.d, 4.e, 5.a, 6.a, 7.a, 10.c, DOC M.12

DOCs M.2, M.3, M.6, M.8

Table 4.3-2 Functions 6.b and 7.b

Table 4.3-2 Functions 6.d, 9.a, 9.b, 9.c, 9.d, 9.e, DOC M.5

Table 4.3-2 Functions 1.c through 1.f, 2.c, 3.b.3), 4.c, 4.d, 4.e, 5.a, 6.c, 6.b, 7.a, 7.b, 10.c

INSERT 3 — ⑦

CTS

(27) **INSERT 2A**

Table 4.3-2
Note (3)

-NOTE-
For Functions 1.c, 2.c, 3.b.(3), 4.c, and 7.c, the associated transmitters shall be exercised during the performance of SR 3.3.2.6.

(10) **INSERT 2B**

Table 4.3-1 Functions 6.b and 7.b	SR 3.3.2.7	Perform CHANNEL CALIBRATION.	184 days

(10) **INSERT 2C**

Table 4.3-1 Function 6.b	SR 3.3.2.2	-NOTE- Verification of relay setpoints not required. Perform TADOT.	31 days

(7) **INSERT 3**

DOC M.3	SR 3.3.2.11	Perform ACTUATION LOGIC TEST.	24 months

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CTS

SURVEILLANCE REQUIREMENTS (continued)

	SURVEILLANCE	FREQUENCY
4.3.2.1.3 SR 3.3.2.10 (12)	- NOTE - Not required to be performed for the turbine driven AFW pump until 24 (24) hours after SG pressure is (in the steam generator) ≥ 1000 (850) psig. (3) Verify ESFAS RESPONSE TIMES are within limit.	18 (24) months on a STAGGERED TEST BASIS (3) (24) (10)
SR 3.3.2.11	- NOTE - Verification of setpoint not required. Perform TADOT.	Once per reactor trip breaker cycle (11)

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Table 3.3.2-1 (page 1 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
1. Safety Injection						
a. Manual Initiation	1,2,3,4	2	B	SR 3.3.2.8	NA	NA
b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
c. Containment Pressure - High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [3.86] psig	[3.6] psig
d. Pressurizer Pressure - Low	1,2,3[(a)]	[4]	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [1839] psig	[1850] psig
e. Steam Line Pressure						
(1) Low	1,2,3[(b)]	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [635] psig	[675][(b)] psig
(2) High Differential Pressure Between Steam Lines	1,2,3	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [106] psig	[97] psig

(a) Above the P-11 (Pressurizer Pressure) interlock.

(b) Time constants used in the lead/lag controller are $t_1 \geq [50]$ seconds and $t_2 \leq [5]$ seconds.

(c) Above the P-12 (T_{avg} - Low Low) interlock.

(d) Less than or equal to a function defined as ΔP corresponding to [44]% full steam flow below [20]% load, and ΔP increasing linearly from [44]% full steam flow at [20]% load to [114]% full steam flow at [100]% load, and ΔP corresponding to [114]% full steam flow above 100% load.

(e) Less than or equal to a function defined as ΔP corresponding to [40]% full steam flow between [0]% and [20]% load and then a ΔP increasing linearly from [40]% steam flow at [20]% load to [110]% full steam flow at [100]% load.

CTS Tables
3.3.3 3.3.4 4.3-2

Table 3.3.2-1 (page 2 of 8)
Engineered Safety Feature Actuation System Instrumentation

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
	1. Safety Injection						
	f. High Steam Flow in Two Steam Lines	1,2,3 (c)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	(d)	(e)
	Coincident with T_{avg} - Low Low	1,2,3 (c)	1 per loop	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [550.6]°F	[553]°F
	g. High Steam Flow in Two Steam Lines	1,2,3 (c)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	(d)	(e)
	Coincident with Steam Line Pressure - Low	1,2,3 (c)	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [635][(b)] psig	[675] psig
	2. Containment Spray						
2a 9.b 2.a 9.b 2.a	a. Manual Initiation	1,2,3,4	2 per train 2 trains	B	SR 3.3.2.8	NA	NA
2.b 2.b 2.b	b. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
2.c 2.c 2.c	c. Containment Pressure High - 3 (High High)	1,2,3	4	E	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.8 SR 3.3.2.10	≤ [12.31] 2.97 psig	[12.05] psig

(b) Time constants used in the lead/lag controller are $t_1 \geq$ [50] seconds and $t_2 \leq$ [5] seconds.

(c) Above the P-12 (T_{avg} - Low Low) interlock.

(d) Less than or equal to a function defined as ΔP corresponding to [44]% full steam flow below [20]% load, and ΔP increasing linearly from [44]% full steam flow at [20]% load to [114]% full steam flow at [100]% load, and ΔP corresponding to [114]% full steam flow above 100% load.

(e) Less than or equal to a function defined as ΔP corresponding to [40]% full steam flow between [0]% and [20]% load and then a ΔP increasing linearly from [40]% steam flow at [20]% load to [110]% full steam flow at [100]% load.

CTS Tables
3-3 3.3-4 4.3-2

Table 3.3.2-1 (page 3 of 8)
Engineered Safety Feature Actuation System Instrumentation

CTS	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
	2. Containment Spray						
	c. Containment Pressure High - 3 (Two Loop Plants)	1,2,3	[3] sets of [2]	E	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [12.31] psig	[12.05] psig
	3. Containment Isolation						
	a. Phase A Isolation						
3.a.1) 9.c	(1) Manual Initiation	1,2,3,4	2 (1 per train)	B	SR 3.3.2.8	NA	NA
	(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
3.a.2) 9.a	(3) Safety Injection (SI Input from ESFAS)	Refer to Function 1 (Safety Injection) for all initiation functions and requirements. (1,2,3,4)					
	b. Phase B Isolation						
3.b.1) 9.b	(1) Manual Initiation	1,2,3,4	2 per train, 2 trains (1 per train)	B	SR 3.3.2.8	NA	NA
3.b.2)	(2) Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
3.b.3)	(3) Containment Pressure High - 3 (High High)	1,2,3	[4]	E	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [12.31] psig	[12.05] psig

DOCs A.7, M.8

CTS Tables
3.3 3.3-4 4.3-2

Table 3.3.2-1 (page 4 of 8)
Engineered Safety Feature Actuation System Instrumentation

(16)

CTS	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
	4. Steam Line Isolation (per steam line)						
.a 4.a 4.a / .d 9.d 9.d	a. Manual Initiation	1,2[(b)],3[(b)]	2	F (B)	SR 3.3.2.8	NA	NA
b 4.b 4.b	b. Automatic Actuation Logic and Actuation Relays	1,2[(b)],3[(b)]	2 trains	G (C)	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
.c 4.c 4.c	c. Containment Pressure - High (High)	1,2[(b)],3[(b)]	[4] (3)	D (E)	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [6.61] (2.97) psig	[6.35] psig
.e 4.e 4.e	d. Steam Line Pressure (Low) (1) Low	1,2[(b)],3[(b)(d)]	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [635] (481.3) psig	[675][(b)] psig
	(2) Negative Rate - High	3[(f)(h)]	3 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [121.6][(g)] psi/sec	[110][(g)] psi/sec

Table 3.3-3 Note # (12)

(b) (a) Above the P-(11) (Pressurizer Pressure) interlock. (Tavg - Low Low)

DOC M.1 (c) (e) Time constants used in the lead/lag controller are $t_1 \geq$ [50] seconds and $t_2 \leq$ [5] seconds. (3) (16)

(f) Below the P-11 (Pressurizer Pressure) interlock.

(g) Time constant utilized in the rate/lag controller is ≥ [50] seconds.

DOC L.6 (d) (h) Except when all MSIVs (SGSVs) are closed and de-activated. (19) (25) (3)

CTS Tables 3-3 3.3-4 4.3-2

Table 3.3.2-1 (page 5 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
4. Steam Line Isolation						
e. High Steam Flow in Two Steam Lines	1, 2, 3	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	(d)	(e)
Coincident with T_{avg} - Low Low	1, 2, 3	1 per loop	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [550.6]°F	[553]°F
f. High Steam Flow in Two Steam Lines	1, 2 (h), 3 (h)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	(d)	(e)
Coincident with Steam Line Pressure - Low	1,2,(h) 3 (h)	1 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [635](b) psig	[675](b) psig
g. High Steam Flow	1,2 (h), 3 (h)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [25]% of full steam flow at no load steam pressure	[ ] full steam flow at no load steam pressure
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
and						
Coincident with T_{avg} - Low Low	1,2 (h), 3 (c) (h)	[2] per loop	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [550.6]°F	[553]°F

(b) Time constants used in the lead/lag controller are $t_1 \geq$ [50] seconds and $t_2 \leq$ [5] seconds.

(c) Above the P-12 (T_{avg} - Low Low) interlock.

(d) Less than or equal to a function defined as ΔP corresponding to [44]% full steam flow below [20]% load, ΔP increasing linearly from [44]% full steam flow at [20]% load to [114]% full steam flow at [100]% load, and ΔP corresponding to [114]% full steam flow above 100% load.

(e) Less than or equal to a function defined as ΔP corresponding to [40]% full steam flow between [0]% and [20]% load and then a ΔP increasing linearly from [40]% steam flow at [20]% load to [110]% full steam flow at [100]% load.

(h) Except when all MSIVs are closed and de-activated.

Handwritten annotations: d 4.d 4.d; 538.8; 1.56 E6 lb/hr (Unit 1) and 1.75 E6 lb/hr (Unit 2); 3.93 E6 lb/hr (Unit 1) and 4.55 E6 lb/hr (Unit 2); Table 3.3-3 Note #4; Table 3.3-3 Function 4.d; DOC L.6; SGSV; markers 3, 4, 5, 6, 7, 10, 15, 16, 17, 19, 25, a, b, d, e.

CTS Tables

3.3-3 3.3-4 4.3-2

Table 3.3.2-1 (page 6 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS (16)	REQUIRED CHANNELS (3)	CONDITIONS (2)	SURVEILLANCE REQUIREMENTS (3)(7)(10)	ALLOWABLE VALUE (3)	NOMINAL TRIP SETPOINT (15)
4. Steam Line Isolation						
h. High High Steam Flow (17)	1,2 (h),3 (h)	2 per steam line	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≤ [130]% of full steam flow at full load steam pressure	[ ] of full steam flow at full load steam pressure
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
5. Turbine Trip and Feedwater Isolation	(f)					
a. Automatic Actuation Logic and Actuation Relays	1, 2 (i), [3] (i)	2 trains	[H] [G] (C)	SR 3.3.2.2 (3) SR 3.3.2.4 SR 3.3.2.6 (8)	NA	NA
b. SG Water Level - High High (P-14)	1,2 (i), [3] (i) ((f) 1,2,3)	[3] per SG (4)	[D]	SR 3.3.2.1 (6) SR 3.3.2.5 (10) SR 3.3.2.9 SR 3.3.2.10 (12)	≤ [84.2]% 68.0 (Unit 1) and 71.6 (Unit 2)	[82.4]% (15)
c. Safety Injection (SI Input from ESFAS) (18)	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6. Auxiliary Feedwater						
a. Automatic Actuation Logic and Actuation Relays (Solid State Protection System)	1,2,3	2 trains	G (C)	SR 3.3.2.2 (3) SR 3.3.2.4 SR 3.3.2.6 (8)	NA	NA
b. Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)	1,2,3	2 trains	G (C)	SR 3.3.2.3 (11) (7)	NA	NA

DOCs A.12, M.2, L.8 — 5.a 5.a 5.a

DOCs A.8, M.7, L.15, L.16 — 9.a 9.a 9.a

DOC M.3

DOC M.3

(h) Except when all MSIVs are closed and [de-activated]. (16)

DOC L.7 (f) (i) Except when all [MFIVs, MFRVs] (main feedwater isolation valves or main feedwater regulating valves) [and associated bypass valves] are closed and [de-activated] [or isolated by a closed manual valve]. (3) (16) (12)

CTS Tables 3.3-3 3.3-4 4.3-2

≥ 3238.9 V and ≤ 3332.6 V (Unit 1) and ≥ 3207.2 V and ≤ 3302.7 V (Unit 2) with ≥ 1.8 sec and ≤ 2.2 sec time delay

Table 3.3.2-1 (page 7 of 8)
Engineered Safety Feature Actuation System Instrumentation

CTS	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	CONDITIONS	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE	NOMINAL TRIP SETPOINT
	6. Auxiliary Feedwater						
6.a 7.a	c. SG Water Level - Low Low	1,2,3	[3] per SG	D	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [30.4]%	[32.2]%
6.c 9.a	d. Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
6.b	e. Loss of Offsite Power	1,2,3	[3] per bus	F	SR 3.3.2.7 SR 3.3.2.9 SR 3.3.2.10	≥ [2912] V with ≤ 0.8 sec time delay	[2975] V with ≤ 0.8 sec time delay
7.b	f. Undervoltage Reactor Coolant Pump	1,2	[3] per bus	[I]	SR 3.3.2.7 SR 3.3.2.9 SR 3.3.2.10	≥ [69]% bus voltage	[70]% bus voltage
6.d	g. Trip of all Main Feedwater Pumps	1,2	[2] per pump	[J]	SR 3.3.2.8 SR 3.3.2.9 SR 3.3.2.10	≥ [ ] psig	[ ] psig
	h. Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low	1,2,3	[2]	F	SR 3.3.2.1 SR 3.3.2.7 SR 3.3.2.9	≥ [20.53] [psia]	[ ] [psia]
	7. Automatic Switchover to Containment Sump						
	a. Automatic Actuation Logic and Actuation Relays	1,2,3,4	2 trains	C	SR 3.3.2.2 SR 3.3.2.4 SR 3.3.2.6	NA	NA
	b. Refueling Water Storage Tank (RWST) Level - Low Low	1,2,3,4	4	K	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [15]% and ≤ [ ]%	[ ]% and [ ]%
	Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					

INSERT 4

CTS

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INSERT 4

CTS								
Tables 3.3-3, 3.3-4, 4.3-2	7. Containment Air Recirculation/Hydrogen Skimmer (CEQ) System							
9.e, 10.a	a.	Manual Initiation	1,2,3,4	1 per train	B	SR 3.3.2.9	NA	
10.b	b.	Automatic Actuation Logic and Actuation Relays	1,2,3	2 trains	C	SR 3.3.2.3 SR 3.3.2.4 SR 3.3.2.8	NA	
10.c	c.	Containment Pressure - High	1,2,3	3	D	SR 3.3.2.1 SR 3.3.2.6 SR 3.3.2.10 SR 3.3.2.12	≤ 1.17 psig	

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CTS

Table 3.3.2-1 (page 8 of 8)
Engineered Safety Feature Actuation System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	(3) REQUIRED CHANNELS	(2) CONDITIONS	(3) (7) (10) SURVEILLANCE REQUIREMENTS	(3) ALLOWABLE VALUE	NOMINAL TRIP SETPOINT (15)
7. Automatic Switchover to Containment Sump						
c. RWST Level - Low Low	1,2,3,4	4	K	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [15]%	[18]%
Coincident with Safety Injection	Refer to Function 1 (Safety Injection) for all initiation functions and requirements.					
and						
Coincident with Containment Sump Level - High	1,2,3,4	4	K	SR 3.3.2.1 SR 3.3.2.5 SR 3.3.2.9 SR 3.3.2.10	≥ [30] in. above el. [703] ft	[ ] in. above el. [ ]ft
8. ESFAS Interlocks						
a. Reactor Trip, P-4	1,2,3	1 per train 2 trains (21)	~~F~~ (B)	SR 3.3.2.~~11~~ (9)	NA (1915)	NA
b. Pressurizer Pressure, P-11	1,2,3	3	~~L~~ (G)	SR 3.3.2.1 (6) SR 3.3.2.~~5~~ (8) SR 3.3.2.~~9~~ (10)	≤ [1996] psig	[ ] psig
c. T_{avg} - Low Low, P-12	1,2,3 (b)	~~1~~ (3) per loop	~~L~~ (D) (23)	SR 3.3.2.1 (6) SR 3.3.2.~~5~~ (8) SR 3.3.2.~~9~~ (10)	≥ [550.6]°F (538.8)	[553]°F

(17) (11) (15)

DOC M.5

Table 3.3-3 P-11, 4.3.2.1.2

Table 3.3-3 P-12, 4.3.2.1.2

~~- REVIEWER'S NOTE -~~
~~Unit specific implementations may contain only Allowable Value depending on Setpoint Study methodology used by the unit.~~ (22)

(b) Above the P12 (T_{avg} - Low Low) interlock. (29)

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

1. Not used.

2. ISTS 3.3.2 ACTIONS B, C, D, E, F, G, H, I, J, K, and L provide Required Actions and associated Completion Times for various ESFAS instrumentation inoperabilities. Each of these ACTIONS include Required Actions to either trip a channel, bypass a channel, or restore a channel to OPERABLE status (depending on the associated ESFAS Instrumentation Function). Each of these ACTIONS also include Required Actions that require placing the unit outside the applicable MODE or condition of the associated ESFAS Instrumentation Function (i.e., default Required Action). In each of these ACTIONS, the Required Actions to restore, bypass, or trip the affected channels are connected to the default Required Action by the logical connector "OR." The Completion Times for the Required Actions to restore, bypass, or trip affected channels are inconsistent with the Completion Times for the default Required Actions. This presentation is inconsistent with the format and convention used in all but one other specification in ISTS 3.3, all other sections of the ISTS, and other NSSS vendor ISTS (e.g., NUREG-1433, Rev. 2 and NUREG-1434, Rev. 2). This presentation can also cause confusion with respect to the correct application of the requirements of ISTS Section 3.0, "LCO Applicability." For example, ISTS LCO 3.0.4 includes an exception that allows entry into an applicable MODE or other specified condition when an LCO is not met if the ACTIONS permit continued operation in the MODE or other specified condition in the Applicability for an unlimited period of time. However, with an ACTION that includes both the Required Action to trip (or bypass) a channel and the default Required Action to exit the applicable MODE, it could be argued that this ACTION would not allow continued operation. Therefore, these ACTIONS have been revised or deleted to eliminate the default Required Actions from the ACTIONS with Required Actions to restore or trip the affected channels. As a result, additional ACTIONS (ITS 3.3.2 ACTIONS H, I, J, and K) have been added which include the default Required Actions consistent with placing the unit outside the applicable MODE or other specified condition of the associated ESFAS Instrumentation Function. Subsequent Conditions and Required Actions have been renumbered, as necessary.

3. The brackets are removed and the proper plant specific information/value is provided. Subsequent SRs have been renumbered as necessary.

4. The ITS 3.3.2 Bases allows separate Condition entry for those Functions where the channels are specified on a steam line, loop, and steam generator basis. However, this allowance is not specified in the Specifications. As documented in Part 9900 of the NRC Inspection Manual, Technical Guidance - Licensee Technical Specifications Interpretations, and in the ITS Bases Control Program (ITS 5.5.12), neither the Technical Specifications Bases nor Licensee generated interpretations can be used to change the Technical Specification requirements. Thus, if the Technical Specifications do not allow separate Condition entry on a steam line, loop, or steam generator basis, the Bases cannot change the Technical Specifications requirement and allow separate Condition entry on a steam line, loop, or steam generator basis. Therefore, the appropriate allowance has been added to the Specification. The title of ISTS Table 3.3.2-1 Functions 1.3.(2), 4.a, 4.e, 5.b, 6.c, and 6.e have been revised to state "(per steam line)" (for Functions 1.e.(2), 4.a, and 4.e), "(per SG)" (for Functions 5.b and 6.c), and "(per bus)" (for Function 6.e). This change effectively

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ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

allows separate Condition entry for these Functions specified on a steam line, steam generator, or bus basis.

5. An ESF RESPONSE TIME TEST (ITS SR 3.3.2.12) has been added for ITS Table 3.3.2-1 Function 5.c (SI Input from ESFAS), and deleted for ITS Table 3.3.2-1 Functions 1.e.(2) (High Differential Pressure Between Stream Lines), 3.b.(3) (Containment Pressure - High High), and 4.e (High Steam Flow in Two Steam Lines Coincident with T_{avg} - Low Low), consistent with the current licensing basis requirements.

6. ISTS 3.3.2 ACTION E (ITS 3.3.2 ACTION E) requires entry when one "Containment Pressure" channel is inoperable. ISTS Table 3.3.2-1 (ITS Table 3.3.2-1) Function 1.c, Containment Pressure – High, requires entry into ACTION D when one channel is inoperable. Therefore, to avoid confusion on what type of Containment Pressure channel applies to this action, the words "Containment Pressure" have been deleted. This change is acceptable since the other ACTIONS do not specify which types of channels apply for entry. In addition, ISTS 3.3.2 Required Action A.1 (ITS 3.3.2 Required Action A.1) requires, when one or more required channels or trains are inoperable, immediate entry into the Condition required by Table 3.3.2-1 for the affected channel(s) or train(s). This requires the user to review Table 3.3.2-1 to determine the applicable ACTIONS that must be entered for an inoperable containment pressure channel.

7. ISTS SR 3.3.2.3 is the performance of an ACTUATION LOGIC TEST every 31 days on a STAGGERED TEST BASIS and it applies to the ISTS Table 3.3.2-1 Function 6.b (Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)). This test is not currently required by the CTS, however ITS SR 3.3.2.11 has been added (perform ACTUATION LOGIC TEST every 24 months) for this Function. This testing Frequency is considered acceptable and the Note in ISTS 3.3.2.3 is not needed for ITS SR 3.3.2.11.

8. ISTS SR 3.3.2.8 (ITS SR 3.3.2.9) requires the performance of a TADOT for ISTS Table 3.3.2-1 (ITS Table 3.3.2-1) Functions 1.a (Safety Injection Manual Initiation), 2.a (Containment Spray Manual Initiation), 3.a.(1) (Containment Isolation Phase A Isolation Manual Initiation), 3.b.(1) (Containment Isolation Phase B Isolation Manual Initiation) and 4.a (Steam Line Isolation Manual Initiation). ISTS SR 3.3.2.8 is modified by a Note, which states "Verification of setpoint is not required for manual initiation functions." ITS Table 3.3.2-1 Functions 1.a, 2.a, 3.a.(1), 3.b.(1), and 4.a do not have required setpoints. The ISTS definition of TADOT states "The TADOT shall include adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy." Since no required setpoints apply for ITS Table 3.3.2-1 Functions 1.a, 2.a, 3.a.(1), 3.b.(1), and 4.a, the TADOT definition does not require verification of setpoints. Therefore, the Note to ISTS SR 3.3.2.8 is unnecessary and has been deleted.

9. A Note to ISTS SR 3.3.2.9 requires the CHANNEL CALIBRATION to include verification that time constants are adjusted to the prescribed values. In the CNP ITS, this Surveillance (ITS SR 3.3.2.10) applies to ITS Table 3.3.2-1 Functions 1.c, 1.d, 1.e.(1), 1.e.(2), 2.c, 3.b.(3), 4.c, 4.d, 4.e, 5.b, 6.c, 7.c, 8.b, and 8.c. Of these Functions, the only ones that have a time constant are ITS Table 3.3.2-1 Functions

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1.e.(1) and 4.d, and the time constants are included in a Note to the Allowable Values. Thus, they are part of the Allowable Values for the two Functions. The definition of CHANNEL CALIBRATION states that it is the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. Thus, the CHANNEL CALIBRATION of these two Functions requires the time constants be set properly. It is not necessary to include a Note that also says that the CHANNEL CALIBRATION Surveillance includes the time constants; it already does. Including this Note in this Surveillance would incorrectly imply that a CHANNEL CALIBRATION does not require certain Allowable Values (i.e., time constant type Allowable Values) to be verified during the CHANNEL CALIBRATION. Therefore, the Note is not included in the CNP ITS.

10. ITS SR 3.3.2.2 (a 31 day TADOT) has been added to ISTS 3.3.2 to be consistent with the CTS. In addition, ITS SR 3.3.2.7 (a 184 day CHANNEL CALIBRATION) has been added to ISTS 3.3.2 as discussed in DOC M.10. Subsequent SRs have been renumbered, as necessary. Also, ISTS SR 3.3.2.9 (CHANNEL CALIBRATION) has not been included for ITS Table 3.3.2-1 Function 6.g, consistent with current licensing basis.

11. ISTS SR 3.3.2.11 (performance of a TADOT once per reactor trip breaker cycle) has been deleted. This SR applies to ISTS Table 3.3.2-1 Function 8.a, Reactor Trip, P-4. This Function has been added to the Technical Specifications. SR 3.3.2.9 is assigned to this Function and requires the performance of a TADOT every 24 months. This Surveillance is considered acceptable for this Function.

12. Editorial changes made for enhanced clarity or to be consistent with the Writer's Guide for Improved Standard Technical Specifications, NEI 01-03.

13. ITS Table 3.3.2-1 Functions 1.c, 2.c, 3.b.(3), 4.c, and 6.e have been modified to reflect CNP specific nomenclature.

14. ITS Table 3.3.2-1 Functions 1.a (Safety Injection Manual Initiation) (as modified by a Discussion of Change), 1.e.(1) (Safety Injection Steam Line Pressure Low), 2.a (Containment Spray Manual Initiation), 3.a.(1) (Phase A Isolation Manual Initiation), 3.b.(1) (Phase B Isolation Manual Initiation), and 4.d (Steam Line Isolation Steam Line Pressure – Low) have been revised to reflect the appropriate number of required channels consistent with the CNP current licensing basis. In addition, the word "required" has been added to Condition B and Required Action B.1, since not all installed channels are required.

15. The Nominal Trip Setpoint column has been deleted as allowed by the Reviewer's Note at the end of ISTS Table 3.3.2-1. This Reviewer's Note allows the unit specific implementation to contain only the Allowable Value. The nominal trip setpoints for each of the applicable ITS Table 3.3.2-1 Functions will be controlled in accordance with the Note in the ISTS 3.3.2 Bases Background section.

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16. ISTS Table 3.3.2-1 Footnotes (d) and (e) on page 3.3.2-8 have been deleted since they do not apply to the ITS Table 3.3.2-1 Functions listed on the page. Subsequent Footnotes have been renumbered as necessary. In addition, ISTS Table 3.3.2-1 Footnote (c) has been renumbered as Footnote (b) and assigned to ITS Table 3.3.2-1 Functions 1.e.(1) and 1.e.(2) consistent with the CTS. As a corresponding change, ISTS Table 3.3.2-1 Footnote (b) is renumbered as Footnote (c). ISTS Table 3.3.2-1 Footnotes (b), (c), (d), and (e) on page 3.3.2-9 have been deleted since they do not apply to any ITS Table 3.3.2-1 Functions on the page. ISTS Table 3.3.2-1 Footnote (a) on page 3.3.2-11 has been renumbered as Footnote (b) and changed from P-11 to P-12 since the P-11 interlock does not apply to the Functions on the page. ISTS Table 3.3.2-1 Footnotes (f) and (g) on page 3.3.2-11 have been deleted since they do not apply to any ITS Table 3.3.2-1 Functions on the page. As a corresponding change, ISTS Table 3.3.2-1 Footnote (b) is renumbered as Footnote (c). Subsequent Footnotes have been renumbered as necessary. ISTS Table 3.3.2-1 Footnotes (b) and (e) on page 3.3.2-12 have been deleted since they do not apply to any ITS Table 3.3.2-1 Functions on the page. Subsequent Footnotes have been renumbered as necessary. ISTS Table 3.3.2-1 Footnote (d) on page 3.3.2-12 has been renumbered as Footnote (e) and revised as necessary consistent with the current licensing basis. ISTS Table 3.3.2-1 Footnote (h) on page 3.3.2-13 has been deleted since it does not apply to any Functions on the page. The subsequent Footnote has been renumbered as necessary.

17. ISTS Table 3.3.2-1 Functions 1.f (High Steam Flow in Two Steam Lines Coincident with T_{avg} - Low Low), 1.g (High Steam Flow in Two Steam Lines Coincident with Steam Line Pressure Low), 2.c (Containment Pressure High - 3 (Two Loop Plants)), 4.d.(2) (Negative Rate - High), 4.f (High Steam Flow in Two Steam Lines Coincident with Steam Line Pressure - Low), 4.g (High Steam Flow Coincident with Safety Injection and Coincident with T_{avg} - Low Low), 4.h (High High Steam Flow Coincident with Safety Injection), 6.h (Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low), and all Functions associated with Function 7 (Automatic Switchover to Containment Sump) have been deleted since they do not apply to the CNP design. Subsequent Functions have been renumbered as applicable.

18. ISTS Table 3.3.2-1 Functions 3.a.(3), 5.c, and 6.d are the Safety Injection Functions associated with Containment Isolation Phase A Isolation, Turbine Trip and Feedwater Isolation, and Auxiliary Feedwater Functions, respectively. In the ISTS these Functions simply include a cross reference to Function 1 (Safety Injection) for all initiation functions and requirements. ITS Table 3.3.2-1 Functions 3.a.(3), 5.c, and 6.d have been revised to reflect the specific Applicability consistent with the CTS. In addition, the title of the Function has been changed to Safety Injection Input from ESFAS, consistent with the title for ITS 3.3.1, Function 17.

19. The bracketed requirement "and de-activated" has been deleted, consistent with a change made in ITS 3.7.2, "Steam Generator Stop Valves (SGSVs)."

20. ITS Table 3.3.2-1 Function 7 (Containment Air Recirculation/Hydrogen Skimmer (CEQ) System) has been added consistent with the CTS.

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21. ISTS Table 3.3.2-1 (ITS Table 3.3.2-1) Function 8.a (Reactor Trip, P-4 Interlock) has been revised by deleting the term "2 trains." This information is Bases type information and has been included in the ITS Bases.

22. The Reviewer's Note has been deleted since it is not intended to be included in the ITS.

23. When an ISTS Table 3.3.2-1 Function 8.c (ITS Table 3.3.2-1 Function 8.c) P-12 interlock channel is inoperable, ISTS 3.3.2 ACTION L must be taken, and requires verification that the interlock is in the required state for the existing unit condition. However, at CNP the P-12 interlock also prevents a steam line isolation from occurring on a high steam line flow when Tavg is above the Tavg - Low Low reset point. Thus, placing the P-12 interlock channel in the required state for the existing unit condition is not always a conservative action, since if a steam line break were to occur, the reactor coolant temperature would decrease to below the Tavg - Low Low reset point. Since compliance with ISTS 3.3.2 ACTION L would result in placing the P-12 interlock in a condition that prevents the steam line isolation, the ACTION is not conservative. Therefore, ITS Table 3.3.2-1 will require ISTS 3.3.2 ACTION D (ITS 3.3.2 ACTION D) to be entered when one channel of the P-12 interlock Function is inoperable, and this ACTION requires placing the channel in trip, which is conservative for the steam line break event (i.e., the steam line isolation will not be blocked).

24. The Note to ISTS SR 3.3.2.10 (ITS SR 3.3.2.12) has been changed to be consistent with similar Notes in ITS 3.7.5 (ITS SRs 3.7.5.2 and 3.7.5.4).

25. Changes are made to reflect plant specific nomenclature or design.

26. Not used.

27. A Note has been added to ISTS SR 3.3.2.5 (ITS SR 3.3.2.6) consistent with the CTS.

28. A new ACTION (ACTION F) has been added for when one Function 6.e, Loss of Voltage channel is inoperable, and requires the inoperable channel to be tripped in 1 hour. This is consistent with the CTS.

29. The applicability of Function 8.c has been revised to be consistent with Functions 1.e, 4.d, and 4.e. The interlock and these Functions are necessary to mitigate the consequences of a secondary side break or stuck open valve that could result in the rapid depressurization of the steam lines.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.2 Engineered Safety Feature Actuation System (ESFAS) Instrumentation

BASES

BACKGROUND

The ESFAS initiates necessary safety systems, based on the values of selected unit parameters, to protect against violating core design limits and the Reactor Coolant System (RCS) pressure boundary, and to mitigate accidents.

The ESFAS instrumentation is segmented into three distinct but interconnected modules as identified below:

- Field transmitters or process sensors and instrumentation: provide a measurable electronic signal based on the physical characteristics of the parameter being measured; ③ ①
- Signal processing equipment including analog protection system, field contacts, and protection channel sets: provide signal conditioning, bistable setpoint comparison, process algorithm actuation, compatible electrical signal output to protection system devices, and control board/control room/miscellaneous indications; ③ ①
  and

- Solid State Protection System (SSPS) including input, logic, and output bays: initiates the proper unit shutdown or engineered safety feature (ESF) actuation in accordance with the defined logic and based on the bistable outputs from the signal process control and protection system.

The Allowable Value in conjunction with the trip setpoint and LCO establishes the threshold for ESFAS action to prevent exceeding acceptable limits such that the consequences of Design Basis Accidents (DBAs) will be acceptable. The Allowable Value is considered a limiting value such that a channel is OPERABLE if the setpoint is found not to exceed the Allowable Value during the CHANNEL OPERATIONAL TEST (COT). Note that, although a channel is "OPERABLE" under these circumstances, the ESFAS setpoint must be left adjusted to within the established calibration tolerance band of the ESFAS setpoint in accordance with the uncertainty assumptions stated in the referenced setpoint methodology, (as-left criteria) and confirmed to be operating within the statistical allowances of the uncertainty terms assigned.

BASES

BACKGROUND (continued)

Field Transmitters or Sensors

To meet the design demands for redundancy and reliability, more than one, and often as many as four, field transmitters or sensors are used to measure unit parameters. In many cases, field transmitters or sensors that input to the ESFAS are shared with the Reactor Trip System (RTS). In some cases, the same channels also provide control system inputs. To account for calibration tolerances and instrument drift, which are assumed to occur between calibrations, statistical allowances are provided in the Trip Setpoint and Allowable Values. The OPERABILITY of each transmitter or sensor is determined by either "as-found" calibration data evaluated during the CHANNEL CALIBRATION or by qualitative assessment of field transmitter or sensor, as related to the channel behavior observed during performance of the CHANNEL CHECK. (8)

Signal Processing Equipment Control and Protection System (1)

Generally, three or four channels of process control equipment are used for the signal processing of unit parameters measured by the field instruments. The process control equipment provides signal conditioning, comparable output signals for instruments located on the main control board, and comparison of measured input signals with setpoints established by safety analyses. These setpoints are defined in FSAR, Chapter [6] (Ref. 1), Chapter [7] (Ref. 2), and Chapter [15] (Ref. 3). INSERT 1 (3) If the measured value of a unit parameter exceeds the predetermined setpoint, an output from a bistable is forwarded to the SSPS for decision evaluation. Channel separation is maintained up to and through the input bays. However, not all unit parameters require four channels of sensor measurement and signal processing. Some unit parameters provide input only to the SSPS, while others provide input to the SSPS, the main control board, the unit computer, and one or more control systems.

Generally, if a parameter is used only for input to the protection circuits, three channels with a two-out-of-three logic are sufficient to provide the required reliability and redundancy. If one channel fails in a direction that would not result in a partial Function trip, the Function is still OPERABLE with a two-out-of-two logic. If one channel fails such that a partial Function trip occurs, a trip will not occur and the Function is still OPERABLE with a one-out-of- two logic.

Generally, if a parameter is used for input to the SSPS and a control function, four channels with a two-out-of-four logic are sufficient to

(3) INSERT 1

the Technical Requirements Manual (Ref. 1)

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BASES

BACKGROUND (continued)

INSERT 2

provide the required reliability and redundancy. The circuit must be able to withstand both an input failure to the control system, which may then require the protection function actuation, and a single failure in the other channels providing the protection function actuation. Again, a single failure will neither cause nor prevent the protection function actuation. (4)

These requirements are described in IEEE-279-1971 (Ref. 4). The actual number of channels required for each unit parameter is specified in Reference 2. (3) (4)

Allowable Values and ESFAS Setpoints

The trip setpoints used in the bistables are based on the analytical limits stated in Reference 2. The selection of these trip setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account. To allow for calibration tolerances, instrumentation uncertainties, instrument drift, and severe environment errors for those ESFAS channels that must function in harsh environments as defined by 10 CFR 50.49 (Ref. 5), the Allowable Values specified in Table 3.3.2-1 in the accompanying LCO are conservative with respect to the analytical limits. A detailed description of the methodology used to calculate the Allowable Value and ESFAS setpoints including their explicit uncertainties, is provided in the plant specific setpoint methodology study (Ref. 6) which incorporates all of the known uncertainties applicable to each channel. The magnitudes of these uncertainties are factored into the determination of each ESFAS setpoint and corresponding Allowable Value. The nominal ESFAS setpoint entered into the bistable is more conservative than that specified by the Allowable Value to account for measurement errors detectable by the COT. The Allowable Value serves as the Technical Specification OPERABILITY limit for the purpose of the COT. One example of such a change in measurement error is drift during the surveillance interval. If the measured setpoint does not exceed the Allowable Value, the bistable is considered OPERABLE. (4) or design limits (4)

The ESFAS setpoints are the values at which the bistables are set and is the expected value to be achieved during calibration. The ESFAS setpoint value ensures the safety analysis limits are met for the surveillance interval selected when a channel is adjusted based on stated channel uncertainties. Any bistable is considered to be properly adjusted when the "as-left" setpoint value is within the band for CHANNEL CALIBRATION uncertainty allowance (i.e., calibration tolerance uncertainties). The ESFAS setpoint value is therefore considered a (are) (8)

4

INSERT 2

As described in Reference 2, where a unit condition that requires protective action can be brought on by a failure or malfunction of the control system, and the same failure or malfunction prevents proper action of a protection system channel or channels designed to protect against the resultant unsafe condition, the remaining portions of the protection system shall be independently capable of withstanding a single failure and automatically initiating appropriate protective action. For CNP, the protection system is designed to be independent of the status of the control system. However, the control system does derive signals from the protection systems through isolation amplifiers, which are part of the protection system. The isolation amplifiers prevent perturbation of the protection signal (input) due to disturbances of the isolated signal (output) which could occur near any termination of the output wiring external to the protection and safeguards racks. As such, other acceptable logic designs (e.g., two-out-of-three logic) exist for parameters that are used as inputs to SSPS and a control function. Also, additional redundancy is warranted for those Functions whose channels energize to trip, even if they are not used as a control function.

BASES

BACKGROUND (continued)

"nominal value" (i.e., expressed as a value without inequalities) for the purposes of the COT and CHANNEL CALIBRATION.

Setpoints adjusted consistent with the requirements of the Allowable Value ensure that the consequences of Design Basis Accidents (DBAs) will be acceptable, providing the unit is operated from within the LCOs at the onset of the DBA and the equipment functions as designed.

Each channel can be tested on line to verify that the signal processing equipment and setpoint accuracy is within the specified allowance requirements of Reference 8. Once a designated channel is taken out of service for testing, a simulated signal is injected in place of the field instrument signal. The process equipment for the channel in test is then tested, verified, and calibrated. SRs for the channels are specified in the SR section. (6)

Solid State Protection System

The SSPS equipment is used for the decision logic processing of outputs from the signal processing equipment bistables. To meet the redundancy requirements, two trains of SSPS, each performing the same functions, are provided. If one train is taken out of service for maintenance or test purposes, the second train will provide ESF actuation for the unit. If both trains are taken out of service or placed in test, a reactor trip will result. Each train is packaged in its own cabinet for physical and electrical separation to satisfy separation and independence requirements. (set of) (4) (5)

The SSPS performs the decision logic for most ESF equipment actuation; generates the electrical output signals that initiate the required actuation; and provides the status, permissive, and annunciator output signals to the main control room of the unit.

The bistable outputs from the signal processing equipment are sensed by the SSPS equipment and combined into logic matrices that represent combinations indicative of various transients. If a required logic matrix combination is completed, the system will send actuation signals via master and slave relays to those components whose aggregate Function best serves to alleviate the condition and restore the unit to a safe condition. Examples are given in the Applicable Safety Analyses, LCO, and Applicability sections of this Bases.

Each SSPS train has a built in testing device that can automatically test the decision logic matrix functions and the actuation devices while the

BASES

BACKGROUND (continued)

unit is at power. When any one train is taken out of service for testing, the other train is capable of providing unit monitoring and protection until the testing has been completed. The testing device is semiautomatic to minimize testing time.

The actuation of ESF components is accomplished through master and slave relays. The SSPS energizes the master relays appropriate for the condition of the unit. Each master relay then energizes one or more slave relays, which then cause actuation of the end devices. The master and slave relays are routinely tested to ensure operation. The test of the master relays energizes the relay, which then operates the contacts and applies a low voltage to the associated slave relays. The low voltage is not sufficient to actuate the slave relays but only demonstrates signal path continuity. The SLAVE RELAY TEST actuates the devices if their operation will not interfere with continued unit operation. For the latter case, actual component operation is prevented by the SLAVE RELAY TEST circuit, and slave relay contact operation is verified by a continuity check of the circuit containing the slave relay.

proper (4) (9)

- REVIEWER'S NOTE -

No one unit ESFAS incorporates all of the Functions listed in Table 3.3.2-1. In some cases (e.g., Containment Pressure - High 3, Function 2.c), the Table reflects several different implementations of the same Function. Typically, only one of these implementations are used at any specific unit.

(5)

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

Each of the analyzed accidents can be detected by one or more ESFAS Functions. One of the ESFAS Functions is the primary actuation signal for that accident. An ESFAS Function may be the primary actuation signal for more than one type of accident. An ESFAS Function may also be a secondary, or backup, actuation signal for one or more other accidents. For example, Pressurizer Pressure - Low is a primary actuation signal for small loss of coolant accidents (LOCAs) and a backup actuation signal for steam line breaks (SLBs) outside containment. Functions such as manual initiation, not specifically credited in the accident safety analysis, are qualitatively credited in the safety analysis and the NRC staff approved licensing basis for the unit. These Functions may provide protection for conditions that do not require dynamic transient analysis to demonstrate Function performance. These Functions may also serve as backups to Functions that were credited in the accident analysis (Ref. 3). (7) (4) (4)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The LCO requires all instrumentation performing an ESFAS Function to be OPERABLE. A channel is OPERABLE with a trip setpoint value outside its calibration tolerance band provided the trip setpoint "as-found" value does not exceed its associated Allowable Value and provided the trip setpoint "as-left" value is adjusted to a value within the calibration tolerance band of the Nominal Trip Setpoint. A trip setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions. Failure of any instrument renders the affected channel(s) inoperable and reduces the reliability of the affected Functions.

The LCO generally requires OPERABILITY of four or three channels in each instrumentation function and two channels in each logic and manual initiation function. The two-out-of-three and the two-out-of-four configurations allow one channel to be tripped during maintenance or testing without causing an ESFAS initiation. Two logic or manual initiation channels are required to ensure no single random failure disables the ESFAS.

The required channels of ESFAS instrumentation provide unit protection in the event of any of the analyzed accidents. ESFAS protection functions are as follows:

1. Safety Injection

Safety Injection (SI) provides two primary functions:

1. Primary side water addition to ensure maintenance or recovery of reactor vessel water level (coverage of the active fuel for heat removal, clad integrity, and for limiting peak clad temperature to < 2200°F), and
2. Boration to ensure recovery and maintenance of SDM (k_{eff} < 1.0).

These functions are necessary to mitigate the effects of high energy line breaks (HELBs) both inside and outside of containment. The SI signal is also used to initiate other Functions such as:

- Phase A Isolation,
- Containment Purge Isolation,

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

- Reactor Trip,
- Turbine Trip,
- Feedwater Isolation,
- Start of motor driven auxiliary feedwater (AFW) pumps,
- Control room ventilation isolation, and
- Enabling automatic switchover of Emergency Core Cooling Systems (ECCS) suction to containment sump.

These other functions ensure:

- Isolation of nonessential systems through containment penetrations,
- Trip of the turbine and reactor to limit power generation,
- Isolation of main feedwater (MFW) to limit secondary side mass losses,
- Start of AFW to ensure secondary side cooling capability,
- Isolation of the control room to ensure habitability, and
- Enabling ECCS suction from the refueling water storage tank (RWST) switchover on low low RWST level to ensure continued cooling via use of the containment sump.

a. Safety Injection - Manual Initiation

The LCO requires one channel per train to be OPERABLE. The operator can initiate SI at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for the Manual Initiation Function ensures the proper amount of redundancy is maintained in the manual ESFAS actuation circuitry to ensure the operator has manual ESFAS initiation capability.

(4) **INSERT 3**

- *Trip of main feedwater pumps;*
- Actuation of Essential Service Water (ESW) System for Units 1 and 2;
- Actuation of Component Cooling Water (CCW) System; and
- Actuation of Engineered Safety Features (ESF) Ventilation System.

(4) **INSERT 4**

The Safety Injection Manual Initiation Function is designed with two manual panel switches in each train. One switch (channel) in a train must be placed in the actuate position for the associated components in the train to receive an SI initiation signal.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Each channel consists of one push button and the interconnecting wiring to the actuation logic cabinet. Each push button actuates both trains. This configuration does not allow testing at power.

b. Safety Injection - Automatic Actuation Logic and Actuation Relays

INSERT 5

This LCO requires two trains to be OPERABLE. Actuation logic consists of all circuitry housed within the actuation subsystems, including the initiating relay contacts responsible for actuating the ESF equipment.

Manual and automatic initiation of SI must be OPERABLE in MODES 1, 2, and 3. In these MODES, there is sufficient energy in the primary and secondary systems to warrant automatic initiation of ESF systems. Manual initiation is also required in MODE 4 even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a DBA, but because of the large number of components actuated on a SI, actuation is simplified by the use of the manual actuation push buttons. Automatic actuation logic and actuation relays must be OPERABLE in MODE 4 to support system level manual initiation.

INSERT 5A

These Functions are not required to be OPERABLE in MODES 5 and 6 because there is adequate time for the operator to evaluate unit conditions and respond by manually starting individual systems, pumps, and other equipment to mitigate the consequences of an abnormal condition or accident. Unit pressure and temperature are very low and many ESF components are administratively locked out or otherwise prevented from actuating to prevent inadvertent overpressurization of unit systems.

INSERT 6

c. Safety Injection - Containment Pressure - High

This signal provides protection against the following accidents:

- SLB inside containment
- LOCA and

4

INSERT 5

The Safety Injection Automatic Actuation Logic and Actuation Relays Function includes two trains. The actuation of the logic in any train will actuate the associated components in the same train.

6

INSERT 5A

for those required OPERABLE Emergency Core Cooling System (ECCS) components in standby readiness

4

INSERT 6

ECCS Function is not required to be OPERABLE.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

- Feed line break inside containment. <Unit 2 only> (4)

INSERT 7

Containment Pressure - High 1 provides no input to any control functions. Thus, three OPERABLE channels are sufficient to satisfy protective requirements with a two-out-of-three logic. The transmitters (d/p cells) and electronics are located outside of containment with the sensing line (high pressure side of the transmitter) located inside containment. (10) (4) (4)

Containment Pressure - High (components)

Thus, the high pressure Function will not experience any adverse environmental conditions and the Trip Setpoint reflects only steady state instrument uncertainties. (4) (2)

Containment Pressure - High 1 must be OPERABLE in MODES 1, 2, and 3 when there is sufficient energy in the primary and secondary systems to pressurize the containment following a pipe break. In MODES 4, 5, and 6, there is insufficient energy in the primary or secondary systems to pressurize the containment. (4) (6)

INSERT 8

d. Safety Injection - Pressurizer Pressure - Low

This signal provides protection against the following accidents:

- Inadvertent opening of a steam generator (SG) relief or safety valve; (4)
- SLB; (4)
- A spectrum of rod cluster control assembly ejection accidents (rod ejection), (4)
- Inadvertent opening of a pressurizer relief or safety valve, (4)
- LOCAs; and
- SG Tube Rupture.

INSERT 9

At some units pressurizer pressure provides both control and protection functions: input to the Pressurizer Pressure Control System, reactor trip, and SI. Therefore, the actuation logic must be able to withstand both an input failure to control system, which may then require the protection function (4) (10) (4)

4

INSERT 7

The Safety Injection Containment Pressure - High Function design includes three channels. This LCO requires three channels to be OPERABLE.

4

INSERT 8

MODE 4, the ECCS equipment (LCO 3.5.3, "ECCS - Shutdown") is not required to operate on an automatic actuation signal and in

4

INSERT 9

The Safety Injection Pressurizer Pressure - Low Function design includes three channels arranged in a two-out-of-three logic. This LCO requires three channels to be OPERABLE.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

actuation, and a single failure in the other channels providing the protection function actuation. Thus, four OPERABLE channels are required to satisfy the requirements with a two-out-of-four logic. For units that have dedicated protection and control channels, only three protection channels are necessary to satisfy the protective requirements. (4)

The transmitters are located inside containment, with the taps in the vapor space region of the pressurizer, and thus possibly experiencing adverse environmental conditions (LOCA, SLB inside containment, rod ejection). Therefore, the Trip Setpoint reflects the inclusion of both steady state and adverse environmental instrument uncertainties. (9) (2)

This Function must be OPERABLE in MODES 1, 2, and 3 (above P-11) to mitigate the consequences of an HELB inside containment. This signal may be manually blocked by the operator below the P-11 setpoint. Automatic SI actuation below this pressure setpoint is then performed by the Containment Pressure - High 1 signal. accident previously described (4) (4)

This Function is not required to be OPERABLE in MODE 3 below the P-11 setpoint. Other ESF functions are used to detect accident conditions and actuate the ESF systems in this MODE. In MODES 4, 5, and 6, this Function is not needed for accident detection and mitigation.

e. Safety Injection - Steam Line Pressure

(1) Steam Line Pressure - Low

Steam Line Pressure - Low provides protection against the following accidents: (4)

- SLB and (Unit 1 only) (1)
- Feed line break and (Unit 2 only) (1)
- Inadvertent opening of a power operated SG relief or a main steam safety valve. (4)

INSERT 10 → Steam Line Pressure - Low provides no input to any control functions. Thus, three OPERABLE channels are (10) (4)

(4) **INSERT 10**

The Safety Injection Steam Line Pressure - Low Function design includes four channels (one on each steam line) arranged in a two-out-of-four logic. The LCO requires one channel per steam line for a total of four channels to be OPERABLE.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

each steam line are sufficient to satisfy the protective requirements with a two-out-of-three logic on each steam line. 4

With the transmitters typically located inside the steam tunnels, it is possible for them to experience adverse environmental conditions during a secondary side break. Therefore, the Trip Setpoint reflects both steam state and adverse environmental instrument uncertainties. 4 4 2 4

auxiliary building not only

This Function is anticipatory in nature and has a typical lead/lag ratio of 50/5.

Steam Line Pressure - Low must be OPERABLE in MODES 1, 2, and 3 (above P-11) when a secondary side break or stuck open valve could result in the rapid depressurization of the steam lines. This signal may be manually blocked by the operator below the P-11 setpoint. Below P-11, feed line break is not a concern. Inside containment SLB will be terminated by automatic SI actuation via Containment Pressure - High 1, and outside containment SLB will be terminated by the Steam Line Pressure - Negative Rate - High signal for steam line isolation. This Function is not required to be OPERABLE in MODE 4, 5, or 6 because there is insufficient energy in the secondary side of the unit to cause an accident. 12 7 12 7 4 7

Unit 2 only; A steam line rupture occurring; MODE 3 below P-12, and

(2) Steam Line Pressure - High Differential Pressure Between Steam Lines (per steam line) 7

Steam Line Pressure - High Differential Pressure Between Steam Lines provides protection against the following accidents:

Unit 2 only

- SLB and (Unit 1 only)
- Feed line break; and 5 1
- Inadvertent opening of an SG relief or an SG safety valve. (power operated) (main steam) 4

INSERT 11

Steam Line Pressure - High Differential Pressure Between Steam Lines provides no input to any control functions. 10

(7) (4) **INSERT 11**

The Steam Line Pressure - High Differential Pressure Between Steam Lines Function design includes three channels for each steam line with a two-out-of-three logic for each steam line. The pressure associated with a steam line is compared to the pressure in the three other steam lines. If two channels associated with any given steam line indicate high differential pressure, an SI signal is generated. This LCO requires three channels per steam line to be OPERABLE. Each steam line is treated separately and each steam line is considered a separate Function. Therefore, separate Condition entry is allowed for each steam line. This is acceptable since each steam line has three channels (with two out of three necessary for a high differential pressure between steam lines signal), and the channels of one steam line are independent from the channels of the other steam lines.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Thus, three OPERABLE channels on each steam line are sufficient to satisfy the requirements, with a two-out-of-three logic on each steam line.

With the transmitters typically located inside the steam tunnels, it is possible for them to experience adverse environmental conditions during an SLB event. Therefore, the Trip Setpoint reflects both steady state and adverse environmental instrument uncertainties. Steam line high differential pressure must be OPERABLE in MODES 1, 2, and 3 when a secondary side break or stuck open valve could result in the rapid depressurization of the steam line(s). This Function is not required to be OPERABLE in MODE 4, 5, or 6 because there is not sufficient energy in the secondary side of the unit to cause an accident.

f, g. Safety Injection - High Steam Flow in Two Steam Lines Coincident With T_{avg} - Low Low or Coincident With Steam Line Pressure - Low

These Functions (1.f and 1.g) provide protection against the following accidents:

- SLB, and
- the inadvertent opening of an SG relief or an SG safety valve.

Two steam line flow channels per steam line are required OPERABLE for these Functions. The steam line flow channels are combined in a one-out-of-two logic to indicate high steam flow in one steam line. The steam flow transmitters provide control inputs, but the control function cannot cause the events that the Function must protect against. Therefore, two channels are sufficient to satisfy redundancy requirements. The one-out-of-two configuration allows online testing because trip of one high steam flow channel is not sufficient to cause initiation. High steam flow in two steam lines is acceptable in the case of a single steam line fault due to the fact that the remaining intact steam lines will pick up the full turbine load. The increased steam flow in the remaining intact lines will actuate the required second high steam flow trip. Additional

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

protection is provided by Function 1.e.(2), High Differential Pressure Between Steam Lines.

One channel of T_{avg} per loop and one channel of low steam line pressure per steam line are required OPERABLE. For each parameter, the channels for all loops or steam lines are combined in a logic such that two channels tripped will cause a trip for the parameter. For example, for three loop units, the low steam line pressure channels are combined in two-out-of-three logic. Thus, the Function trips on one-out-of-two high flow in any two-out-of-three steam lines if there is one-out-of-one low low T_{avg} trip in any two-out-of-three RCS loops, or if there is a one-out-of-one low pressure trip in any two-out-of-three steam lines. Since the accidents that this event protects against cause both low steam line pressure and low low T_{avg}, provision of one channel per loop or steam line ensures no single random failure can disable both of these Functions. The steam line pressure channels provide no control inputs. The T_{avg} channels provide control inputs, but the control function cannot initiate events that the Function acts to mitigate.

The Allowable Value for high steam flow is a linear function that varies with power level. The function is a ΔP corresponding to 44% of full steam flow between 0% and 20% load to 114% of full steam flow at 100% load. The nominal trip setpoint is similarly calculated.

With the transmitters typically located inside the containment (T_{avg}) or inside the steam tunnels (High Steam Flow), it is possible for them to experience adverse steady state environmental conditions during an SLB event. Therefore, the Trip Setpoint reflects both steady state and adverse environmental instrument uncertainties. The Steam Line Pressure - Low signal was discussed previously under Function 1.e.(1).

This Function must be OPERABLE in MODES 1, 2, and 3 (above P-12) when a secondary side break or stuck open valve could result in the rapid depressurization of the steam line(s). This signal may be manually blocked by the operator when below the P-12 setpoint. Above P-12, this Function is automatically unblocked. This Function is not required

7

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

OPERABLE below P-12 because the reactor is not critical, so feed line break is not a concern. SLB may be addressed by Containment Pressure High 1 (inside containment) or by High Steam Flow in Two Steam Lines coincident with Steam Line Pressure - Low, for Steam Line Isolation, followed by High Differential Pressure Between Two Steam Lines, for SI. This Function is not required to be OPERABLE in MODE 4, 5, or 6 because there is insufficient energy in the secondary side of the unit to cause an accident. (7)

2. Containment Spray

Containment Spray provides three primary functions:

1. Lowers containment pressure and temperature after an HELB accident in containment; (4) (1)

2. Reduces the amount of radioactive iodine in the containment atmosphere; and (1)

3. Adjusts the pH of the water in the containment recirculation sump after a large break LOCA.

These functions are necessary to:

- Ensure the pressure boundary integrity of the containment structure; (1)

- Limit the release of radioactive iodine to the environment in the event of a failure of the containment structure; and (1)

- Minimize corrosion of the components and systems inside containment following a LOCA. INSERT 12 (4)

The containment spray actuation signal starts the containment spray pumps and (via the Phase B Isolation signal) aligns the discharge of the pumps to the containment spray nozzle headers in the upper levels of containment. Water is initially drawn from the RWST by the containment spray pumps and mixed with a sodium hydroxide solution from the spray additive tank. INSERT 13 When the RWST reaches the low low level setpoint, the spray pump suctions are shifted to the containment sump if continued recirculation containment spray is required. Containment spray is actuated (4)

(4) **<u>INSERT 12</u>**

and aligns the valves associated with the Spray Additive System

(4) **<u>INSERT 13</u>**

a level indicating a sufficient volume has been transferred to containment, the operator aligns

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

automatically → manually by Containment Pressure - High 3 or Containment Pressure - High High. (4)

a. Containment Spray - Manual Initiation

The operator can initiate containment spray at any time from the control room by simultaneously turning two containment spray actuation switches in the same train. Because an inadvertent actuation of containment spray could have such serious consequences, two switches must be turned simultaneously to initiate containment spray. There are two sets of two switches each in the control room. Simultaneously turning the two switches in either set will actuate containment spray in both trains in the same manner as the automatic actuation signal. Two Manual Initiation switches in each train are required to be OPERABLE to ensure no single failure disables the Manual Initiation Function. Note that Manual Initiation of containment spray also actuates Phase B containment isolation. (4)

The — for either — a — the associated

b. Containment Spray - Automatic Actuation Logic and Actuation Relays

INSERT 14 → Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b. (4)

Manual and automatic initiation of containment spray must be OPERABLE in MODES 1, 2, and 3 when there is a potential for an accident to occur, and sufficient energy in the primary or secondary systems to pose a threat to containment integrity due to overpressure conditions. Manual initiation is also required in MODE 4, even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a DBA. However, because of the large number of components actuated on a containment spray, actuation is simplified by the use of the manual actuation push buttons (switches). Automatic actuation logic and actuation relays must be OPERABLE in MODE 4 to support system level manual initiation. In MODES 5 and 6, there is insufficient energy in the primary and secondary systems to result in containment overpressure. In MODES 5 and 6, there is also adequate time for the operators to evaluate unit (4)

(4) **INSERT 14**

The Containment Spray Automatic Actuation Logic and Actuation Relays design includes two trains. The actuation of a train will actuate the associated containment spray train. This LCO requires two trains to be OPERABLE. Actuation logic consists of all circuitry housed within the actuation subsystems, including the initiating relay contacts responsible for actuating the Containment Spray System.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

conditions and respond, to mitigate the consequences of abnormal conditions by manually starting individual components. (4)

c. Containment Spray - Containment Pressure - High High (6)

This signal provides protection against a LOCA or an SLB inside containment. The transmitters (d/p cells) are located outside of containment with the sensing line (high pressure side of the transmitter) located inside containment. The transmitters and electronics are located outside of containment. Thus, they will not experience any adverse environmental conditions and the Trip Setpoint reflects only steady state instrument uncertainties. (8)

This is one of the only Functions that requires the bistable output to energize to perform its required action. It is not desirable to have a loss of power actuate containment spray, since the consequences of an inadvertent actuation of containment spray could be serious. Note that this Function also has the inoperable channel placed in bypass rather than trip to decrease the probability of an inadvertent actuation. (4)

INSERT 15

The

Two different logic configurations are typically used. Three and four loop units use four channels in a two-out-of-four logic configuration. This configuration may be called the Containment Pressure - High 3 Setpoint for three and four loop units, and Containment Pressure - High High Setpoint for other units. Some two loop units use three sets of two channels, each set combined in a one-out-of-two configuration, with these outputs combined so that two-out-of-three sets tripped initiates containment spray. This configuration is called Containment Pressure - High 3 Setpoint. Since containment pressure is not used for control, both of these arrangements exceed the minimum redundancy requirements. Additional redundancy is warranted because this Function is energize to trip. (4) (3)

are arranged

Containment Pressure - (High 3) High High must be OPERABLE in MODES 1, 2, and 3 when there is sufficient energy in the primary and secondary sides to pressurize the containment following a pipe break. In MODES 4, 5, and 6, there is insufficient energy in the primary and secondary sides to pressurize the containment and reach the Containment Pressure - (High 3) High High setpoints. (4)

(4) INSERT 15A

(4) **INSERT 15**

The Containment Spray Containment Pressure - High High Function design includes four channels. This LCO requires all four channels to be OPERABLE.

(4) **INSERT 15A**

In MODE 4, the Manual Initiation Function provides the required method for initiating the Containment Spray System.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

3. Containment Isolation

Containment Isolation provides isolation of the containment atmosphere, and all process systems that penetrate containment, from the environment. This Function is necessary to prevent or limit the release of radioactivity to the environment in the event of a large break LOCA.

(2) that penetrate containment

There are two separate Containment Isolation signals, Phase A and Phase B. Phase A isolation isolates all automatically isolable process lines, except component cooling water (CCW), at a relatively low containment pressure indicative of primary or secondary system leaks. For these types of events, forced circulation cooling using the reactor coolant pumps (RCPs) and SGs is the preferred (but not required) method of decay heat removal. Since CCW is required to support RCP operation, not isolating CCW on the low pressure Phase A signal enhances unit safety by allowing operators to use forced RCS circulation to cool the unit. Isolating CCW on the low pressure signal may force the use of feed and bleed cooling, which could prove more difficult to control.

INSERT 16 (4)

INSERT 16A (4)

INSERT 17 (4)

(2) automatically isolable

Phase A containment isolation is actuated automatically by SI, or manually via the automatic actuation logic. All process lines penetrating containment, with the exception of CCW, are isolated. CCW is not isolated at this time to permit continued operation of the RCPs with cooling water flow to the thermal barrier heat exchangers and air or oil coolers. All process lines not equipped with remote operated isolation valves are manually closed, or otherwise isolated, prior to reaching MODE 4.

INSERT 17A (4)

Manual Phase A Containment Isolation is accomplished by either of two switches in the control room. Either switch actuates both trains. Note that manual actuation of Phase A Containment Isolation also actuates Containment Purge and Exhaust Isolation.

One — isolates — INSERT 18 (4) — and NESW

The Phase B signal isolates CCW. This occurs at a relatively high containment pressure that is indicative of a large break LOCA or an SLB. For these events, forced circulation using the RCPs is no longer desirable. Isolating the CCW at the higher pressure does not pose a challenge to the containment boundary because the CCW System is a closed loop inside containment. Although some system components do not meet all of the ASME Code requirements applied to the containment itself, the system is continuously

(4) INSERT 18A

(4) INSERT 18B

4 **INSERT 16**

component cooling water (CCW) to the reactor coolant pumps and non-essential service water (NESW) to the ventilation units

4 **INSERT 16A**

The NESW System supplies cooling water to the containment ventilation units. Since the NESW System is normally available to support containment cooling, not isolating NESW on the low pressure Phase A signal enhances unit safety by allowing operators to use the containment ventilation units to remove heat from the containment instead of using the Containment Spray System.

4 **INSERT 17**

CCW to the reactor coolant pumps and NESW to the ventilation units

4 **INSERT 17A**

The NESW System is not isolated at this time to permit continued operation of the containment ventilation units.

4 **INSERT 18**

one train while the other switch isolates the other train

4 **INSERT 18A**

In addition, containment cooling via the containment ventilation units is no longer desirable.

(4) **INSERT 18B**

Isolating the NESW at the higher pressure does not pose a challenge to the containment boundary since under maximum containment heat load conditions during a DBA LOCA, the Phase A and Phase B isolation signals will occur in a short time and therefore release of the containment atmosphere to the site boundary is precluded.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

pressurized to a pressure greater than the Phase B setpoint. Thus, routine operation demonstrates the integrity of the system pressure boundary for pressures exceeding the Phase B setpoint. Furthermore, because system pressure exceeds the Phase B setpoint, any system leakage prior to initiation of Phase B isolation would be into containment. Therefore, the combination of CCW System design and Phase B isolation ensures the CCW System is not a potential path for radioactive release from containment.

Phase B containment isolation is actuated by Containment Pressure - High 3 or Containment Pressure - High High, or manually, via the automatic actuation logic, as previously discussed. For containment pressure to reach a value high enough to actuate Containment Pressure - High 3 or Containment Pressure - High High, a large break LOCA or SLB must have occurred and containment spray must have been actuated. RCP operation will no longer be required and CCW to the RCPs is, therefore, no longer necessary. The RCPs can be operated with seal injection flow alone and without CCW flow to the thermal barrier heat exchanger.

Manual Phase B Containment Isolation is accomplished by the same switches that actuate Containment Spray. When the two switches in either set are turned simultaneously, Phase B Containment Isolation and Containment Spray will be actuated in both trains.

a. Containment Isolation - Phase A Isolation

(1) Phase A Isolation - Manual Initiation

Manual Phase A Containment Isolation is actuated by either of two switches in the control room. Either switch actuates both trains. Note that manual initiation of Phase A Containment Isolation also actuates Containment Purge Isolation.

(2) Phase A Isolation - Automatic Actuation Logic and Actuation Relays

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

(4) **INSERT 18C**

Containment ventilation operation will no longer be required since the Containment Spray System will be able to remove the containment heat load.

(4) **INSERT 19**

and Containment Purge Supply and Exhaust System isolation

(4) **INSERT 19A**

A Phase B Containment Isolation signal will isolate Phase B containment isolation valves and actuates the Containment Spray System pumps.

In addition, the charcoal filter bypasses associated with the Engineered Safety Features Ventilation System filter trains are automatically closed and the air is directed through the charcoal filters in addition to the roughing and high efficiency particulate air filters, as described in the Bases for ITS 3.7.12.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Manual and automatic initiation of Phase A Containment Isolation must be OPERABLE in MODES 1, 2, and 3, when there is a potential for an accident to occur. Manual initiation is also required in MODE 4 even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a DBA, but because of the large number of components actuated on a Phase A Containment Isolation, actuation is simplified by the use of the manual actuation push buttons. Automatic actuation logic and actuation relays must be OPERABLE in MODE 4 to support system level manual initiation. In MODES 5 and 6, there is insufficient energy in the primary or secondary systems to pressurize the containment to require Phase A Containment Isolation. There also is adequate time for the operator to evaluate unit conditions and manually actuate individual isolation valves in response to abnormal or accident conditions.

(3) Phase A Isolation - Safety Injection

Phase A Containment Isolation is also initiated by all Functions that initiate SI. The Phase A Containment Isolation requirements for these Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating Functions and requirements.

b. Containment Isolation - Phase B Isolation

Phase B Containment Isolation is accomplished by Manual Initiation, Automatic Actuation Logic and Actuation Relays, and by Containment Pressure channels (the same channels that actuate Containment Spray, Function 2). The Containment Pressure trip of Phase B Containment Isolation is energized to trip in order to minimize the potential of spurious trips that may damage the RCPs.

(1) Phase B Isolation - Manual Initiation

(2) Phase B Isolation - Automatic Actuation Logic and Actuation Relays

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INSERT 20

Not Used.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Manual and automatic initiation of Phase B containment isolation must be OPERABLE in MODES 1, 2, and 3, when there is a potential for an accident to occur. Manual initiation is also required in MODE 4 even though automatic actuation is not required. In this MODE, adequate time is available to manually actuate required components in the event of a DBA. However, because of the large number of components actuated on a Phase B containment isolation, actuation is simplified by the use of the manual actuation push buttons (Switches). Automatic actuation logic and actuation relays must be OPERABLE in MODE 4 to support system level manual initiation. In MODES 5 and 6, there is insufficient energy in the primary or secondary systems to pressurize the containment to require Phase B containment isolation. There also is adequate time for the operator to evaluate unit conditions and manually actuate individual isolation valves in response to abnormal or accident conditions. (4) (2)

(3) Phase B Isolation - Containment Pressure (High High) (7)

(INSERT 20A) The basis for containment pressure MODE applicability is as discussed for ESFAS Function 2.c above. (7)

4. Steam Line Isolation

Isolation of the main steam lines provides protection in the event of an SLB inside or outside containment. Rapid isolation of the steam lines will limit the steam break accident to the blowdown from one SG, at most. For an SLB upstream of the main steam isolation valves (MSIVs) (steam generator stop valves (SGSVs)), inside or outside of containment, closure of the MSIVs (SGSV) limits the accident to the blowdown from only the affected SG. For an SLB downstream of the MSIVs, closure of the MSIVs (SGSV) terminates the accident as soon as the steam lines depressurize. For units that do not have steam line check valves, Steam Line Isolation also mitigates the effects of a feed line break and ensures a source of steam for the turbine driven AFW pump during a feed line break. (Unit 2 only) (4) (4)

a. Steam Line Isolation - Manual Initiation (per steam line) (7)

Manual initiation of Steam Line Isolation can be accomplished from the control room. There are two switches (per steam line (one per train)) in the control (4)

(7) **INSERT 20A**

Containment Pressure - High High must be OPERABLE in MODES 1, 2, and 3 when there is sufficient energy in the primary and secondary sides to pressurize the containment following a pipe break. In MODE 4, the Manual Initiation Function provides the required method for initiating containment isolation. In MODES 5 and 6, there is insufficient energy in the primary and secondary sides to pressurize the containment and reach the Containment Pressure - High High setpoint.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

INSERT 20B (7) (4)

room and either switch can initiate action to immediately close all MSIVs. The LCO requires two channels to be OPERABLE. [the associated SGSV] [per steam line]

b. Steam Line Isolation - Automatic Actuation Logic and Actuation Relays

Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

Manual and automatic initiation of steam line isolation must be OPERABLE in MODES 1, 2, and 3 when there is sufficient energy in the RCS and SGs to have an SLB or other accident. This could result in the release of significant quantities of energy and cause a cooldown of the primary system. The Steam Line Isolation Function is required in MODES 2 and 3 unless all MSIVs [SGSV] are closed and de-activated. In MODES 4, 5, and 6, there is insufficient energy in the RCS and SGs to experience an SLB [rupture of a steam line] or other accident releasing significant quantities of energy. (4) (3)

c. Steam Line Isolation - Containment Pressure - High 2 [High] (7)

This Function actuates closure of the MSIVs [SGSV] in the event of a LOCA or an SLB inside containment to maintain at least one [three] unfaulted SG (s) as a heat sink for the reactor, and to limit the mass and energy release to containment. The transmitters (d/p cells) are located outside containment with the sensing line (high pressure side of the transmitter) located inside containment. [INSERT 21 (4)] Containment Pressure - High 2 provides no input to any control functions. (10) Thus, three OPERABLE channels are sufficient to satisfy protective requirements with two-out-of-three logic. However, for enhanced reliability, this Function was designed with four channels and a two-out-of-four logic. (4) The transmitters and electronics are located outside of containment. Thus, they will not experience any adverse environmental conditions, and the trip setpoint reflects only steady state instrument uncertainties. (8) (4)

Containment Pressure - High 2 [High] must be OPERABLE in MODES 1, 2, and 3, when there is sufficient energy in the primary and secondary side to pressurize the containment following a pipe break. This would cause a significant increase in the containment pressure, thus allowing detection and (7)

(7) **INSERT 20B**

Each steam line is treated separately and each steam line is considered a separate Function. Therefore, separate Condition entry is allowed for each steam line. This is acceptable since each steam line has two channels (with one out of two necessary for a manual initiation signal), and the channels of one steam line are independent from the channels of the other steam lines.

(4) **INSERT 21**

The Steam Line Isolation Containment Pressure - High High Function design includes four channels arranged in a two-out-of-four logic configuration, and are energized to trip. This LCO requires all four channels to be OPERABLE.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

closure of the MSIVs. The Steam Line Isolation Function remains OPERABLE in MODES 2 and 3 unless all MSIVs are closed and de-activated. In MODES 4, 5, and 6, there is not enough energy in the primary and secondary sides to pressurize the containment to the Containment Pressure - High 2 setpoint.

d. Steam Line Isolation - Steam Line Pressure

(1) Steam Line Pressure - Low

Steam Line Pressure - Low provides closure of the MSIVs in the event of an SLB to maintain at least one unfaulted SG as a heat sink for the reactor, and to limit the mass and energy release to containment. This Function provides closure of the MSIVs in the event of a feed line break to ensure a supply of steam for the turbine driven AFW pump. Steam Line Pressure - Low was discussed previously under SI Function 1.e.1.

Steam Line Pressure - Low Function must be OPERABLE in MODES 1, 2, and 3 (above P-11), with any main steam valve open, when a secondary side break or stuck open valve could result in the rapid depressurization of the steam lines. This signal may be manually blocked by the operator below the P-11 setpoint. Below P-11, an inside containment SLB will be terminated by automatic actuation via Containment Pressure - High 2. Stuck valve transients and outside containment SLBs will be terminated by the Steam Line Pressure - Negative Rate - High signal for Steam Line Isolation below P-11 when SI has been manually blocked. The Steam Line Isolation Function is required in MODES 2 and 3 unless all MSIVs are closed and de-activated. This Function is not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to have an accident.

(2) Steam Line Pressure - Negative Rate - High

Steam Line Pressure - Negative Rate - High provides closure of the MSIVs for an SLB when less than the P-11 setpoint, to maintain at least one unfaulted SG as a heat

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

sink for the reactor, and to limit the mass and energy release to containment. When the operator manually blocks the Steam Line Pressure - Low main steam isolation signal when less than the P-11 setpoint, the Steam Line Pressure - Negative Rate - High signal is automatically enabled. Steam Line Pressure - Negative Rate - High provides no input to any control functions. Thus, three OPERABLE channels are sufficient to satisfy requirements with a two-out-of-three logic on each steam line.

Steam Line Pressure - Negative Rate - High must be OPERABLE in MODE 3 when less than the P-11 setpoint, when a secondary side break or stuck open valve could result in the rapid depressurization of the steam line(s). In MODES 1 and 2, and in MODE 3, when above the P-11 setpoint, this signal is automatically disabled and the Steam Line Pressure - Low signal is automatically enabled. The Steam Line Isolation Function is required to be OPERABLE in MODES 2 and 3 unless all MSIVs are closed and [de-activated]. In MODES 4, 5, and 6, there is insufficient energy in the primary and secondary sides to have an SLB or other accident that would result in a release of significant enough quantities of energy to cause a cooldown of the RCS.

While the transmitters may experience elevated ambient temperatures due to an SLB, the trip function is based on rate of change, not the absolute accuracy of the indicated steam pressure. Therefore, the Trip Setpoint reflects only steady state instrument uncertainties.

(7)

e. Steam Line Isolation - High Steam Flow in Two Steam Lines Coincident with T_{avg} - Low Low or Coincident With Steam Line Pressure - Low (Three and Four Loop Units) (7) (per steam line)

These Functions (4.e and 4.f) provide closure of the MSIVs during an SLB or inadvertent opening of an SG relief or a safety valve, to maintain at least one unfaulted SG as a heat sink for the reactor and to limit the mass and energy release to containment. (9)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

INSERT 22 → These Functions were discussed previously as Functions 1.f. and 1.g.

These Functions must be OPERABLE in MODES 1 and 2, and in MODE 3, when a secondary side break or stuck open valve could result in the rapid depressurization of the steam lines unless all MSIVs are closed and de-activated. These Functions are not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to have an accident.

g. Steam Line Isolation - High Steam Flow Coincident With Safety Injection and Coincident With T_{avg} - Low Low (Two Loop Units)

This Function provides closure of the MSIVs during an SLB or inadvertent opening of an SG relief or safety valve to maintain at least one unfaulted SG as a heat sink for the reactor, and to limit the mass and energy release to containment.

Two steam line flow channels per steam line are required OPERABLE for this Function. These are combined in a one-out-of-two logic to indicate high steam flow in one steam line. The steam flow transmitters provide control inputs, but the control function cannot cause the events that the function must protect against. Therefore, two channels are sufficient to satisfy redundancy requirements. The one-out-of-two configuration allows online testing because trip of one high steam flow channel is not sufficient to cause initiation.

The High Steam Flow Allowable Value is a ΔP corresponding to 25% of full steam flow at no load steam pressure. The Trip Setpoint is similarly calculated.

With the transmitters (d/p cells) typically located inside the steam tunnels, it is possible for them to experience adverse environmental conditions during an SLB event. Therefore, the Trip Setpoints reflect both steady state and adverse environmental instrument uncertainties.

The main steam line isolates only if the high steam flow signal occurs coincident with an SI and low low RCS average temperature. The Main Steam Line Isolation Function requirements for the SI Functions are the same as the

7 **INSERT 22**

High Steam Flow in Two Steam Lines Function design includes two steam flow channels per steam line arranged in a one-out-of-two logic configuration per steam line. T_{avg} - Low Low Function design includes one channel per loop for a total of four channels arranged in a two-out-of-four logic configuration. Logic actuation will occur when two steam lines indicate high flow coincident with T_{avg} - Low Low exceeding its trip setpoint (two of the four channels). Two steam line flow channels per steam line and one T_{avg} - Low Low channel per loop are required to be OPERABLE to ensure no single failure will disable this Function. In MODE 3 above P-12, it is possible to operate with one RCP out of service. In this condition, the T_{avg} – Low Low channel associated with non-operating RCP loop is considered inoperable. For the High Steam Flow in Two Steam Lines portion of the Function, each steam line is treated separately and each steam line is considered a separate Function. Therefore, separate Condition entry is allowed for each steam line. This is acceptable since each steam line has two channels (with one out of two necessary for a high steam flow signal), and the channels of one steam line are independent from the channels of the other steam lines.

The one-out-of-two logic configuration allows online testing because trip of one high steam flow channel is not sufficient to cause initiation. High steam flow in two steam lines is acceptable in the case of a single steam line fault due to the fact that the remaining intact steam lines will pick up the full turbine load. The increased steam flow in the remaining intact lines will actuate the required second high steam flow trip.

The Allowable Value for high steam flow is a linear function that varies with power level. The high steam flow and T_{avg} transmitters are located inside containment thus, it is not possible for them to experience adverse environmental conditions during a rupture of a steam line. Therefore, the trip setpoint only reflects steady state environmental instrument uncertainties.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.

Two channels of T_{avg} per loop are required to be OPERABLE. The T_{avg} channels are combined in a logic such that two channels tripped cause a trip for the parameter. The accidents that this Function protects against cause reduction of T_{avg} in the entire primary system. Therefore, the provision of two OPERABLE channels per loop in a two-out-of-four configuration ensures no single random failure disables the T_{avg} - Low Low Function. The T_{avg} channels provide control inputs, but the control function cannot initiate events that the Function acts to mitigate. Therefore, additional channels are not required to address control protection interaction issues.

With the T_{avg} resistance temperature detectors (RTDs) located inside the containment, it is possible for them to experience adverse environmental conditions during an SLB event. Therefore, the Trip Setpoint reflects both steady state and adverse environmental instrumental uncertainties. (7)

This Function must be OPERABLE in MODES 1 and 2, and in MODE 3, when above the P-12 setpoint, when a secondary side break or stuck open valve could result in rapid depressurization of the steam lines. Below P-12 this Function is not required to be OPERABLE because the High High Steam Flow coincident with SI Function provides the required protection. The Steam Line Isolation Function is required to be OPERABLE in MODES 2 and 3 unless all MSIVs are closed and [de-activated]. This Function is not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to have an accident.

h. <u>Steam Line Isolation - High High Steam Flow Coincident With Safety Injection (Two Loop Units)</u>

This Function provides closure of the MSIVs during a steam line break (or inadvertent opening of a relief or safety valve) to maintain at least one unfaulted SG as a heat sink for the reactor, and to limit the mass and energy release to containment.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Two steam line flow channels per steam line are required to be OPERABLE for this Function. These are combined in a one-out-of-two logic to indicate high steam flow in one steam line. The steam flow transmitters provide control inputs, but the control function cannot cause the events that the Function must protect against. Therefore, two channels are sufficient to satisfy redundancy requirements.

The Allowable Value for high steam flow is a ΔP corresponding to 130% of full steam flow at full steam pressure. The Trip Setpoint is similarly calculated.

With the transmitters typically located inside the steam tunnels, it is possible for them to experience adverse environmental conditions during an SLB event. Therefore, the Trip Setpoint reflects both steady state and adverse environmental instrument uncertainties. (7)

The main steam lines isolate only if the high steam flow signal occurs coincident with an SI signal. The Main Steam Line Isolation Function requirements for the SI Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.

This Function must be OPERABLE in MODES 1, 2, and 3 when a secondary side break or stuck open valve could result in rapid depressurization of the steam lines unless all MSIVs are closed and [de-activated]. This Function is not required to be OPERABLE in MODES 4, 5, and 6 because there is insufficient energy in the secondary side of the unit to have an accident.

5. Turbine Trip and Feedwater Isolation

The primary functions of the Turbine Trip and Feedwater Isolation signals are to prevent damage to the turbine due to water in the steam lines, and to stop the excessive flow of feedwater into the SGs. These Functions are necessary to mitigate the effects of a high water level in the SGs, which could result in carryover of water into the steam lines and excessive cooldown of the primary system. The SG high water level is due to excessive feedwater flows.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The Function is actuated when the level in any SG exceeds the high high setpoint, and performs the following functions:

- Trips the main turbine; (1)
- Trips the MFW pumps;
- Initiates feedwater isolation; and INSERT 22A (4)
- Shuts the MFW regulating valves and the bypass feedwater regulating valves. (4)

This Function is actuated by SG Water Level - High High, or by an SI signal. The RTS also initiates a turbine trip signal whenever a reactor trip (P-4) is generated. In the event of SI, the unit is taken off line and the turbine generator must be tripped. The MFW System is also taken out of operation and the AFW System is automatically started. The SI signal was discussed previously. (10)

a. Turbine Trip and Feedwater Isolation - Automatic Actuation Logic and Actuation Relays

INSERT 23 → Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

b. Turbine Trip and Feedwater Isolation - Steam Generator Water Level - High High (P-14) (per SG) (7)

This signal provides protection against excessive feedwater flow. The ESFAS SG water level instruments provide input to the SG Water Level Control System. Therefore, the actuation logic must be able to withstand both an input failure to the control system (which may then require the protection function actuation) and a single failure in the other channels providing the protection function actuation. Thus, four OPERABLE channels are required to satisfy the requirements with a two-out-of-four logic. For units that have dedicated protection and control channels, only three protection channels are necessary to satisfy the protective requirements. For other units that have only three channels, a median signal selector is provided or justification is provided in NUREG-1218 (Ref. 7). INSERT 24 (4)

4 **INSERT 22A**

(main feedwater regulating valves (MFRVs) and main feedwater isolation valves (MFIVs)).

4 **INSERT 23**

The Turbine Trip and Feedwater Isolation Automatic Actuation Logic and Actuation Relays Function includes two trains. The actuation of the logic in any train will isolate the MFRVs and trip the turbine. The actuation of the logic in Train A will isolate the MFIVs for SG-1 and SG-4, and the actuation of the logic in Train B will isolate the MFIVs for SG-2 and SG-3.

7 4 **INSERT 24**

The Function is monitored by three channels on each steam generator arranged in a two-out-of-three logic arrangement for each steam generator. A SG Water Level - High High actuation signal will be generated when two of three channels associated with any one SG exceeds the trip setpoint. This LCO requires all three Steam Generator Water Level - High High channels on each SG to be OPERABLE. Each SG is treated separately and each SG is considered a separate Function. Therefore, separate Condition entry is allowed for each SG. This is acceptable since each SG has three level channels (with two out of the three necessary for a high high SG water level signal), and the channels of one SG are independent from the channels of the other SGs.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

The transmitters (d/p cells) are located inside containment. However, the events that this Function protects against cannot cause a severe environment in containment. Therefore, the Trip Setpoint reflects only steady state instrument uncertainties.

c. Turbine Trip and Feedwater Isolation - Safety Injection

Turbine Trip and Feedwater Isolation is also initiated by all Functions that initiate SI. The Feedwater Isolation Function requirements for these Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.

Turbine Trip and Feedwater Isolation Functions must be OPERABLE in MODES 1 and 2 and 3 except when all MFIVs, MFRVs, and associated bypass valves are closed and de-activated or isolated by a closed manual valve when the MFW System is in operation and the turbine generator may be in operation. In MODES 3, 4, 5, and 6, the MFW System and the turbine generator are not in service and this Function is not required to be OPERABLE.

6. Auxiliary Feedwater

The AFW System is designed to provide a secondary side heat sink for the reactor in the event that the MFW System is not available. The system has two motor driven pumps and a turbine driven pump, making it available during normal unit operation, during a loss of AC power, a loss of MFW, and during a Feedwater System pipe break. The normal source of water for the AFW System is the condensate storage tank (CST) (normally not safety related). A low level in the CST will automatically realign the pump suctions to the Essential Service Water (ESW) System (safety related). The AFW System is aligned so that upon a pump start, flow is initiated to the respective SG(s) immediately.

a. Auxiliary Feedwater - Automatic Actuation Logic and Actuation Relays (Solid State Protection System)

Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

INSERT 25

Not Used.

4

INSERT 26

In MODE 3 when all MFIVs or MFRVs are closed and de-activated or isolated by a closed manual valve and

4

INSERT 27

An emergency water source is provided from the Essential Service Water System. Transfer is accomplished by a remotely operated, motor-operated valve and a manual valve.

4

INSERT 28

The Auxiliary Feedwater - Automatic Actuation Logic and Actuation Relays (Solid State Protection System) Function design includes two trains. The actuation of the logic in any train will actuate the turbine driven AFW pump and valves or the associated motor driven AFW pump and valves, as applicable. Each AFW Function, except the Loss of Voltage and Trip of all Main Feedwater Functions, input into this logic arrangement.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

b. Auxiliary Feedwater - Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS)

Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

c. Auxiliary Feedwater - Steam Generator Water Level - Low Low

SG Water Level - Low Low provides protection against a loss of heat sink. A feed line break, inside or outside of containment, or a loss of MFW, would result in a loss of SG water level. SG Water Level - Low Low provides input to the SG Level Control System. Therefore, the actuation logic must be able to withstand both an input failure to the control system which may then require a protection function actuation and a single failure in the other channels providing the protection function actuation. Thus, four OPERABLE channels are required to satisfy the requirements with two-out-of-four logic. For units that have dedicated protection and control channels, only three protection channels are necessary to satisfy the protective requirements. For other units that have only three channels, a median signal selector is provided or justification is provided in Reference 7.

With the transmitters (d/p cells) located inside containment and thus possibly experiencing adverse environmental conditions (feed line break), the Trip Setpoint reflects the inclusion of both steady state and adverse environmental instrument uncertainties.

d. Auxiliary Feedwater - Safety Injection

An SI signal starts the motor driven and turbine driven AFW pumps. The AFW initiation functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating functions and requirements.

e. Auxiliary Feedwater - Loss of Offsite Power

A loss of offsite power to the service buses will be accompanied by a loss of reactor coolant pumping power and the subsequent

(4) **INSERT 29**

The Auxiliary Feedwater - Automatic Actuation Logic and Actuation Relays (Balance of Plant ESFAS) Function design includes two trains. The actuation of the logic in any train will actuate the associated motor driven AFW pump and valves. The Loss of Voltage and Trip of All Main Feedwater Pumps Functions input into this logic arrangement.

(7) (4) **INSERT 30**

The Function is monitored by three channels on each SG arranged in a two-out-of-three logic arrangement for each SG. A SG Water Level - Low Low motor driven AFW actuation signal will be generated when two of three channels associated with any one SG exceeds the trip setpoint. A SG Water Level - Low Low turbine driven AFW actuation signal will be generated when two of three channels associated with any two SGs exceeds the trip setpoint. This LCO requires all three SG Water Level - Low Low channels on each SG to be OPERABLE. Each SG is treated separately and each SG is considered a separate Function. Therefore, separate Condition entry is allowed for each SG. This is acceptable since each SG has three level channels (with two out of the three necessary for a low low SG water level signal), and the channels of one SG are independent from the channels of the other SGs.

(4) **INSERT 30A (Unit 1 only)**

With the transmitter (d/p cells) located inside containment, the trip setpoint only reflects the inclusion of steady state instrument uncertainties.

INSERT 31

Not Used.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

need for some method of decay heat removal. The loss of offsite power is detected by a voltage drop on each service bus. Loss of power to either service bus will start the turbine driven AFW pumps to ensure that at least one SG contains enough water to serve as the heat sink for reactor decay heat and sensible heat removal following the reactor trip.

Functions 6.a through 6.e must be OPERABLE in MODES 1, 2, and 3 to ensure that the SGs remain the heat sink for the reactor. SG Water Level - Low Low in any operating SG will cause the motor driven AFW pumps to start. The system is aligned so that upon a start of the pump, water immediately begins to flow to the SGs. SG Water Level - Low Low in any two operating SGs will cause the turbine driven pumps to start. These Functions do not have to be OPERABLE in MODES 5 and 6 because there is not enough heat being generated in the reactor to require the SGs as a heat sink. In MODE 4, AFW actuation does not need to be OPERABLE because either AFW or residual heat removal (RHR) will already be in operation to remove decay heat or sufficient time is available to manually place either system in operation.

f. Auxiliary Feedwater - Undervoltage Reactor Coolant Pump

A loss of power on the buses that provide power to the RCPs provides indication of a pending loss of RCP forced flow in the RCS. The Undervoltage RCP Function senses the voltage downstream of each RCP breaker. A loss of power, or an open RCP breaker, on two or more RCPs, will start the turbine driven AFW pump to ensure that at least one SG contains enough water to serve as the heat sink for reactor decay heat and sensible heat removal following the reactor trip.

g. Auxiliary Feedwater - Trip of All Main Feedwater Pumps

A trip of all MFW pumps is an indication of a loss of MFW and the subsequent need for some method of decay heat and sensible heat removal to bring the reactor back to no load temperature and pressure. A turbine driven MFW pump is equipped with two pressure switches on the control air/oil line for the speed control system. A low pressure signal from either of these pressure switches indicates a trip of that pump. Motor driven MFW pumps are equipped with a breaker position sensing device. An open supply breaker indicates that the

(7) (4) **INSERT 32**

Three undervoltage relays with time delays are provided for each 4.16 kV emergency bus to detect a loss of bus voltage. The relays are combined in a two-out-of-three logic to generate a loss of voltage signal (i.e., the required number of channels required to trip to generate a loss of voltage signal is two per bus). A Loss of Voltage signal on T11A (Unit 1) and T21A (Unit 2) (Train B) or T11D (Unit 1) and T21D (Unit 2) (Train A) will start the associated motor driven feedwater pump. A Loss of Voltage signal on T11A and T11B (Unit 1) and T21A and T21B (Unit 2) (Train B) or T11C and T11D (Unit 1) and T21C and T21D (Unit 2) (Train A) will actuate the valves associated with the motor driven feedwater pumps on both trains. This LCO requires all three Loss of Voltage channels on each bus to be OPERABLE. Each bus is treated separately and each bus is considered a separate Function. Therefore, separate Condition entry is allowed for each bus. This is acceptable since each bus has three loss of voltage channels (with two out of the three necessary for a loss of voltage signal), and the channels of one bus are independent from the channels of the other buses.

(4) **INSERT 33**

A bus undervoltage signal is generated by one out of two undervoltage relays (channels) per reactor coolant pump bus, however the LCO requires only one per bus to be OPERABLE. While not assumed in the accident analysis,

(4) **INSERT 34 (Unit 1 only)**

Each turbine driven MFW pump is equipped with a low and high pressure steam stop valve. Each stop valve contains a limit switch (i.e., channel), which actuates when the associated stop valve is closed. Both of the stop valve limit switches must actuate to indicate a turbine driven MFW pump has tripped. Since the unit includes two turbine driven MFW pumps, all four channels (two per pump) must trip to start the motor driven auxiliary feedwater pumps (i.e., a four-out-of-four logic configuration). The LCO requires two channels per pump to be OPERABLE. This Function does not meet the single failure criteria, however this is acceptable since the SG Water Level - Low Low Function is credited to start the AFW System in the design basis accidents and transients that result in a loss of MFW.

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4

INSERT 34 (Unit 2 only)

Each turbine driven MFW pump is equipped with a steam stop valve. The stop valve contains a limit switch (i.e., a channel), which actuates when the stop valve is closed. Since the unit includes two turbine driven MFW pumps both channels (one per pump) must trip to start the motor driven auxiliary feedwater pumps (i.e., a two-out-of-two logic configuration). The LCO requires one channel per pump to be OPERABLE. This Function does not meet the single failure criteria, however this is acceptable since the SG Water Level - Low Low Function is credited to start the AFW System in the design basis accidents and transients that result in a Loss of MFW.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

INSERT 34A

INSERT 34B

pump is not running. Two OPERABLE channels per pump satisfy redundancy requirements with one-out-of-two taken twice logic. A trip of all MFW pumps starts the motor driven and turbine driven AFW pumps to ensure that at least one SG is available with water to act as the heat sink for the reactor. (4)

Functions 6.f and 6.g must be OPERABLE in MODES 1 and 2. This ensures that at least one SG is provided with water to serve as the heat sink to remove reactor decay heat and sensible heat in the event of an accident. In MODES 3, 4, and 5, the RCPs and MFW pumps may be normally shut down, and thus neither pump trip is indicative of a condition requiring automatic AFW initiation. (4)

h. Auxiliary Feedwater - Pump Suction Transfer on Suction Pressure - Low

A low pressure signal in the AFW pump suction line protects the AFW pumps against a loss of the normal supply of water for the pumps, the CST. Two pressure switches are located on the AFW pump suction line from the CST. A low pressure signal sensed by any one of the switches will cause the emergency supply of water for both pumps to be aligned, or cause the AFW pumps to stop until the emergency source of water is aligned. ESW (safety grade) is then lined up to supply the AFW pumps to ensure an adequate supply of water for the AFW System to maintain at least one of the SGs as the heat sink for reactor decay heat and sensible heat removal. (7) (4)

Since the detectors are located in an area not affected by HELBs or high radiation, they will not experience any adverse environmental conditions and the Trip Setpoint reflects only steady state instrument uncertainties.

This Function must be OPERABLE in MODES 1, 2, and 3 to ensure a safety grade supply of water for the AFW System to maintain the SGs as the heat sink for the reactor. This Function does not have to be OPERABLE in MODES 5 and 6 because there is not enough heat being generated in the reactor to require the SGs as a heat sink. In MODE 4, AFW automatic suction transfer does not need to be OPERABLE because RHR will already be in operation, or sufficient time is available to place RHR in operation, to remove decay heat.

(4) **INSERT 34A**

However, the signal is not credited in the safety analysis.

(4) **INSERT 34B**

since the reactor coolant pumps and MFW pumps are in operation

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

⑦ INSERT 35

7. Automatic Switchover to Containment Sump

At the end of the injection phase of a LOCA, the RWST will be nearly empty. Continued cooling must be provided by the ECCS to remove decay heat. The source of water for the ECCS pumps is automatically switched to the containment recirculation sump. The low head residual heat removal (RHR) pumps and containment spray pumps draw the water from the containment recirculation sump, the RHR pumps pump the water through the RHR heat exchanger, inject the water back into the RCS, and supply the cooled water to the other ECCS pumps. Switchover from the RWST to the containment sump must occur before the RWST empties to prevent damage to the RHR pumps and a loss of core cooling capability. For similar reasons, switchover must not occur before there is sufficient water in the containment sump to support ESF pump suction. Furthermore, early switchover must not occur to ensure that sufficient borated water is injected from the RWST. This ensures the reactor remains shut down in the recirculation mode.

a. Automatic Switchover to Containment Sump - Automatic Actuation Logic and Actuation Relays

Automatic actuation logic and actuation relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b.

b, c. Automatic Switchover to Containment Sump - Refueling Water Storage Tank (RWST) Level - Low Low Coincident With Safety Injection and Coincident With Containment Sump Level - High

During the injection phase of a LOCA, the RWST is the source of water for all ECCS pumps. A low low level in the RWST coincident with an SI signal provides protection against a loss of water for the ECCS pumps and indicates the end of the injection phase of the LOCA. The RWST is equipped with four level transmitters. These transmitters provide no control functions. Therefore, a two-out-of-four logic is adequate to initiate the protection function actuation. Although only three channels would be sufficient, a fourth channel has been added for increased reliability.

The RWST - Low Low Allowable Value/Trip Setpoint has both upper and lower limits. The lower limit is selected to ensure

(7) INSERT 35

7. Containment Air Recirculation/Hydrogen Skimmer (CEQ) System

The CEQ System functions to assist in cooling the containment atmosphere and limiting pressure and temperature in containment to less than design values. Limiting pressure and temperature reduces the release of fission product radioactivity from the containment to the environment in the event of a DBA.

CEQ Actuation is accomplished by Manual Initiation, Automatic Actuation Logic and Actuation Relays, and by Containment Pressure - High channels (the same channels that actuate ESFAS Function 1.c).

a. CEQ - Manual Initiation

The CEQ Manual Initiation Function is designed with one manual switch in each train. One switch (channel) in a train must be placed in the actuate position for the associated components in the train to receive an CEQ initiation signal. The LCO requires one channel per train to be OPERABLE. The operator can initiate CEQ at any time by using either of two switches in the control room. This action will cause actuation of components in the same manner as any of the automatic actuation signals.

The LCO for the Manual Initiation Function ensures the proper amount of redundancy is maintained to ensure the operator has manual CEQ System initiation capability.

b. CEQ - Automatic Actuation Logic and Actuation Relays

The CEQ Automatic Actuation Logic and Actuation Relays Function includes two trains. The actuation of the logic in any train will actuate the associated components in the same train. This LCO requires two trains to be OPERABLE. Actuation logic consists of all circuitry housed within the actuation subsystems, including the initiating relay contacts responsible for actuating the CEQ System.

c. CEQ - Containment Pressure - High

This signal provides protection against the following accidents:

- SLB inside containment; and
- LOCA.

The CEQ Containment Pressure - High Function design includes three channels. This LCO requires three channels to be OPERABLE. Three OPERABLE channels are sufficient to satisfy protective requirements with a two-out-of-three logic.

(7)

INSERT 35 (continued)

The transmitters (d/p cells) and electronics are located outside of containment with the sensing line (high pressure side of the transmitter) located inside containment. Thus, the high pressure Function will not experience any adverse environmental conditions and the trip setpoint reflects only steady state instrument uncertainties.

These Functions must be OPERABLE in MODES 1, 2, and 3. In these MODES, a DBA could cause an increase in containment pressure and temperature requiring the operation of the CEQ System. In MODE 4, only the Manual Initiation Function is required. These Functions are not required to be OPERABLE in MODES 5 and 6 because the probability and consequences of these events are reduced due to the pressure and temperature limitations of these MODES. Therefore, the CEQ System instrumentation is not required to be OPERABLE in these MODES.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

7

switchover occurs before the RWST empties, to prevent ECCS pump damage. The upper limit is selected to ensure enough borated water is injected to ensure the reactor remains shut down. The high limit also ensures adequate water inventory in the containment sump to provide ECCS pump suction.

The transmitters are located in an area not affected by HELBs or post accident high radiation. Thus, they will not experience any adverse environmental conditions and the Trip Setpoint reflects only steady state instrument uncertainties.

Automatic switchover occurs only if the RWST low low level signal is coincident with SI. This prevents accidental switchover during normal operation. Accidental switchover could damage ECCS pumps if they are attempting to take suction from an empty sump. The automatic switchover Function requirements for the SI Functions are the same as the requirements for their SI function. Therefore, the requirements are not repeated in Table 3.3.2-1. Instead, Function 1, SI, is referenced for all initiating Functions and requirements.

- REVIEWER'S NOTE -

In some units, additional protection from spurious switchover is provided by requiring a Containment Sump Level - High signal as well as RWST Level - Low Low and SI. This ensures sufficient water is available in containment to support the recirculation phase of the accident. A Containment Sump Level - High signal must be present, in addition to the SI signal and the RWST Level - Low Low signal, to transfer the suctions of the RHR pumps to the containment sump. The containment sump is equipped with four level transmitters. These transmitters provide no control functions. Therefore, a two-out-of-four logic is adequate to initiate the protection function actuation. Although only three channels would be sufficient, a fourth channel has been added for increased reliability. The containment sump level Trip Setpoint/Allowable Value is selected to ensure enough borated water is injected to ensure the reactor remains shut down. The high limit also ensures adequate water inventory in the containment sump to provide ECCS pump suction. The transmitters are located inside containment and thus possibly experience adverse environmental conditions. Therefore, the trip setpoint reflects the inclusion of both steady state and environmental instrument uncertainties.

Units only have one of the Functions, 7.b or 7.c.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

These Functions must be OPERABLE in MODES 1, 2, 3, and 4 when there is a potential for a LOCA to occur, to ensure a continued supply of water for the ECCS pumps. These Functions are not required to be OPERABLE in MODES 5 and 6 because there is adequate time for the operator to evaluate unit conditions and respond by manually starting systems, pumps, and other equipment to mitigate the consequences of an abnormal condition or accident. System pressure and temperature are very low and many ESF components are administratively locked out or otherwise prevented from actuating to prevent inadvertent overpressurization of unit systems. (7)

8. Engineered Safety Feature Actuation System Interlocks

To allow some flexibility in unit operations, several interlocks are included as part of the ESFAS. These interlocks permit the operator to block some signals, automatically enable other signals, prevent some actions from occurring, and cause other actions to occur. The interlock Functions back up manual actions to ensure bypassable functions are in operation under the conditions assumed in the safety analyses.

a. Engineered Safety Feature Actuation System Interlocks - Reactor Trip, P-4

INSERT 36 (4) — The P-4 interlock is enabled [are] when a reactor trip breaker (RTB) and its associated bypass breaker is open. (4) (8) Once the P-4 interlock is enabled, automatic SI initiation is [allowed to be manually] blocked after a [an approximate] (3) [1 second] [1 minute] time delay [after the SI signal is received] (4). This Function allows operators to take manual control of SI systems after the initial phase of injection is complete. Once SI is blocked, automatic actuation of SI cannot occur until the RTBs have been manually closed. The [Additional] (4) functions of the P-4 interlock are: (1)

- Trip the main turbine, (3)
- Isolate MFW with coincident low T_{avg}, [and]
- ~~Prevent reactuation of SI after a manual reset of SI,~~ (4)
- [• Actuate MFW pump trip.] ~~Transfer the steam dump from the load rejection controller to the unit trip controller, and~~ (4)

(4) **INSERT 36**

There are two Reactor Trip, P-4 interlock trains.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

- Prevent opening of the MFW isolation valves if they were closed on SI or SG Water Level - High High. (4)

INSERT 36A

Each of the above Functions is interlocked with P-4 to avert or reduce the continued cooldown of the RCS following a reactor trip. An excessive cooldown of the RCS following a reactor trip could cause an insertion of positive reactivity with a subsequent increase in generated power. To avoid such a situation, the noted Functions have been interlocked with P-4 as part of the design of the unit control and protection system. (4)

None of the noted Functions serves a mitigation function in the unit licensing basis safety analyses. Only the turbine trip Function is explicitly assumed since it is an immediate consequence of the reactor trip Function. Neither turbine trip, nor any of the other four Functions associated with the reactor trip signal, is required to show that the unit licensing basis safety analysis acceptance criteria are not exceeded.

The RTB position switches that provide input to the P-4 interlock only function to energize or de-energize or open or close contacts. Therefore, this Function has no adjustable trip setpoint with which to associate a Trip Setpoint and Allowable Value. (2)

This Function must be OPERABLE in MODES 1, 2, and 3 when the reactor may be critical or approaching criticality. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because the main turbine, the MFW System, and the Steam Dump System are not in operation. (4)

INSERT 36B

b. Engineered Safety Feature Actuation System Interlocks - Pressurizer Pressure, P-11

The P-11 interlock permits a normal unit cooldown and depressurization without actuation of SI or main steam line isolation. With two-out-of-three pressurizer pressure channels (discussed previously) less than the P-11 setpoint, the operator can manually block the Pressurizer Pressure - Low and Steam Line Pressure - Low SI signals and the Steam Line Pressure - Low steam line isolation signal (previously discussed). When the Steam Line Pressure - Low steam line isolation signal is manually blocked, a main steam isolation signal on Steam Line (4)

(4) **INSERT 36A**

However, none of these additional Functions are assumed in the safety analysis, thus they are not required for OPERABILITY of the P-4 interlock.

(4) **INSERT 36B**

automatic SI initiation is not required.

INSERT 37

Not Used.

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BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

Pressure - Negative Rate - High is enabled. This provides protection for an SLB by closure of the MSIVs. With two-out-of-three pressurizer pressure channels above the P-11 setpoint, the Pressurizer Pressure - Low and Steam Line Pressure - Low SI signals and the Steam Line Pressure - Low steam line isolation signal are automatically enabled. The operator can also enable these trips by use of the respective manual reset buttons. When the Steam Line Pressure - Low steam line isolation signal is enabled, the main steam isolation on Steam Line Pressure - Negative Rate - High is disabled. The Trip Setpoint reflects only steady state instrument uncertainties.

This Function must be OPERABLE in MODES 1, 2, and 3 to allow an orderly cooldown and depressurization of the unit without the actuation of SI or main steam isolation. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because system pressure must already be below the P-11 setpoint for the requirements of the heatup and cooldown curves to be met.

c. Engineered Safety Feature Actuation System Interlocks - T_{avg} - Low Low, P-12

On increasing reactor coolant temperature, the P-12 interlock reinstates SI on High Steam Flow Coincident With Steam Line Pressure - Low or Coincident With T_{avg} - Low Low and provides an arming signal to the Steam Dump System. On decreasing reactor coolant temperature, the P-12 interlock allows the operator to manually block SI on High Steam Flow Coincident With Steam Line Pressure - Low or Coincident with T_{avg} - Low Low. On a decreasing temperature, the P-12 interlock also removes the arming signal to the Steam Dump System to prevent an excessive cooldown of the RCS due to a malfunctioning Steam Dump System.

Since T_{avg} is used as an indication of bulk RCS temperature, this Function meets redundancy requirements with one OPERABLE channel in each loop. In three loop units, these channels are used in two-out-of-three logic. In four loop units, they are used in two-out-of-four logic.

(4) **INSERT 37A**

automatically reinstate SI during normal unit startup and to

(4) **INSERT 37B**

the Pressurizer Pressure - Low Function is not required in MODE 4, 5, or 6.

INSERT 38

Not Used.

(4) **INSERT 38A**

and with three of four T_{avg} - Low Low channels above the reset point

(4) **INSERT 39**

prevents or defeats the manual block of

(4) **INSERT 40**

In addition, the interlock will prevent or defeat a steam line isolation from occurring if steam line flow reaches the trip setpoint associated with Steam Line Flow - High.

(4) **INSERT 41**

and with two of four T_{avg} - Low Low channels below the Allowable Value

(4) **INSERT 42**

and will cause a Main Steam Line Isolation on Steam Line Flow - High.

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY (continued)

(above P-12) 7

This Function must be OPERABLE in MODES 1, 2, and 3 when a secondary side break or stuck open valve could result in the rapid depressurization of the steam lines. This Function does not have to be OPERABLE in MODE 4, 5, or 6 because there is insufficient energy in the secondary side of the unit to have an accident. 7

MODE 3 below P-12, and

The ESFAS instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

ACTIONS

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.2-1.

In the event a channel's Trip Setpoint is found nonconservative with respect to the Allowable Value, or the transmitter, instrument Loop, signal processing electronics, or bistable is found inoperable, then all affected Functions provided by that channel must be declared inoperable and the LCO Condition(s) entered for the protection Function(s) affected. When the Required Channels in Table 3.3.2-1 are specified (e.g., on a per steam line, per loop, per SG, etc., basis), then the Condition may be entered separately for each steam line, loop, SG, etc., as appropriate. 2 8 7

When the number of inoperable channels in a trip function exceed those specified in one or other related Conditions associated with a trip function, then the unit is outside the safety analysis. Therefore, LCO 3.0.3 should be immediately entered if applicable in the current MODE of operation.

- REVIEWER'S NOTE -
Certain LCO Completion Times are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Completion Times as required by the staff Safety Evaluation Report (SER) for the topical report. 5

A.1

Condition A applies to all ESFAS protection functions.

Condition A addresses the situation where one or more channels or trains for one or more Functions are inoperable at the same time. The Required Action is to refer to Table 3.3.2-1 and to take the Required

INSERT 42A

Not Used.

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BASES

ACTIONS (continued)

Actions for the protection functions affected. The Completion Times are those from the referenced Conditions and Required Actions.

INSERT 43 (7)

B.1, B.2.1 and B.2.2

The affected Condition B applies to manual initiation of: Functions include (2) (7)

- SI, (3)
- Containment Spray,
- Phase A Isolation, and (3)
- Phase B Isolation. (3)
- Steam Line Isolation; and
- CEQ systems

(1)

This action addresses the train orientation of the SSPS for the functions listed above. If a channel or train is inoperable, 48 hours is allowed to return it to an OPERABLE status. Note that for containment spray and Phase B isolation, failure of one or both channels in one train renders the train inoperable. Condition B, therefore, encompasses both situations. The specified Completion Time is reasonable considering that there are two automatic actuation trains and another manual initiation train OPERABLE for each Function, and the low probability of an event occurring during this interval. If the train cannot be restored to OPERABLE status, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (54 hours total time) and in MODE 5 within an additional 30 hours (84 hours total time). The allowable Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

required (7) (4) (7) (4)

(7) INSERT 43A

INSERT 43B (7)

C.1, C.2.1 and C.2.2

Condition C applies to the automatic actuation logic and actuation relays for the following functions:

- SI, (3)
- Containment Spray, and
- Phase A Isolation.

(1)

(7) **INSERT 43**

Condition B applies to Manual Initiation, Trip of all Main Feedwater Pumps, and the Reactor Trip P-4 interlock Functions.

(7) **INSERT 43A**

For the Manual Initiation and the Reactor Trip P-4 interlock Functions,

(7) **INSERT 43B**

For the Trip of all Main Feedwater Pump Function, this action recognizes the lack of manual trip provisions for a failed channel. The specified Completion Times are reasonable, considering the nature of these Functions (i.e., Main Feedwater Pump Function is not credited in the safety analysis), the available redundancy, and the low probability of an event occurring during this interval.

BASES

ACTIONS (continued)

- Phase B Isolation, and
- Automatic Switchover to Containment Sump.

This action addresses the train orientation of the SSPS and the master and slave relays. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status. The specified Completion Time is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be restored to OPERABLE status, the unit must be placed in a MODE in which the LCO does not apply. This is done by placing the unit in at least MODE 3 within an additional 6 hours (12 hours total time) and in MODE 5 within an additional 30 hours (42 hours total time). The Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

The Required Actions are modified by a Note that allows one train to be bypassed for up to 4 hours for surveillance testing, provided the other train is OPERABLE. This allowance is based on the reliability analysis assumption of WCAP-10271-P-A (Ref. 8) that 4 hours is the average time required to perform channel surveillance.

D.1, D.2.1, and D.2.2

Condition D applies to:

- Containment Pressure - High 1,
- Pressurizer Pressure - Low (two, three, and four loop units),
- Steam Line Pressure - Low,
- Steam Line Differential Pressure - High,
- High Steam Flow in Two Steam Lines Coincident With T_{avg} - Low Low or Coincident With Steam Line Pressure - Low,
- Containment Pressure - High 2,
- Steam Line Pressure - Negative Rate - High,

7

INSERT 44

- Steam Line Isolation;
- Turbine Trip and Feedwater Isolation;
- Auxiliary Feedwater; and
- CEQ System.

TST-418

INSERT 45

6

The [24] hours allowed for restoring the inoperable train to OPERABLE status is justified in Reference [8].

6 9

6

BASES

ACTIONS (continued)

- High Steam Flow Coincident With Safety Injection Coincident With T_{avg} - Low Low,
- High High Steam Flow Coincident With Safety Injection,
- High Steam Flow in Two Steam Lines Coincident With T_{avg} - Low Low, (1) (3)
- SG Water Level - Low Low (two, three, and four loop units), and (6) (1) (7)
- SG Water Level - High High (P-14) (two, three, and four loop units). (1) (6), (3)
- Undervoltage Reactor Coolant Pump, and
- Tavg - Low Low, P-12 (7)

TSTF - 418 Changes not Shown

If one channel is inoperable, 6 hours are allowed to restore the channel to OPERABLE status or to place it in the tripped condition. Generally this Condition applies to functions that operate on two-out-of-three logic. Therefore, failure of one channel places the Function in a two-out-of-two configuration. One channel must be tripped to place the Function in a one-out-of-three (two) configuration that satisfies redundancy requirements.

Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours. (7)

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, these Functions are no longer required OPERABLE. (7)

The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to 4 hours for surveillance testing of other channels. The 6 hours allowed to restore the channel to OPERABLE status or to place the inoperable channel in the tripped condition, and the 4 hours allowed for testing, are justified in Reference 8 (References 8 and 9). (3) (7) (4)

E.1, E.2.1, and E.2.2

Condition E applies to:

- Containment Spray Containment Pressure - High 3 (High, High) (High) (two, three and four loop units), and (3) (7) (6) (1)

BASES

ACTIONS (continued)

- Containment Phase B Isolation Containment Pressure - High 3 (High, High) High ; and 7 1 7

• Steam Line Isolation Containment Pressure - High High,

None of these signals has input to a control function. Thus, two-out-of-three logic is necessary to meet acceptable protective requirements. However, a two-out-of-three design would require tripping a failed channel. This is undesirable because a single failure would then cause spurious containment spray initiation. Spurious spray actuation is undesirable because of the cleanup problems presented. Therefore, these channels are designed with two-out-of-four logic so that a failed channel may be bypassed rather than tripped. Note that one channel may be bypassed and still satisfy the single failure criterion. Furthermore, with one channel bypassed, a single instrumentation channel failure will not spuriously initiate containment spray.

TSTF-418

To avoid the inadvertent actuation of containment spray and Phase B containment isolation, the inoperable channel should not be placed in the tripped condition. Instead it is bypassed. Restoring the channel to OPERABLE status, or placing the inoperable channel in the bypass condition within 6 hours, is sufficient to assure that the Function remains OPERABLE and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The Completion Time is further justified based on the low probability of an event occurring during this interval. Failure to restore the inoperable channel to OPERABLE status, or place it in the bypassed condition within 6 hours, requires the unit be placed in MODE 3 within the following 6 hours and MODE 4 within the next 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 4, these Functions are no longer required OPERABLE. TSTF 418 (72) 6 6 {TSTF-418 not shown} 7

The Required Actions are modified by a Note that allows one additional channel to be bypassed for up to 4 hours for surveillance testing. Placing a second channel in the bypass condition for up to 4 hours for testing purposes is acceptable based on the results of Reference 8. 4 (12) TSTF-418 4 6 7 3 3 7 7

F.1, F.2.1, and F.2.2

Condition F applies to:

- Manual Initiation of Steam Line Isolation,

INSERT 45A

7

(7) INSERT 45A

F.1

Condition F applies to the Auxiliary Feedwater Loss of Voltage Function.

If one channel (on the associated bus) is inoperable, Required Action F.1 requires that channel to be placed in trip within 1 hour. With a channel in trip, the Auxiliary Feedwater Loss of Voltage instrumentation channels are configured to provide a one-out-of-two logic to start the associated motor driven feedwater pump.

The specified Completion Time was chosen to be consistent with the Completion Time for an inoperable Loss of Voltage channel in ITS 3.3.5.

BASES

ACTIONS (continued)

- Loss of Offsite Power,
- Auxiliary Feedwater Pump Suction Transfer on Suction Pressure - Low, and
- P-4 Interlock.

For the Manual Initiation and the P-4 Interlock Functions, this action addresses the train orientation of the SSPS. For the Loss of Offsite Power Function, this action recognizes the lack of manual trip provision for a failed channel. For the AFW System pump suction transfer channels, this action recognizes that placing a failed channel in trip during operation is not necessarily a conservative action. Spurious trip of this function could align the AFW System to a source that is not immediately capable of supporting pump suction. If a train or channel is inoperable, 48 hours is allowed to return it to OPERABLE status. The specified Completion Time is reasonable considering the nature of these Functions, the available redundancy, and the low probability of an event occurring during this interval. If the Function cannot be returned to OPERABLE status, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power in an orderly manner and without challenging unit systems. In MODE 4, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

7

G.1, G.2.1 and G.2.2

Condition G applies to the automatic actuation logic and actuation relays for the Steam Line Isolation [,Turbine Trip and Feedwater Isolation,] and AFW actuation Functions.

The action addresses the train orientation of the SSPS and the master and slave relays for these functions. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. If the train cannot be returned to OPERABLE status, the unit must be brought to MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly

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TSTF-418 not shown

BASES

ACTIONS (continued)

manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows one train to be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 8) assumption that 4 hours is the average time required to perform channel surveillance.

⑦

[H.1 and H.2

Condition H applies to the automatic actuation logic and actuation relays for the Turbine Trip and Feedwater Isolation Function.

This action addresses the train orientation of the SSPS and the master and slave relays for this Function. If one train is inoperable, 6 hours are allowed to restore the train to OPERABLE status or the unit must be placed in MODE 3 within the following 6 hours. The Completion Time for restoring a train to OPERABLE status is reasonable considering that there is another train OPERABLE, and the low probability of an event occurring during this interval. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. These Functions are no longer required in MODE 3. Placing the unit in MODE 3 removes all requirements for OPERABILITY of the protection channels and actuation functions. In this MODE, the unit does not have analyzed transients or conditions that require the explicit use of the protection functions noted above.

⑦

TSTF-418 not shown

The Required Actions are modified by a Note that allows one train to be bypassed for up to [4] hours for surveillance testing provided the other train is OPERABLE. This allowance is based on the reliability analysis (Ref. 8) assumption that 4 hours is the average time required to perform channel surveillance.]

I.1 and I.2

Condition I applies to:

BASES

ACTIONS (continued)

- [• SG Water Level - High High (P-14) (two, three, and four loop units), and]
- Undervoltage Reactor Coolant Pump.

If one channel is inoperable, 6 hours are allowed to restore one channel to OPERABLE status or to place it in the tripped condition. If placed in the tripped condition, the Function is then in a partial trip condition where one-out-of-two or one-out-of-three logic will result in actuation. The 6 hour Completion Time is justified in Reference 8. Failure to restore the inoperable channel to OPERABLE status or place it in the tripped condition within 6 hours requires the unit to be placed in MODE 3 within the following 6 hours. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, these Functions are no longer required OPERABLE. (7)

The Required Actions are modified by a Note that allows the inoperable channel to be bypassed for up to [4] hours for surveillance testing of other channels. The 6 hours allowed to place the inoperable channel in the tripped condition, and the 4 hours allowed for a second channel to be in the bypassed condition for testing, are justified in Reference 8.

J.1 and J.2

Condition J applies to the AFW pump start on trip of all MFW pumps.

This action addresses the train orientation of the SSPS for the auto start function of the AFW System on loss of all MFW pumps. The OPERABILITY of the AFW System must be assured by allowing automatic start of the AFW System pumps. If a channel is inoperable, 48 hours are allowed to return it to an OPERABLE status. If the function cannot be returned to an OPERABLE status, 6 hours are allowed to place the unit in MODE 3. The allowed Completion Time of 6 hours is reasonable, based on operating experience, to reach MODE 3 from full power conditions in an orderly manner and without challenging unit systems. In MODE 3, the unit does not have any analyzed transients or conditions that require the explicit use of the protection function noted above. The allowance of 48 hours to return the train to an OPERABLE status is justified in Reference 8. ⟨TSTF-418 not shown⟩

BASES

ACTIONS (continued)

K.1, K.2.1 and K.2.2

Condition K applies to:

- RWST Level - Low Low Coincident with Safety Injection, and
- RWST Level - Low Low Coincident with Safety Injection and Coincident with Containment Sump Level - High.

RWST Level - Low Low Coincident With SI and Coincident With Containment Sump Level - High provides actuation of switchover to the containment sump. Note that this Function requires the bistables to energize to perform their required action. The failure of up to two channels will not prevent the operation of this Function. However, placing a failed channel in the tripped condition could result in a premature switchover to the sump, prior to the injection of the minimum volume from the RWST. Placing the inoperable channel in bypass results in a two-out-of-three logic configuration, which satisfies the requirement to allow another failure without disabling actuation of the switchover when required. Restoring the channel to OPERABLE status or placing the inoperable channel in the bypass condition within 6 hours is sufficient to ensure that the Function remains OPERABLE, and minimizes the time that the Function may be in a partial trip condition (assuming the inoperable channel has failed high). The 6 hour Completion Time is justified in Reference 8. If the channel cannot be returned to OPERABLE status or placed in the bypass condition within 6 hours, the unit must be brought to MODE 3 within the following 6 hours and MODE 5 within the next 30 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. In MODE 5, the unit does not have any analyzed transients or conditions that require the explicit use of the protection functions noted above.

The Required Actions are modified by a Note that allows placing a second channel in the bypass condition for up to [4] hours for surveillance testing. The total of 12 hours to reach MODE 3 and 4 hours for a second channel to be bypassed is acceptable based on the results of Reference 8.

(7)

<TSTF-418 not shown>

BASES

ACTIONS (continued)

6 I.1, L.2.1 and L.2.2

Condition I applies to the P-11 and P-12 and P-14 interlocks. 3 7

With one or more channels inoperable, the operator must verify that the interlock is in the required state for the existing unit condition. This action manually accomplishes the function of the interlock. Determination must be made within 1 hour. The 1 hour Completion Time is equal to the time allowed by LCO 3.0.3 to initiate shutdown actions in the event of a complete loss of ESFAS function. If the interlock is not in the required state (or placed in the required state) for the existing unit condition, the unit must be placed in MODE 3 within the next 6 hours and MODE 4 within the following 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. Placing the unit in MODE 4 removes all requirements for OPERABILITY of these interlocks. 7

INSERT 46

SURVEILLANCE REQUIREMENTS

The SRs for each ESFAS Function are identified by the SRs column of Table 3.3.2-1. TSTF-418 hit should

A Note has been added to the SR Table to clarify that Table 3.3.2-1 determines which SRs apply to which ESFAS Functions.

Note that each channel of process protection supplies both trains of the ESFAS. When testing channel I, train A and train B must be examined. Similarly, train A and train B must be examined when testing channel II, channel III, and channel IV (if applicable). The CHANNEL CALIBRATION and COTs are performed in a manner that is consistent with the assumptions used in analytically calculating the required channel accuracies.

- REVIEWER'S NOTE -
Certain Frequencies are based on approved topical reports. In order for a licensee to use these times, the licensee must justify the Frequencies as required by the staff SER for the topical report. 5

SR 3.3.2.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a

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INSERT 46

H.1

If any Required Action and associated Completion Time cannot be met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to MODE 3 within 6 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

I.1 and I.2

If any Required Action and associated Completion Time cannot be met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

J.1 and J.2

If any Required Action and associated Completion Time cannot be met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

K.1

If any Required Action and associated Completion Time of Condition B cannot be met, the associated SGSV must be declared inoperable. This will require entry into the associated Conditions and Required Actions of LCO 3.7.2, "Steam Generator Stop Valves."

BASES

SURVEILLANCE REQUIREMENTS (continued)

similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and reliability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

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

SR 3.3.2.2

SR 3.3.2.2 is the performance of an ACTUATION LOGIC TEST. The SSPS is tested every 31 days on a STAGGERED TEST BASIS, using the semiautomatic tester. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and that there is an intact voltage signal path to the master relay coils. The Frequency of every 31 days on a STAGGERED TEST BASIS is adequate. It is based on industry operating experience, considering instrument reliability and operating history data.

SR 3.3.2.3

SR 3.3.2.3 is the performance of an ACTUATION LOGIC TEST as described in SR 3.3.2.2, except that the semiautomatic tester is not used and the continuity check does not have to be performed, as explained in the Note. This SR is applied to the balance of plant actuation logic and relays that do not have the SSPS test circuits installed to utilize the semiautomatic tester or perform the continuity check. This test is also

INSERT 47

Not Used.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

performed every 31 days on a STAGGERED TEST BASIS. The Frequency is adequate based on industry operating experience, considering instrument reliability and operating history data. (7)

SR 3.3.2.4

SR 3.3.2.4 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every (31) 92 days on a STAGGERED TEST BASIS. The time allowed for the testing (4 hours) and the surveillance interval are justified in Reference 8. INSERT 48 (6) (TSTF-418 not shown)

SR 3.3.2.5 6 (7) TSTF-411

SR 3.3.2.5 6 is the performance of a COT. (2)

A COT is performed on each required channel to ensure the entire channel will perform the intended Function. Setpoints must be found within the Allowable Values specified in Table 3.3.1-1. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST COT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. (2)

The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology. The setpoint shall be left set consistent with the assumptions of the current unit specific setpoint methodology.

The "as found" and "as left" values must also be recorded and reviewed for consistency with the assumptions of the surveillance interval extension analysis (Ref. 8) when applicable. Reference 6 (TSTF-418 not shown)

The Frequency of 92 184 days is justified in Reference 8 (10) 9. INSERT 49 TSTF 411 (7)

TSTF-411

INSERT 48

The Frequency of 92 days on a STAGGERED TEST BASIS is justified in Reference 9. 4

7

INSERT 49

SR 3.3.2.6 is modified by a Note which applies to the SI Containment Pressure - High Containment Spray Containment Pressure - High High, Phase B Isolation Containment Pressure - High High, Steam Line Isolation Containment Pressure - High High, and CEQ System Containment Pressure - High Functions. This Note requires, during the performance of SR 3.3.2.6, the associated transmitters of these Functions to be exercised by applying either a vacuum or pressure to the appropriate side of the transmitter. Exercising the associated transmitters during the performance of the COT is necessary to ensure Functions 1.c, 2.c, 3.b.(3), 4.c, and 7.c remain OPERABLE between each CHANNEL CALIBRATION.

BASES

SURVEILLANCE REQUIREMENTS (continued) INSERT 50 (7)

SR 3.3.2.6 (8)

SR 3.3.2.6 is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function, or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay. This test is performed every 92 days. The Frequency is adequate, based on industry operating experience, considering instrument reliability and operating history data. (3) 24 months

Move to page B 3.3.2-47 as indicated (1)

SR 3.3.2.2 and SR 3.3.2.7 (5) (7)

SR 3.3.2.7 is the performance of a TADOT every 92 days. This test is a check of the Loss of Offsite Power, Undervoltage RCP, and AFW Pump Suction Transfer on Suction Pressure - Low Functions. Each Function is tested up to, and including, the master transfer relay coils. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. (3) (7) (2)

(1) SR 3.3.2.2 is the performance of a TADOT every 31 days. This test is a check of the Loss of Voltage Function.

The test also includes trip devices that provide actuation signals directly to the SSPS. The SR is modified by a Note that excludes verification of setpoints for relays. Relay setpoints require elaborate bench calibration and are verified during CHANNEL CALIBRATION. The Frequency is adequate. It is based on industry operating experience, considering instrument reliability and operating history data. (2) (7) Each of SR 3.3.2.2 (8)

(4) The Frequency of SR 3.3.2.5 is justified in Reference 9.

SR 3.3.2.8 (9) (6) (7)

SR 3.3.2.8 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and AFW pump start on trip of all MFW pumps. It is performed every 18 months. Each Manual Actuation Function is tested up to, and including, the master relay coils. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of (7) (3) (2)

Initiation, the, 24, and the P-4 interlock

7 **INSERT 50**

SR 3.3.2.7

SR 3.3.2.7 is the performance of a CHANNEL CALIBRATION. A CHANNEL CALIBRATION is performed every 184 days. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

The Frequency of 184 days is based on the assumption of an 184 day calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology.

INSERT 50A

Not Used

BASES

SURVEILLANCE REQUIREMENTS (continued)

the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.). The Frequency is adequate, based on industry operating experience and is consistent with the typical refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT for manual initiation Functions. The manual initiation Functions have no associated setpoints. (4) (7)

(7)

SR 3.3.2.9 (10)

SR 3.3.2.9 is the performance of a CHANNEL CALIBRATION. (2)

A CHANNEL CALIBRATION is performed every 18 (24) months or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter within the necessary range and accuracy. (3) (6)

CHANNEL CALIBRATIONS must be performed consistent with the assumptions of the unit specific setpoint methodology. The difference between the current "as found" values and the previous test "as left" values must be consistent with the drift allowance used in the setpoint methodology.

(24) The Frequency of 18 months is based on the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint methodology. (3)

This SR is modified by a Note stating that this test should include verification that the time constants are adjusted to the prescribed values where applicable. (7) INSERT 51

(12) SR 3.3.2.10 (7)

This SR ensures the individual channel ESF RESPONSE TIMES are less than or equal to the maximum values assumed in the accident analysis. Response Time testing acceptance criteria are included in the Technical Requirements Manual, Section 15 (Ref. 8). Individual component response times are not modeled in the analyses. The analyses model the overall or total elapsed time, from the point at which the parameter (4)

Table 7.2-7 UFSAR (10) (11) TSTF-411 TSTF-418

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SR 3.3.2.11

SR 3.3.2.11 is the performance of an ACTUATION LOGIC TEST. This SR is applied to the balance of plant actuation logic and relays that do not have the SSPS test circuits installed to utilize the semiautomatic tester or perform the continuity check. All possible logic combinations are tested for Table 3.3.2-1 Functions 6.e and 6.g. The Frequency of 24 months is adequate, based on operating experience, considering instrument reliability and operating history data.

BASES

SURVEILLANCE REQUIREMENTS (continued)

exceeds the Trip Setpoint value at the sensor, to the point at which the equipment in both trains reaches the required functional state (e.g., pumps at rated discharge pressure, valves in full open or closed position). (8)

For channels that include dynamic transfer functions (e.g., lag, lead/lag, rate/lag, etc.), the response time test may be performed with the transfer functions set to one with the resulting measured response time compared to the appropriate FSAR response time. Alternately, the response time test can be performed with the time constants set to their nominal value provided the required response time is analytically calculated assuming the time constants are set at their nominal values. The response time may be measured by a series of overlapping tests such that the entire response time is measured. (4)

\- REVIEWER'S NOTE -
Applicable portions of the following Bases are applicable for plants adopting WCAP-13632-P-A, and/or WCAP-14036-P. (5)

Response time may be verified by actual response time tests in any series of sequential, overlapping or total channel measurements, or by the summation of allocated sensor, signal processing and actuation logic response times with actual response time tests on the remainder of the channel. Allocations for sensor response times may be obtained from: (1) historical records based on acceptable response time tests (hydraulic, noise, or power interrupt tests), (2) in place, onsite, or offsite (e.g., vendor) test measurements, or (3) utilizing vendor engineering specifications. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," dated January 1996, (Ref. 12) provides the basis and methodology for using allocated sensor response times in the overall verification of the channel response time for specific sensors identified in the WCAP. Response time verification for other sensor types must be demonstrated by test. (2)

WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," (Ref. 13) provides the basis and methodology for using allocated signal processing and actuation logic response times in the overall verification of the protection system channel response time. The allocations for sensor, signal conditioning, and actuation logic response times must be verified prior to placing the component in operational service and re-verified following maintenance that may adversely affect response time. In general, electrical repair work does not impact (2) (3)

BASES

SURVEILLANCE REQUIREMENTS (continued)

response time provided the parts used for repair are of the same type and value. Specific components identified in the WCAP may replaced without verification testing. One example where response time could be affected is replacing the sensing assembly of a transmitter.

ESF RESPONSE TIME tests are conducted on an [18] month STAGGERED TEST BASIS. Testing of the final actuation devices, which make up the bulk of the response time, is included in the testing of each channel. The final actuation device in one train is tested with each channel. Therefore, staggered testing results in response time verification of these devices every [18] months. The [18] month Frequency is consistent with the typical refueling cycle and is based on unit operating experience, which shows that random failures of instrumentation components causing serious response time degradation, but not channel failure, are infrequent occurrences.

This SR is modified by a Note that clarifies that the turbine driven AFW pump is tested within 24 hours after reaching [1000] psig in the SGs.

SR 3.3.2.11

SR 3.3.2.11 is the performance of a TADOT as described in SR 3.3.2.8, except that it is performed for the P-4 Reactor Trip Interlock, and the Frequency is once per RTB cycle. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This Frequency is based on operating experience demonstrating that undetected failure of the P-4 interlock sometimes occurs when the RTB is cycled.

The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Function tested has no associated setpoint.

REFERENCES

1. FSAR, Chapter [6].
2. FSAR, Chapter [7].
3. FSAR, Chapter [15].
4. IEEE-279-1971.

INSERT 52

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INSERT 52

1. Technical Requirements Manual.
2. IEEE-279, "Proposed Criteria for Nuclear Power Plant Protection Systems," August 1968.
3. UFSAR, Table 7.2-1.
4. UFSAR, Table 14.1-2 (Unit 1) and UFSAR Table 14.1.0-4 (Unit 2).
5. 10 CFR 50.49.
6. WCAP-12741, "Westinghouse Menu Driven Setpoint Calculation Program (STEPIT)," as approved in Unit 1 and Unit 2 License Amendments 175 and 160, dated May 13, 1994.
7. UFSAR, Chapter 14.
8. WCAP-14333-P-A, Revision 1, October 1998. TSTF-418

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BASES

REFERENCES (continued)

5. 10 CFR 50.49.

6. Plant-specific setpoint methodology study.

7. NUREG-1218, April 1988.

INSERT 52A (4)

(9) 8. WCAP-10271-P-A, Supplement 2, Rev. 1, June 1990. (4)

INSERT 53

9. Technical Requirements Manual, Section 15, "Response Times." (4)

10. Regulatory Guide 1.105, Revision 3, "Setpoints for Safety-Related Instrumentation." (4)

(12) 11. WCAP-13632-P-A, Revision 2, "Elimination of Pressure Sensor Response Time Testing Requirements," January 1996. (4) (3)

(13) 12. WCAP-14036-P, Revision 1, "Elimination of Periodic Protection Channel Response Time Tests," December 1995. (4) (3)

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INSERT 52A

"Evaluation of Surveillance Frequencies and Out of Service Times for the Reactor Protection Instrumentation System," including Supplement 1, May 1986, and

4

INSERT 53

10 ~~6.~~ WCAP-15376, "Risk-Informed Assessment of the RTS and ESFAS Surveillance Intervals and Reactor Trip Breaker Test and Completion Times," October 2000. TSTF-411

11. UFSAR, Table 7.2-7.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.3.2 BASES, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

1. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.
2. Editorial change to be consistent with other places in the Bases.
3. The brackets have been removed and the proper plant specific information/value has been provided.
4. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.
5. The Reviewer's Notes are deleted because they are not intended to be included in the plant specific ITS submittal.
6. Changes are made to reflect the Specifications.
7. Changes are made to reflect changes made to the Specification.
8. Grammatical error corrected.
9. This information is describing how to perform Surveillances and is more appropriate to be located in the applicable Surveillance Requirements Bases.
10. This statement has been deleted since it is not relevant to the discussion.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

10 CFR 50.92 EVALUATION FOR LESS RESTRICTIVE CHANGE L.20

CNP is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." The proposed change involves making the Current Technical Specifications (CTS) less restrictive. Below is the description of this less restrictive change and the determination of No Significant Hazards Considerations for conversion to NUREG-1431.

CTS Table 3.3-3, Functional Unit 9.a (Safety Injection, Manual Initiation) requires a total of two channels per train to be OPERABLE. ITS Table 3.3.2-1, Function 1.a requires only one channel per train to be OPERABLE. This changes the CTS by decreasing the number of manual channels required OPERABLE from two per train to one per train.

The purpose of Safety Injection (SI) manual initiation function is to ensure the capability exists to manually initiate the Safety Injection trains. The SI Manual Initiation Function at CNP is provided by four switches, two per train. Each switch will actuate the associated SI train (i.e., the two train A switches are fully redundant to each other and the two train B switches are fully redundant to each other). The only difference between the two switches within a train are their location within the control room. NUREG-1431 only requires two Manual Initiation channels to be OPERABLE, since a typical Westinghouse plant only has two channels installed. This change is acceptable since each channel within a train is fully redundant to the other channel in that train for the SI Manual Initiation Function, and the fact that it is consistent with the NUREG-1431 requirements. In addition, if the single required manual initiation switch does not function, the associated SI train can still be initiated using the individual component control switches that exist in the control room. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

Indiana Michigan Power Company (I&M) has evaluated whether or not a significant hazards consideration is involved with these proposed Technical Specification changes by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

   Response: No.

   The proposed change decreases the number of manual channels required OPERABLE from two per train to one per train. This change will not affect the probability of an accident, since the manual initiation instrumentation is not considered as an initiator of an analyzed accident. The consequences of an analyzed accident are not affected by this change since manual initiation instrumentation is not assumed to mitigate the consequences of an accident previously evaluated. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.2, ENGINEERED SAFETY FEATURE ACTUATION SYSTEM (ESFAS) INSTRUMENTATION

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

   Response: No.

   The proposed change decreases the number of manual channels required OPERABLE from two per train to one per train. This change will not physically alter the plant (no new or different type of equipment will be installed). Both channels per train will remain installed in the plant and will normally be available to manually actuate the associated Safety Injection train. 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 change involve a significant reduction in a margin of safety?**

   Response: No.

   The proposed change decreases the number of manual channels required OPERABLE from two per train to one per train. The margin of safety is not affected by this change because the safety analysis assumptions are not affected. In addition, if the single required manual initiation switch does not function, the associated SI train can still be initiated using the individual component control switches that exist in the control room. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, I&M 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.

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ATTACHMENT 3

ITS 3.3.3, Post Accident Monitoring (PAM) Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

POST-ACCIDENT INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.3 — 3.3.3.8 The post-accident monitoring instrumentation channels shown in Table 3.3-11 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTION: ← Add proposed ACTIONS Note (A.2)

ACTIONS A, C, and D — a. With the number of OPERABLE post-accident monitoring channels less than required by Table 3.3-11 (except item 8), either restore the inoperable channel to OPERABLE status within 30 days or be in HOT SHUTDOWN within the next 12 hours. (M.1) (L.1) (L.2)

ACTIONS B, F, G, and H — Add proposed Required Action G.1 (M.2)

ACTION A — b. With the number of OPERABLE post-accident monitoring channels one less than required by Table 3.3-11, item 8, Refueling Water Storage Tank Water Level:

1. Either restore the inoperable channel to OPERABLE status within ~~72 hours~~ [30 days (L.3)] or be in at least HOT SHUTDOWN within the next 12 hours, and

ACTION B — Add proposed Required Action B.1 (L.1)

2. ~~Within one hour, bypass the Residual Heat Removal Pump trip function from the Refueling Water Storage Tank Water Level for the pump associated with the out-of-service instrument.~~ (L.4)

Add proposed ACTIONS D and G (L.5)

SURVEILLANCE REQUIREMENTS

SR Table Note — 4.3.3.8 Each post-accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-7.

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Table 3.3.3-1

TABLE 3.3-11
POST-ACCIDENT MONITORING INSTRUMENTATION

ITS	INSTRUMENT	MINIMUM CHANNELS OPERABLE	
8	1. Containment Pressure	2	
3	2. Reactor Coolant Outlet Temperature- T_{HOT} (Wide Range)	2	
4	3. Reactor Coolant Inlet Temperature- T_{COLD} (Wide Range)	2	
5	4. Reactor Coolant Pressure-Wide Range	2	
12	5. Pressurizer Water Level	2	
2	6. Steam Line Pressure	2/Steam Generator	A.2
19	7. Steam Generator Water Level- Narrow Range (A.3)	1/Steam Generator	A.2
22	8. Refueling Water Storage Tank Water Level	2	
	9. Boric Acid Tank Solution Level	1	R.1
(A.3) 19	10. Auxiliary Feedwater Flow Rate	1/Steam Generator*	A.2
23	11. Reactor Coolant System Subcooling Margin Monitor	1**	
	12. PORV Position Indicator -- Limit Switches***	1/Valve	R.1
	13. PORV Block Valve Position Indicator -- Limit Switches	1/Valve	R.1
	14. Safety Valve Position Indicator -- Acoustic Monitor	2 Out of 3 Total	R.1
15, 16, 17, 18	15. Incore Thermocouples (Core Exit Thermocouples)	2/Core Quadrant	
6	16. Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication)	One Train (3/Channels/Train)	LA.1; 2 (M.3)
	17. Containment Sump Level	1	R.1
7	18. Containment Water Level	2	

A.1

Footnote (d) * Steam Generator Water Level Channels can be used as a substitute for the corresponding auxiliary feedwater flow rate channel instrument.

Footnote (f) ** PPC subcooling margin readout can be used as a substitute for the subcooling monitor instrument.

*** Acoustic monitoring of PORV position (1 channel per three valves - headered discharge) can be used as a substitute for the PORV Indicator - Limit Switches instruments. (R.1)

Add proposed Functions 1, 9, 13, 14, 20, 21, and 24 (M.4) (A.2)

ITS 3.3.3

ITS

A.1

Table 3.3.3-1

TABLE 4.3-7

POST-ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ITS	INSTRUMENT	SR 3.3.3.1 CHANNEL CHECK	SR 3.3.3.3 CHANNEL CALIBRATION
8	1. Containment Pressure	M	R
3	2. Reactor Coolant Outlet Temperature-T_{HOT} (Wide Range)	M	R
4	3. Reactor Coolant Inlet Temperature-T_{COLD} (Wide Range)	M	R
5	4. Reactor Coolant Pressure-Wide Range	M	R
12	5. Pressurizer Water Level	M	R
2	6. Steam Line Pressure	M	R
19	7. Steam Generator Water Level-Narrow Range	M	R
22	8. RWST Water Level	M	R
	9. Boric Acid Tank Solution Level	M	R
19	10. Auxiliary Feedwater Flow Rate	M	R
23	11. Reactor Coolant System Subcooling Margin Monitor	M	R
	12. PORV Position Indicator - Limit Switches	M	R
	13. PORV Block Valve Position Indicator Limit Switches	M	R
	14. Safety Valve Position Indicator Acoustic Monitor	M	R
15, 16, 17, 18	15. Incore Thermocouples (Core Exit Thermocouples)	M	R(1)
6	16. Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication)	M(2)	R(3)
	17. Containment Sump Level	M	R
7	18. Containment Water Level	M	R

- A.3
- 24 months — L.6
- R.1
- 24 months — L.6
- A.3
- R.1
- 24 months — L.6
- M.5
- LA.2
- R.1
- 24 months — L.6
- Add proposed Functions 1, 9, 13, 14, 20, 21, and 24 — M.4

(1) Partial range channel calibration for sensor to be performed below P-12 in MODE 3. — M.5

(2) With one train of Reactor Vessel Level Indication inoperable, Subcooling Margin Indication and Core Exit Thermocouples may be used to perform a CHANNEL CHECK to verify the remaining Reactor Vessel Indication train OPERABLE. — LA.2

(3) Completion of channel calibration for sensors to be performed below P-12 in MODE 3. — M.5

COOK NUCLEAR PLANT - UNIT 1 3/4 3-56 AMENDMENT NO. 84, 144, 186

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.3 3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits. L.7

APPLICABILITY: As shown in Table 3.3-6.

Add proposed ACTIONS Note A.2

ACTION:

a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable. L.7

ACTIONS A, B, D, F, and H b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.

c. The provisions of Specification 3.0.3 are not applicable. M.6

SURVEILLANCE REQUIREMENTS

SR Table Note 4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-3. L.8

ITS 3.3.3

A.1

ITS

Table 3.3.3-1

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

L.7 (ALARM SETPOINT)

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION
1. Modes 1, 2, 3 & 4 (L.9)				
A. Area Monitors				
i. Upper Containment* (VRS 1101/1201)	1	N/A	≤ 54 mR/hr	21
10 ii. Containment High Range (VRA 1310/1410) (L.14)	2	≤ 10R/hr (L.7)	N/A	22A
B. Process Monitors				
i. Particulate Channel* (ERS 1301/1401)	1	N/A	≤ 2.52 μCi	20
ii. Noble Gas Channel* (ERS 1305/1405)	1	N/A	≤ 4.4×10^{-3} μCi/cc	20
C. Noble Gas Effluent Monitors				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 1505)	------------(see the ODCM)------------			
b. Mid Range (VRS 1507)	1	N/A	N/A	22B
c. High Range (VRS 1509)	1	N/A	N/A	22B
ii. Steam Generator PORV				
a. MRA 1601 (Loop 1)	1	N/A	N/A	22B
b. MRA 1602 (Loop 4)	1	N/A	N/A	22B
c. MRA 1701 (Loop 2)	1	N/A	N/A	22B
d. MRA 1702 (Loop 3)	1	N/A	N/A	22B
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 1805)	------------(see the ODCM)------------			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 1905)	------------(see the ODCM)------------			
b. Mid Range (SRA 1907)	1	N/A	N/A	22B
c. High Range (SRA 1909)	1	N/A	N/A	22B

Area Monitors: See ITS 3.3.6 and CTS 3/4.3.3.1

Process Monitors: See ITS 3.3.6 and ITS 3.4.15

Noble Gas Effluent Monitors: See CTS 3/4.3.3.1

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ITS 3.3.3

(A.1)

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.4.6.1. — See ITS 3.4.15

ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per day. — See CTS 3/4.3.3.1

ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirements, comply with the ACTION requirements of Specification 3.9.9. This ACTION is not required during the performance of containment integrated leak rate test. — See ITS 3.3.6

ACTION 22A- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements: — ACTIONS A and D

1. either restore the inoperable Channel(s) to OPERABLE status within [7] days of the event, or — (L.11)

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status. — ACTIONS B, F, and H — See ITS 5.6

3. ~~Technical Specification Section 3.0.3 is Not Applicable.~~ — (M.6)

ACTION 22B- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements. — See CTS 3/4.3.3.1

1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

3. In the event of an accident involving radiological releases initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours.

4. Technical Specification Section 3.0.3 is Not Applicable.

ITS 3.3.3

A.1

ITS

Table 3.3.3-1

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

OPERATION MODE/INSTRUMENT	SR 3.3.3.1 CHANNEL CHECK	SR 3.3.3.3 CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	APPLICABLE MODES
1. Modes 1, 2, 3 & 4 (L.9)				
A. Area Monitors (See CTS 3/4.3.3.1)				
i. Upper Containment (VRS 1101/1201)	S*	R	Q	1, 2, 3, 4
10 ii. Containment High Range (VRA 1310/1410) (L.8, L.9, L.6, L.12, L.14)	S 31 days	R 24 months	Q	1, 2, 3, 4
B. Process Monitors (See ITS 3.4.15)				
i. Particulate Channel (ERS 1301/1401)	S*	R	Q	1, 2, 3, 4
C. Noble Gas Effluent Monitors (See CTS 3/4.3.3.1)				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 1505)	(see the ODCM)			
b. Mid Range (VRS 1507)	S	R	N/A	1, 2, 3, 4
c. High Range (VRS 1509)	S*	R	N/A	1, 2, 3, 4
ii. Steam Generator PORV				
a. MRA 1601 (Loop 1)	S*	R	Q	1, 2, 3, 4
b. MRA 1602 (Loop 4)	S*	R	Q	1, 2, 3, 4
c. MRA 1701 (Loop 2)	S*	R	Q	1, 2, 3, 4
d. MRA 1702 (Loop 3)	S*	R	Q	1, 2, 3, 4
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 1805)	(see the ODCM)			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 1905)	(see the ODCM)			
b. Mid Range (SRA 1907)	S	R	Q	1, 2, 3, 4
c. High Range (SRA 1909)	S*	R	N/A	1, 2, 3, 4

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ITS 3.3.3

ITS

A.1

CONTAINMENT SYSTEMS

3/4.6.4 COMBUSTIBLE GAS CONTROL

HYDROGEN ANALYZERS

LIMITING CONDITION FOR OPERATION

Table 3.3.3-1 Function 11

3.6.4.1 Two containment hydrogen analyzers shall be OPERABLE.

APPLICABILITY: MODES 1 and 2 , 3 (M.7)

ACTION:

Add proposed ACTIONS Note (A.2)

ACTION A — a. With one hydrogen analysis device inoperable, restore the inoperable analysis device to OPERABLE status within 30 days or be in at least

ACTION B — HOT STANDBY within the next 6 hours. Add proposed Required Action B.1 (L.1)

ACTION E — b. With both hydrogen analysis devices inoperable, restore at least one analysis device to OPERABLE status within 72 hours or be in at

ACTIONS F and G — least HOT STANDBY within the next 6 hours. and in MODE 4 within 12 hours (M.7)

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2

4.6.4.1 Each hydrogen analysis device shall be demonstrated OPERABLE at least once per 92 days on a STAGGERED TEST BASIS (L.13) by performing a CHANNEL CALIBRATION using a four percent and fifteen percent nominal hydrogen gas, balance nitrogen. (LA.3)

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

POST-ACCIDENT INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.3 — 3.3.3.6 The post-accident monitoring instrumentation channels shown in Table 3.3-10 shall be OPERABLE.

APPLICABILITY: MODES 1, 2 and 3.

Add proposed ACTIONS Note (A.2)

ACTION:

ACTIONS A, C, and D — a. With the number of OPERABLE post-accident monitoring channels less than required by Table 3.3-10 (except item 8), either restore the inoperable channel to OPERABLE status within 30 days, or be in HOT SHUTDOWN within the next 12 hours. (M.1) (L.1) (L.2)

ACTIONS B, F, G, and H

Add proposed Required Action G.1 (M.2)

ACTION A — b. With the number of OPERABLE post-accident monitoring channels one less than required by Table 3.3-10, item 8, Refueling Water Storage Tank Water Level:

30 days (L.3)

1. Either restore the inoperable channel to OPERABLE status within 72 hours or be in at least HOT SHUTDOWN within the next 12 hours, and

ACTION B — Add proposed Required Action B.1 (L.1)

2. Within one hour, bypass the Residual Heat Removal Pump trip function from the Refueling Water Storage Tank Water Level for the pump associated with the out-of-service instrument. (L.4)

Add proposed ACTIONS D and G (L.5)

SURVEILLANCE REQUIREMENTS

SR Table Note — 4.3.3.6 Each post-accident monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-10.

Table 3.3.3-1

TABLE 3.3-10
POST-ACCIDENT MONITORING INSTRUMENTATION

ITS	INSTRUMENT	MINIMUM CHANNELS OPERABLE	
8	1. Containment Pressure	2	
3	2. Reactor Coolant Outlet Temperature - T_{HOT} (Wide Range)	2	
4	3. Reactor Coolant Inlet Temperature - T_{COLD} (Wide Range)	2	
5	4. Reactor Coolant Pressure - Wide Range	2	
12	5. Pressurizer Water Level	2	
2	6. Steam Line Pressure	2/Steam Generator	A.2
19	7. Steam Generator Water Level - Narrow Range (A.3)	1/Steam Generator	A.2
22	8. Refueling Water Storage Tank Water Level	2	
	9. Boric Acid Tank Solution Level	1	R.1
19	10. Auxiliary Feedwater Flow Rate (A.3)	1/Steam Generator*	A.2
23	11. Reactor Coolant System subcooling Margin Monitor	1**	
	12. PORV Position Indicator - Limit Switches***	1/Valve	R.1
	13. PORV Block Valve Position Indicator - Limit Switches	1/Valve	R.1
	14. Safety Valve Position Indicator - Acoustic Monitor	2 Out of 3 Total	R.1
15, 16, 17, 18	15. Incore Thermocouples (Core Exit Thermocouples)	2/Core Quadrant	
6	16. Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication)	One Train (3 Channels/Train)	2 M.3, LA.1
	17. Containment Sump Level	1	R.1
7	18. Containment Water Level	2	

A.1

Footnote (d) * Steam Generator Water Level Channels can be used as a substitute for the corresponding auxiliary feedwater flow rate channel instrument.

Footnote (f) ** PPC subcooling margin readout can be used as a substitute for the subcooling monitor instrument.

*** Acoustic monitoring of PORV position (1 channel per three valves - headered discharge) can be used as a substitute for the PORV Indicator - Limit Switches instruments. R.1

Add proposed Functions 1, 9, 13, 14, 20, 21, and 24 M.4

A.2

ITS 3.3.3

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.3-1

TABLE 4.3-10

POST-ACCIDENT MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

ITS		Instrument	SR 3.3.3.1 CHANNEL CHECK	SR 3.3.3.3 CHANNEL CALIBRATION	Notes
8	1.	Containment Pressure	M	R	
3	2.	Reactor Coolant Outlet Temperature - T_{HOT} (Wide Range)	M	R	
4	3.	Reactor Coolant Inlet Temperature - T_{COLD} (Wide Range)	M	R	
5	4.	Reactor Coolant Pressure - Wide Range	M	R	
12	5.	Pressurizer Water Level	M	R	24 months (L.6)
2	6.	Steam Line Pressure	M	R	
19	7.	Steam Generator Water Level - Narrow Range	M	R	A.3
22	8.	RWST Water Level	M	R	
	9.	Boric Acid Tank Solution Level	M	R	R.1
19	10.	Auxiliary Feedwater Flow Rate	M	R	A.3; 24 months (L.6)
23	11.	Reactor Coolant System Subcooling Margin Monitor	M	R	
	12.	PORV Position Indicator - Limit Switches	M	R	R.1
	13.	PORV Block Valve Position Indicator - Limit Switches	M	R	R.1
	14.	Safety Valve Position Indicator - Acoustic Monitor	M	R	R.1; 24 months (L.6)
15, 16, 17, 18	15.	Incore Thermocouples (Core Exit Thermocouples)	M	R(1)	M.5
6	16.	Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication)	M(2)	R(3)	M.5; LA.2
	17.	Containment Sump Level	M	R	R.1
7	18.	Containment Water Level	M	R	24 months (L.6)

Add proposed Functions 1, 9, 13, 14, 20, 21, and 24 (M.4)

(1) Partial range channel calibration for sensor to be performed below P-12 in MODE 3. (M.5)

(2) With one train of Reactor Vessel Level Indication inoperable, Subcooling Margin Indication and Core Exit Thermocouples may be used to perform a CHANNEL CHECK to verify the remaining Reactor Vessel Indication train OPERABLE. (LA.2)

(3) Completion of channel calibration for sensors to be performed below P-12 in MODE 3. (M.5)

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.3 — 3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE. with their alarm/trip setpoints within the specified limits. — L.7

APPLICABILITY: As shown in Table 3.3-6.

ACTION: ← Add proposed ACTIONS Note — A.2

a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable. — L.7

ACTIONS A, B, D, F, and H — b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.

c. The provisions of Specification 3.0.3 are not applicable. — M.6

SURVEILLANCE REQUIREMENTS

SR Table Note — 4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-3. — L.8

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ITS 3.3.3

ITS

(A.1)

Table 3.3.3-1

TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION
1. Modes 1, 2, 3 & 4				
A. Area Monitors				
i. Upper Containment† (VRS 2101/2201)	1	N/A	≤ 54 mR/hr	21
ii. Containment High Range (VRA 2310/2410)	2	≤ 10R/hr	N/A	22A
B. Process Monitors				
i. Particulate Channel* (ERS 2301/2401)	1	N/A	≤ 2.52 μCi	20
ii. Noble Gas Channel* (ERS 2305/2405)	1	N/A	≤ 4.4x10⁻³ μCi/cc	20
C. Noble Gas Effluent Monitors				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 2505)	(see the ODCM)			
b. Mid Range (VRS 2507)	1	N/A	N/A	22B
c. High Range (VRS 2509)	1	N/A	N/A	22B
ii. Steam Generator PORV				
a. MRA 2601 (Loop 1)	1	N/A	N/A	22B
b. MRA 2602 (Loop 4)	1	N/A	N/A	22B
c. MRA 2701 (Loop 2)	1	N/A	N/A	22B
d. MRA 2702 (Loop 3)	1	N/A	N/A	22B
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 2805)	(see the ODCM)			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 2905)	(see the ODCM)			
b. Mid Range (SRA 2907)	1	N/A	N/A	22B
c. High Range (SRA 2909)	1	N/A	N/A	22B

10 (L.7) (L.9) (L.7) (L.14)

See ITS 3.3.6 and CTS 3/4.3.3.1

See ITS 3.3.6 and ITS 3.4.15

See CTS 3/4.3.3.1

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.4.6.1. — See ITS 3.4.15

ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per day. — See CTS 3/4.3.3.1

ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.9.9. This ACTION is not required during the performance of containment integrated leak rate test. — See ITS 3.3.6

ACTION 22A- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements:

ACTIONS A and D

1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or — L.11

ACTIONS B, F, and H

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status. — See ITS 5.6

3. ~~Technical Specification Section 3.0.3 Not Applicable.~~ — M.6

ACTION 22B- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements.

1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

3. In the event of an accident involving radiological releases initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours.

4. Technical Specification Section 3.0.3 Not Applicable.

— See CTS 3/4.3.3.1

A.1

ITS

Table 3.3.3-1

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

OPERATION MODE/INSTRUMENT	SR 3.3.3.1 CHANNEL CHECK	SR 3.3.3.3 CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	APPLICABLE MODES
1. Modes 1, 2, 3 & 4				
A. Area Monitors				
i. Upper Containment (VRS 2101/2201)	S*	R	Q	1, 2, 3, 4
10 ii. Containment High Range (VRA 2310/2410)	S 31 days	R 24 months	Q	1, 2, 3, 4
B. Process Monitors				
i. Particulate Channel (ERS 2301/2401)	S*	R	Q	1, 2, 3, 4
C. Noble Gas Effluent Monitors				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 2505)	--------------(see the ODCM)--------------			
b. Mid Range (VRS 2507)	S	R	N/A	1, 2, 3, 4
c. High Range (VRS 2509)	S*	R	N/A	1, 2, 3, 4
ii. Steam Generator PORV				
a. MRA 2601 (Loop 1)	S*	R	Q	1, 2, 3, 4
b. MRA 2602 (Loop 4)	S*	R	Q	1, 2, 3, 4
c. MRA 2701 (Loop 2)	S*	R	Q	1, 2, 3, 4
d. MRA 2702 (Loop 3)	S*	R	Q	1, 2, 3, 4
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 2805)	--------------(see the ODCM)--------------			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 2905)	--------------(see the ODCM)--------------			
b. Mid Range (SRA 2907)	S	R	Q	1, 2, 3, 4
c. High Range (SRA 2909)	S*	R	N/A	1, 2, 3, 4

L.9 L.8 L.9 L.6 L.12 L.14

See CTS 3/4.3.3.1

See ITS 3.4.15

See CTS 3/4.3.3.1

A.1

ITS

CONTAINMENT SYSTEMS

3/4.6.4 COMBUSTIBLE GAS CONTROL

HYDROGEN ANALYZERS

LIMITING CONDITION FOR OPERATION

Table 3.3.3-1 Function 11 — 3.6.4.1 Two containment hydrogen analyzers shall be OPERABLE. (M.7)

APPLICABILITY: Modes 1 and 2. [3] (M.7)

ACTION: [Add proposed ACTIONS Note] (A.2)

ACTION A — a. With one hydrogen analysis device inoperable, restore the inoperable analysis device to OPERABLE status within 30 days or be in at least

ACTION B — HOT STANDBY within the next 6 hours. [Add proposed Required Action B.1] (L.1)

ACTION E — b. With both hydrogen analysis devices inoperable, restore at least one analysis device to OPERABLE status within 72 hours or be in at

ACTIONS F and G — least HOT STANDBY within the next 6 hours. [and in MODE 4 within 12 hours] (M.7)

SURVEILLANCE REQUIREMENTS

SR 3.3.3.2 — 4.6.4.1 Each hydrogen analysis device shall be demonstrated OPERABLE at least once per 92 days on a STAGGERED TEST BASIS by performing a CHANNEL CALIBRATION using a four percent and fifteen percent nominal hydrogen gas, balance nitrogen. (L.13) (LA.3)

DISCUSSION OF CHANGES
ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 Unit 1 CTS 3.3.3.8 Actions a and b, Unit 2 CTS 3.3.3.6 Actions a and b, CTS 3.3.3.1 Actions b and c, CTS Table 3.3-6 Action 22A, and CTS 3.6.4.1 Actions a and b provide the compensatory actions to take when PAM instrumentation is inoperable. ITS 3.3.3 ACTIONS provide the compensatory actions for inoperable PAM Instrumentation. The ITS 3.3.3 ACTIONS include a Note that allows separate Condition entry for each Function. In addition, separate Condition entry is allowed within a Function on a steam generator basis for Functions 2 (Steam Generator Pressure (per SG)) and 19 (Secondary Heat Sink Indication (per SG)), since the titles of the Functions include the term "(per SG)." This modifies the CTS by providing a specific allowance to enter the Action for each inoperable PAM instrumentation Function and for certain Functions on a steam generator basis.

This change is acceptable because it clearly states the current requirement. The CTS considers each PAM instrumentation Function to be separate and independent from the others. In addition, the channels associated with Functions 2 and 19 are allowed separate Condition entry on a steam generator basis, which is consistent with the intent of the CTS. This change is designated as administrative because it does not result in technical changes to the CTS.

A.3 Unit 1 CTS Tables 3.3-11 and 4.3-7 and Unit 2 CTS Tables 3.3-10 and 4.3-10, Instrument 7, Steam Generator Water Level - Narrow Range, requires one channel per steam generator to be OPERABLE and Instrument 10, Auxiliary Feedwater Flow Rate, requires one channel per steam generator to be OPERABLE. ITS Table 3.3.3-1, Function 19, Secondary Heat Sink Indication (per SG), requires two channels per steam generator to be OPERABLE. In addition, footnote (d) states that any combination of two instruments per SG, including Steam Generator Water Level (Narrow Range) and Auxiliary Feedwater Flow, can be used to satisfy Function 19 OPERABILITY requirements. This changes the CTS by combining two Functions into a single Function.

The purpose of these two CTS Functions is to provide the operators indication to determine whether to manually reduce ECCS flow. This is further amplified since, as stated in Unit 1 CTS Table 3.3-11 and Unit 2 CTS Table 3.3-10 footnote *, the channels of one Function can substitute for channels of the other Function. Therefore, combining the two Functions into a single Function is acceptable. This change is designated as administrative because it does not result in technical changes to the CTS.

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DISCUSSION OF CHANGES
ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

MORE RESTRICTIVE CHANGES

M.1 Unit 1 CTS 3.3.3.8 Action a and Unit 2 CTS 3.3.3.6 Action a require, with the number of OPERABLE post accident monitoring instrumentation channels less than the minimum channels OPERABLE requirements of Table 3.3-11 (Unit 1) and Table 3.3-10 (Unit 2), that the inoperable channel be restored to OPERABLE status within 30 days. ITS 3.3.3 ACTION D requires, with one or more Functions with two required channels inoperable, restoration of one channel to OPERABLE status within 7 days. This changes the CTS requirement by reducing the allowed outage time when two required channels of a PAM instrumentation Function are inoperable from 30 days to 7 days.

This change is acceptable because it provides appropriate requirements for when two required channels of a PAM instrumentation Function are inoperable. The PAM instrumentation are required to be OPERABLE to provide the control room operators with sufficient information on selected unit parameters to monitor and assess unit status following an accident. This change is designated as more restrictive because it requires restoration of the inoperable PAM instrumentation channels is less time than is required in the CTS.

M.2 Unit 1 CTS 3.3.3.8 Action a and Unit 2 CTS 3.3.3.6 Action a require, when required channels are not restored within the allowed outage time, that the unit be in at least HOT SHUTDOWN within the next 12 hours. ITS 3.3.3 ACTION G requires the unit to be placed in MODE 3 (HOT STANDBY) within 6 hours (Required Action G.1) and MODE 4 (HOT SHUTDOWN) within 12 hours (Required Action G.2). This changes the CTS requirement by requiring the unit to be in MODE 3 within 6 hours.

This change is acceptable because 6 hours is a reasonable period of time for the operator to safely decrease power from full power to MODE 3 without challenging unit systems. This Completion Time is consistent with other ITS requirements that specify a unit power reduction to MODE 3. The change is designated as more restrictive because it adds a requirement to place the unit in MODE 3 within 6 hours to the CTS.

M.3 Unit 1 CTS Table 3.3-11 and Unit 2 CTS Table 3.3-10, Instrument 16, requires one train (equivalent to one channel in ITS nomenclature) for the Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication) Instrument to be OPERABLE. ITS Table 3.3.3-1 Function 6 requires two channels for the Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication) to be OPERABLE. This changes the CTS requirements for the parameter from one to two required channels.

This change is acceptable because the ITS reflects the requirements for diversity and redundancy stated in Regulatory Guide 1.97, Revision 3, and NRC Generic Letter 82-33. Additionally, the unit specific evaluation requires that a minimum of two channels be available for these parameters. This provides the operator an unambiguous source of information for decisions needed following design basis events. The change is designated as a more restrictive because the number of required channels for the indicated parameter is increased from one to two.

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ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

M.4 Unit 1 CTS Table 3.3-11 and Unit 2 CTS Table 3.3-10 do not require OPERABLE indication channels for Neutron Flux, Penetration Flow Path Containment Isolation Valve Position, Steam Generator Water Level (Wide Range), Condensate Storage Tank Level, Emergency Core Cooling System Flow (per train), Containment Pressure (Wide Range), and Component Cooling Water Pump Circuit Breaker Status. These are added to the CTS and shown in ITS Table 3.3.3-1, Functions 1, 9, 13, 14, 20, 21, and 24. Two channels are provided for Neutron Flux (Function 1). Two channels per penetration flow path are provided for Penetration Flow Path Containment Isolation Valve Position (Function 9). This requirement is modified by two footnotes, footnotes (a) and (b). Footnote (a) does not require position indication for isolation valves whose penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange or check valve with flow through the valve secured. Footnote (b) requires only one position indication channel per penetration flow path with one installed channel located in the control room. Four channels are provided for Steam Generator Water Level (Wide Range) (Function 13). One channel is provided for Condensate Storage Tank Level (Function 14). Two channels per train are provided for Emergency Core Cooling System Flow (per train) (Function 20). Two channels are provided for Containment Pressure (Wide Range) (Function 21). Two channels are provided for Component Cooling Water Pump Circuit Breaker Status (Function 24). ITS 3.3.3 ACTION A has been added to cover the Condition when one or more of the above Functions, except Function 14, have one required channel inoperable and ITS 3.3.3 ACTION C has been added to cover the Condition when Function 14 has one required channel inoperable. ITS 3.3.3 Required Actions A.1 and C.1 allow 30 days to restore the required channel to OPERABLE status. If the Required Action and associated Completion Time of Condition A is not met, then ITS Required Action B.1 requires the immediate initiation of the actions specified in Specification 5.6.6. ITS 3.3.3 ACTION D has been added to cover the Condition when one or more Functions have two required channels inoperable. ITS 3.3.3 Required Action D.1 requires restoration of one channel to OPERABLE status within 7 days. If this cannot be met, or if the Required Action and associated Completion Time of Condition C is not met, then ITS 3.3.3 Condition F must be entered, which will then require entry into Condition G (for Functions 1, 9, 13, 20, and 21) or into Condition H (for Functions 14 and 24). ITS 3.3.3 Required Action G.1 will require the unit to be in MODE 3 within 6 hours and MODE 4 within 12 hours, and ITS 3.3.3 Required Action H.1 will require immediate initiation of action in accordance with Specification 5.6.6. A Note has been added to the ACTIONS to allow Separate Condition entry for each Function. In addition, separate Condition entry is allowed within a Function for Function 9 on a penetration flow path basis and for Function 20 on a per train basis, since the titles of the Functions include the term "Penetration Flow Path, " or "(per train)." In addition, SRs are added for each Function. These SRs are a CHANNEL CHECK for each required instrumentation channel that is normally energized (SR 3.3.3.1) and a CHANNEL CALIBRATION (SR 3.3.3.3). For the CHANNEL CALIBRATION of the Neutron Flux Function channels, SR 3.3.3.3 is modified by a note that states "Neutron detectors are excluded from CHANNEL CALIBRATION." This changes the CTS by adding new Functions, Footnotes, a Note, applicable ACTIONS, and SRs.

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This change is acceptable because a plant specific evaluation has concluded that these instrumentation channels are required to provide the primary, unambiguous information to the operator necessary in order to perform manual actions for which no automatic controls exist and that are required for safety systems to accomplish their safety functions for design basis accident (DBA) events. The change is designated as more restrictive because seven new instrumentation functions are added to the Technical Specifications.

M.5 Unit 1 CTS Table 4.3-7 and Unit 2 CTS Table 4.3-10 Instrument 15, Incore Thermocouples (Core Exit Thermocouples), and Instrument 16, Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication) CHANNEL CALIBRATION requirements are modified by Notes (1) and (3), respectively. Note (1) states "Partial range channel calibration for sensor to be performed below P-12 in MODE 3." Note (3) states "Completion of channel calibration for sensors to be performed below P-12 in MODE 3." The ITS SR 3.3.3.3 requires the performance of a CHANNEL CALIBRATION for ITS Table 3.3.3-1 Functions 15, 16, 17, and 18 (Core Exit Temperature - Quadrants 1, 2, 3, and 4) and ITS Table 3.3.3-1 Function 6 (Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication)). This changes the CTS by deleting the allowances of Unit 1 CTS Table 4.3-7 and Unit 2 CTS Table 4.3-10 Notes (1) and (3).

The purpose of the CTS Notes is to allow the unit to enter the MODE of Applicability of the instrumentation without calibrating the associated sensors. These allowances are no longer used for performing the CHANNEL CALIBRATIONS of these Functions. The CHANNEL CALIBRATIONS of these Functions are performed prior to entering the MODE of Applicability. Therefore, deletion of these Notes is acceptable. This change is designated as more restrictive as it eliminates allowances from the CTS.

M.6 CTS 3.3.3.1 Action c states that the provisions of Specification 3.0.3 are not applicable. CTS Table 3.3-6 Action 22A.3 states that Specification 3.0.3 is not applicable. ITS 3.3.3 does not include a LCO 3.0.3 exception. This changes the CTS by eliminating the CTS 3.0.3 exception.

CTS 3.0.3 requires the unit to be shutdown when the requirements of LCOs and associated Actions are not satisfied. This change is acceptable because the ISTS does not provide exceptions to ITS LCO 3.0.3 in the PAM Instrumentation Specification. Eliminating the CTS 3.0.3 exception ensures that the operators are provided guidance regarding actions to take in the event the required PAM instrumentation is inoperable and associated Actions are not satisfied within the required time periods. This change is designated as more restrictive because an explicit exception provided in the CTS is eliminated.

M.7 CTS 3.6.4.1, Hydrogen Analyzers, is applicable in MODES 1 and 2. CTS 3.6.4.1 Action b requires, if both hydrogen analyzers are inoperable for more than 72 hours, that the unit is to be placed in HOT STANDBY (MODE 3) within the next 6 hours. ITS 3.3.3 is applicable in MODES 1, 2, and 3. ITS 3.3.3 ACTION G requires, if two hydrogen analyzers are inoperable for greater than 72 hours, that the unit is to be placed in MODE 3 within 6 hours and MODE 4 within 12 hours. This changes the CTS Applicability requirements for the

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hydrogen analyzers from MODES 1 and 2 to MODES 1, 2, and 3, and the Required Actions from being in MODE 3 to being in MODE 4.

This change is acceptable because the potential for hydrogen generation in the Reactor Coolant System in MODE 3 can be the same as MODES 1 and 2. The only effect on hydrogen concentration as assumed in the accident analyses that changes for MODE 3 is the potential amount of hydrogen generated from fuel clad damage. Therefore, the expansion of the Applicability to MODE 3 and the requirement to place the unit in MODE 4 (outside the expanded MODES of Applicability) if inoperable hydrogen analyzers are inoperable and not restored within the required Completion Time, are appropriate. The 12 hour time provided to reach MODE 4 is consistent with the time provided in similar actions in both the CTS and ITS. The change is designated as more restrictive because the hydrogen analyzers are required to be OPERABLE in more conditions than required in the CTS.

RELOCATED SPECIFICATIONS

R.1 Unit 1 CTS Tables 3.3-11 and 4.3-7 and Unit 2 CTS Tables 3.3-10 and 4.3-10 provide requirements for Post-Accident Monitoring Instrumentation channels. Each individual post accident monitoring parameter has a specific purpose, however, the general purpose for all accident monitoring instrumentation is to ensure sufficient information is available following an accident to allow an operator to verify the response of automatic safety systems, and to take preplanned manual actions to accomplish a safe shutdown of the plant.

The NRC position on application of the screening criteria to post-accident monitoring instrumentation is documented in a letter dated May 9, 1988 from T.E. Murley (NRC) to W.S. Wilgus (B&W Owners Group). The screening criteria are now incorporated into 10 CFR 50.36(c)(2)(ii). The NRC position taken was that the *post-accident monitoring instrumentation table list should contain, on a plant* specific basis, all Regulatory Guide 1.97 Type A instruments specified in the plant's Safety Evaluation Report (SER) on Regulatory Guide 1.97, and all Regulatory Guide 1.97 Category 1 instruments. Accordingly, this position has been applied to the CNP Units 1 and 2 Regulatory Guide 1.97 instruments. Those instruments meeting these criteria have remained in Technical Specifications. The instruments not meeting this criteria will be relocated from the Technical Specifications to the Technical Requirements Manual (TRM).

A review of the CNP Units 1 and 2 UFSAR and the NRC Regulatory Guide 1.97 Safety Evaluation for CNP Units 1 and 2 shows that the following Unit 1 CTS Tables 3.3-11 and 4.3-7 and Unit 2 CTS Tables 3.3-10 and 4.3-10 Instruments do not meet Category 1 or Type A requirements.

Instrument 9	Boric Acid Tank Solution Level
Instrument 12	PORV Position Indicator - Limit Switches
Instrument 13	PORV Block Valve Position Indicator - Limit Switches
Instrument 14	Safety Valve Position Indicator - Acoustic Monitor
Instrument 17	Containment Sump Level

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. These instruments are not used for, nor capable of, detecting a significant abnormal degradation of the reactor coolant pressure boundary prior to a design basis accident (DBA). These instruments do not meet criterion 1.

2. The monitored parameters are not process variables, design features, or operating restrictions that are initial conditions of a DBA or transient. These instruments do not meet criterion 2.

3. These instruments are not part of a primary success path in the mitigation of a DBA or transient. These instruments do not meet criterion 3.

4. These instruments are not structures, systems, or components which operating experience or probabilistic risk assessment has shown to be significant to public health and safety. As discussed in Section 4.0 (Appendix A, page A-25) and summarized in Table 1 of WCAP-11618, the loss of the above listed instruments were found to be non-significant risk contributors to core damage frequency and offsite releases. I&M has reviewed this evaluation, considers it applicable to CNP Units 1 and 2, and concurs with the assessment. These instruments do not meet criterion 4.

Since the 10 CFR 50.36(c)(2)(ii) criteria have not been met for instruments which do not meet Regulatory Guide 1.97 Type A variable requirements or non-Type A, Category 1, variable requirements, their associated LCO and Surveillances may be relocated out of the Technical Specifications. The Technical Specification requirements for these instruments will be relocated to the TRM. Changes to the TRM will be controlled by the provisions of 10 CFR 50.59. This change is designated as a relocation because the LCO requirements for these instruments did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and have been relocated to the TRM.

<u>REMOVED DETAIL CHANGES</u>

LA.1 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* Unit 1 CTS Table 3.3-11 and Unit 2 CTS Table 3.3-10, Instrument 16, Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication), states that the required train (equivalent to one channel in ITS nomenclature) includes three channels. ITS Table 3.3.3-1 Function 6 requires two channels of the Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication) to be OPERABLE, but the details of what constitutes an OPERABLE channel are moved to the Bases. This changes the CTS by moving the details of what constitutes an OPERABLE channel to the Bases. The change to the number of required CTS Function 16 channels is discussed in DOC M.3.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for two channels of the Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication) to be OPERABLE and to perform CHANNEL CHECKS and

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CHANNEL CALIBRATIONS of the channels. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5 of the ITS. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.2 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* Unit 1 CTS Table 4.3-7 and Unit 2 CTS Table 4.3-10, Instrument 16, Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication), CHANNEL CHECK requirements are modified by Note (2). Note (2) allows, with one train of Reactor Vessel Level Indication inoperable, subcooling margin indication and core exit thermocouples to be used to perform a CHANNEL CHECK to verify the remaining Reactor Vessel Level Indication train is OPERABLE. ITS SR 3.3.3.1 requires the performance of a CHANNEL CHECK of the Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication) channels. This changes the CTS by moving the descriptive wording of the method for performing the CHANNEL CHECK to the ITS Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement to perform the CHANNEL CHECK. Also, this change is acceptable because these types of procedural details will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA.3 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 4.6.4.1 requires that each hydrogen analyzer be demonstrated OPERABLE by performing a CHANNEL CALIBRATION using *calibration gas containing a four percent and fifteen percent nominal hydrogen gas, balance nitrogen*. ITS SR 3.3.3.2 requires the hydrogen monitors to be subjected to a CHANNEL CALIBRATION. This change moves the CTS calibration gas requirements to the ITS Bases.

The removal of these details for performing Surveillance Requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the hydrogen monitors to be OPERABLE in the required MODES. The details of composition of the calibration gas used to perform the CHANNEL CALIBRATION is not required to be in the Technical Specifications, because regardless of the calibration gas composition, the hydrogen monitors are required to be OPERABLE (i.e., capable of performing their safety function). Also, this change is acceptable because these types of procedural details will be adequately

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controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 3 – Relaxation of Completion Time)* Unit 1 CTS 3.3.3.8 Actions a and b and Unit 2 CTS 3.3.3.6 Actions a and b require placing the unit in HOT SHUTDOWN within the next 12 hours if an inoperable PAM instrumentation channel has not been restored within the allowed outage time. CTS 3.6.4.1 Action a requires placing the unit in HOT STANDBY within the next 6 hours if an inoperable hydrogen analyzer has not been restored within the allowed outage time. ITS 3.3.3 ACTION B, which is applicable to Functions with two or more required channels (i.e., all Functions except Functions 14 and 23, as identified in the Note to ITS 3.3.3 Condition A), requires the initiation of a report to the NRC if one inoperable PAM instrumentation channel has not been restored within the associated Completion Time. This changes the CTS by deleting the requirements for the unit to be in HOT STANDBY or HOT SHUTDOWN with one of the two required channels inoperable and not restored within the allowed outage time, and instead requiring a report to be made in accordance with ITS 5.6.6.

The purpose of these shutdown requirements is to limit unit operation in the MODES of Applicability when required equipment is inoperable. This change is acceptable due to the passive function of these instruments and the operator's ability to respond to an accident utilizing redundant or alternate instruments and methods for monitoring. The change is also considered acceptable since the probability of an event requiring the operator to utilize this instrumentation to respond to the event is low. The addition of a report is acceptable because it advises the NRC of the cause of the inoperability and the plans and schedule for restoring the instrumentation channel to OPERABLE status. This change is designated as less restrictive because additional time is allowed to restore instrument channels to OPERABLE status than was allowed in the CTS.

L.2 *(Category 3 – Relaxation of Completion Time)* Unit 1 CTS 3.3.3.8 Action a and Unit 2 CTS 3.3.3.6 Action a require placing the unit in HOT SHUTDOWN within the next 12 hours if both Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication) channels are inoperable and have not been restored within the allowed outage time. ITS 3.3.3 ACTION H requires initiation of a report to the NRC if one of the two inoperable channels of the Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication) Function has not been restored within the associated Completion Time. This changes the CTS by deleting the requirements for the unit to be in HOT SHUTDOWN with two Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication) Function channels inoperable and not restored within the allowed outage time, and instead requiring a report to be made in accordance with ITS 5.6.6.

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The purpose of these shutdown requirements is to limit unit operation in the MODES of Applicability when required equipment is inoperable. This change is acceptable due to the passive function of these instruments and the operator's ability to respond to an accident utilizing alternate instruments and methods for monitoring. The change is also considered acceptable since the probability of an event requiring the operator to utilize this instrumentation to respond to the event is low. The addition of a report is acceptable because it advises the NRC of the cause of the inoperability and the plans and schedule for restoring the instrumentation channel to OPERABLE status. This change is designated as less restrictive because additional time is allowed to restore instrument channels to OPERABLE status than was allowed in the CTS.

L.3 *(Category 3 – Relaxation of Completion Time)* Unit 1 CTS 3.3.3.8 Action b and Unit 2 CTS 3.3.3.6 Action b require, whenever one required channel is inoperable, restoration of one Refueling Water Storage Tank Water Level PAM instrumentation channel to OPERABLE status within 72 hours. ITS 3.3.3 ACTION A requires the restoration of the inoperable Refueling Water Storage Tank Water Level PAM instrumentation channel within 30 days. This changes the CTS by extending the restoration time for an inoperable Refueling Water Storage Tank Water Level PAM instrumentation channel from 72 hours to 30 days.

The purpose of the current 72 hour allowed outage time for restoration of an inoperable Refueling Water Storage Tank Water Level PAM instrumentation channel, as a opposed to the current 30 day allowed outage time for restoration of other inoperable PAM instrumentation channels, is to ensure that the allowed outage times for the Refueling Water Storage Tank Water Level PAM instrumentation channel was consistent with allowed outage times for the Emergency Core Cooling System (ECCS). The Refueling Water Storage Tank Water Level PAM instrumentation provides level indication in the control room for the operators to determine when to manually transfer suction of the ECCS pumps from the depleted refueling water storage tank to cold leg recirculation from the containment recirculation sump following an accident. This level instrumentation also provides a bistable input to trip the Residual Heat Removal (RHR) pump when Refueling Water Storage Tank level falls below a preset level to protect the RHR pump. However, this bistable function is not part of the PAM Instrumentation Function, and the bistable Function is not necessary for the OPERABILITY of the PAM Instrumentation Function. The definition of OPERABLE-OPERABILITY and the requirements in ITS 3.5.2, "ECCS - Operating," are adequate to ensure that, if this bistable results in RHR pump inoperability, then the applicable actions of ITS 3.5.2 will be taken. Therefore, this change is acceptable due to the passive function of these PAM instruments and the operator's ability to respond to an accident utilizing redundant instruments. The change is also considered acceptable since the probability of an event requiring the operator to utilize this instrumentation to respond to the event is low. This change is designated as less restrictive because additional time is allowed to restore instrument channels to OPERABLE status than was allowed in the CTS.

L.4 *(Category 4 – Relaxation of Required Action)* Unit 1 CTS 3.3.3.8 Action b.2 and Unit 2 CTS 3.3.3.6 Action b.2, in the event of an inoperable Refueling Water

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Storage Tank Water Level PAM instrumentation channel, require action to be taken within one hour to bypass the Residual Heat Removal (RHR) pump trip function from the Refueling Water Storage Tank Water Level instrumentation for the pump associated with the out-of-service instrument. ITS 3.3.3 does not include this requirement. This changes the CTS by eliminating the Action requirement to bypass the RHR trip function when the Refueling Water Storage Tank Water Level PAM instrumentation channel is inoperable.

The purpose of the action to bypass the RHR pump trip function is to maintain RHR pump availability in the event of Refueling Water Storage Tank Water Level instrumentation inoperability. The Refueling Water Storage Tank Water Level PAM instrumentation provides level indication in the control room for the operators to determine when to manually transfer suction of the ECCS pumps from the depleted refueling water storage tank to cold leg recirculation from the containment recirculation sump following an accident. This level instrumentation also provides a bistable input to trip the Residual Heat Removal (RHR) pump when Refueling Water Storage Tank level falls below a preset level to protect the RHR pump. However, this bistable function is not part of the PAM Instrumentation Function, and the bistable Function is not necessary for the OPERABILITY of the PAM Instrumentation Function. The definition of OPERABLE-OPERABILITY and the requirements in ITS 3.5.2 are adequate to ensure that, if this bistable results in RHR pump inoperability, then the applicable actions of ITS 3.5.2 will be taken. In addition, the requirements of the ITS 3.5.2 ACTIONS and the requirements of 10 CFR 50.65 ensure that RHR pump availability is adequately maintained. Therefore, the CTS action to bypass the bistable trip of the associated RHR pump when a Refueling Water Storage Tank Water Level PAM instrument is inoperable is unnecessary. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.5 *(Category 3 – Relaxation of Completion Time)* Unit 1 CTS 3.3.3.8 Action b and Unit 2 CTS 3.3.3.6 Action b provide actions for the condition of one Refueling Water Storage Tank Water Level PAM instrumentation channel. When both Refueling Water Storage Tank Water Level PAM instrumentation channels are inoperable, no actions are provided and unit shutdown in accordance with CTS 3.0.3 is required. ITS 3.3.3 ACTION D, when two channels of Refueling Water Storage Tank Water Level PAM instrumentation are inoperable, requires the restoration of one of the two inoperable Refueling Water Storage Tank Water Level PAM instrumentation channels to OPERABLE status within 7 days. If not restored, then ITS 3.3.3 ACTION G requires the unit to be in MODE 3 in 6 hours and MODE 4 in 12 hours. This changes the CTS by providing a restoration time when two Refueling Water Storage Tank Water Level PAM instrumentation channels are inoperable, prior to requiring a unit shutdown.

The purpose of requiring entry into CTS 3.0.3 when two Refueling Water Storage Tank Water Level PAM instrumentation channels are inoperable, as opposed to the current 30 day allowed outage time for other inoperable PAM instrumentation channels, is to ensure that the allowed outage time for the Refueling Water Storage Tank Water Level PAM instrumentation channels was consistent with allowed outage times for Emergency Core Cooling System (ECCS). The Refueling Water Storage Tank Water Level PAM instrumentation provides level

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indication in the control room for the operators to determine when to manually transfer suction of the ECCS pumps from the depleted refueling water storage tank to cold leg recirculation from the containment recirculation sump following an accident. This level instrumentation also provides a bistable input to trip the Residual Heat Removal (RHR) pump when Refueling Water Storage Tank level falls below a preset level to protect the RHR pump. However, this bistable function is not part of the PAM Instrumentation Function, and the bistable Function is not necessary for the OPERABILITY of the PAM Instrumentation Function. The definition of OPERABLE-OPERABILITY and the requirements in ITS 3.5.2 are adequate to ensure that, if this bistable results in RHR pump inoperability, then the applicable actions of ITS 3.5.2 will be taken. Therefore, this change is acceptable due to the passive function of these PAM instruments and the operator's ability to respond to an accident utilizing redundant instruments. The change is also considered acceptable since the probability of an event requiring the operator to utilize this instrumentation to respond to the event is low. This change is designated as less restrictive because additional time is allowed to restore instrument channels to OPERABLE status than was allowed in the CTS.

L.6 *(Category 11 – 18 to 24 Month Surveillance Frequency Change, Channel Calibration Type)* Unit 1 CTS Table 4.3-7 and Unit 2 CTS Table 4.3-10 requires a CHANNEL CALIBRATION of the identified PAM instruments every 18 months. CTS Table 4.3-3 requires a CHANNEL CALIBRATION of the Containment High Range Area Monitors every 18 months. ITS Table 3.3.3-1 Functions 2 through 8, 10, 12, 15 through 19, 22, and 23 require the performance of SR 3.3.3.3, a CHANNEL CALIBRATION, every 24 months. This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

The purpose of Unit 1 CTS Table 4.3-7, Unit 2 CTS Table 4.3-10, and CTS Table 4.3-3 is to ensure PAM instruments will function as designed during an analyzed event. Extending the SR Frequency is acceptable because the PAM instruments are designed to be highly reliable. Furthermore, a CHANNEL CHECK is performed on a more frequent basis (ITS SR 3.3.3.1). The CHANNEL CHECK provides a qualitative demonstration of the OPERABILITY of the instrument.

This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. The impacted PAM instruments listed below were evaluated through a failure analysis as well as a quantitative and qualitative analysis for drift to verify the instrument drift did not adversely impact instrument performance or availability.

Unit 1 CTS Table 4.3-7 and Unit 2 CTS Table 4.3-10

Instrument 1, Containment Pressure

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For narrow range containment pressure, the function is performed using Foxboro E11 Series Transmitters, Foxboro N-2AI-H2V Input Cards, Foxboro N-N-2AO-V2H+P Series Converters, Weschler VX-252 Indicators, and Yokogawa µR100 Recorders. A separate drift evaluation was not performed for the accident monitoring instrumentation based upon the design of the accident monitoring instruments, accuracy requirements, and equipment history. The following discussion supports this conclusion.

The accident monitoring function is supported by a combination of process transmitters, indicators and recorders. These components differ from other TS instruments in that they are not associated with a single action point but may be required to function anywhere within their range capability. An additional difference, based upon the time of function, is the process and environmental conditions that may be present when the instruments are required. Trip devices function during the first several seconds of an accident (normally prior to any significant environment changes) to prevent or mitigate the consequences of an accident. The detailed setpoint analysis for these devices considers the environmental conditions as well as the specific process conditions associated with the protective trip. The accident monitoring instrumentation devices must maintain their function after the accident has occurred and track the progress of the event and event mitigation over a long period of time. Accident monitoring instrumentation is designed to operate in a wide variety of environments (ranging from normal to high temperature, high radiation, and high humidity) and to maintain functionality. Accident instrumentation may also be expected to monitor the process over a wide range of process conditions. However, these instruments are not expected to function with the same high degree of accuracy demanded of accident detection and mitigation trip devices. The accident monitoring instrumentation devices are expected to maintain sufficient accuracy to detect trends or the existence or non-existence of a condition within wider boundaries (e.g., is there water in the steam generator).

The accident monitoring instrumentation is designed with a high degree of reliability and redundancy. Where possible, the indicators and recorders used for accident monitoring are compared with other channels of instruments measuring the same variable or other variables with know relationships, to verify OPERABILITY during normal operating conditions. Additionally, a CHANNEL CHECK is required every 31 days. These tests verify that the indication and recording instruments are acceptable and operating within established tolerances. For the transmitters, the primary error contributor for normal operations is drift. However, for accident monitoring conditions the major errors are associated with the changes in process conditions and in environmental conditions. These changes in process and environmental conditions are in most cases orders of magnitude larger than the errors associated with drift. Therefore, a drift analysis will not verify that these devices will maintain acceptable accuracy for the accident monitoring conditions. Additionally, no specific accuracy requirements are noted within Technical Specifications and the accident analyses have adequate margin to account for instrumentation errors.

Therefore, for the reasons cited above, a drift calculation for these instruments is not necessary and a review of the surveillance test history provides an acceptable method to determine if the instrument calibration interval can be

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extended to a 24 month operating cycle. For the Narrow Range Containment Pressure instrumentation, the Foxboro E11 Series Transmitters and the Foxboro N-2AI-H2V Input Cards were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of these analyses will support a 24 month Surveillance interval.

Instrument 2, Reactor Coolant Outlet Temperature - T_{HOT} (Wide Range)

This function is performed using 200 Ω Platinum RTDs as the sensing elements, Foxboro N-2AI-P2V Input Card and N-2AO-V2H+P Series Converter, and Leeds and Northrup 125 Series Recorders. The RTDs are not calibrated, and as such, instrument drift does not apply to these devices. Response of the RTDs to temperature variations during normal plant operation verifies proper operation of the input signal. The Foxboro N-2AO-V2H+P Series Converter and N-2AI-P2V Input Card and Leeds and Northrup 125 series Recorders were not evaluated for drift based on the generic discussion for Instrument 1 above. The results of these analyses will support a 24 month Surveillance interval.

Instrument 3, Reactor Coolant Inlet Temperature - T_{COLD} (Wide Range)

This function is performed using 200 Ω Platinum RTDs as the sensing element, Foxboro N-2AI-P2V Input Card and N-2AO-V2H+P Series Converter, and Leeds and Northrup 125 series Recorders. The RTDs are not calibrated, and as such, instrument drift does not apply to these devices. Response of the RTDs to temperature variations during normal plant operation verifies proper operation of the input signal. The Foxboro N-2AI-P2V Input Card and N-2AO-V2H+P Series Converter and Leeds and Northrup 125 Series Recorders were not evaluated for drift based on the generic discussion for Instrument 1 above. The results of these analyses will support a 24 month Surveillance interval.

Instrument 4, Reactor Coolant Pressure - Wide Range

This function is performed using a Foxboro N-E11 Series Transmitter, Foxboro N-2AI-H2V Input Card and N-2AO-V2H+P Series Converter, a Weschler VX-252 Indicator, and a Yokogawa µR100 Recorder. The Foxboro N-2AO-V2H+P Series Converter, Weschler VX-252 Indicator, and Yokogawa µR100 Recorder were not evaluated for drift based on the generic discussion for Instrument 1 above. The Foxboro N-E11 Series Transmitters and Foxboro N-2AI-H2V Input Card were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of these analyses will support a 24 month Surveillance interval.

Instrument 5, Pressurizer Water Level

This function is performed using a Foxboro N-E13 Series Differential Pressure Transmitter, a Foxboro N-2AI-H2V Input Card and N-2AO-V2H+P Series Converter, a Weschler VX-252 Indicator, and a Yokogawa µR100 Recorder. The Foxboro N-2AO-V2H+P Series Converter, Weschler VX-252 Indicator, and the Yokogawa µR100 Recorder were not evaluated for drift based on the generic

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discussion for Instrument 1 above. The Foxboro N-E13 Series Differential Pressure Transmitters and Foxboro N-2AI-H2V Input Cards were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of these analyses will support a 24 month Surveillance interval.

Instrument 6, Steam Line Pressure

This function is performed using Foxboro N-E11 Series Transmitters, Foxboro N-2AI-H2V Input Cards, Foxboro N-2AO-V2H+P Series Converters, a Weschler VX-252 Indicator, and a Taylor 1334JA18100 Indicator. The Foxboro N-2AO-V2H+P Series Converters, Weschler VX-252 Indicator, and Taylor 1334JA18100 Indicator were not evaluated for drift based on the generic discussion for Instrument 1 above. The Foxboro N-E11 Series Transmitters and Foxboro N-2AI-H2V Input Cards were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of these analyses will support a 24 month Surveillance interval.

Instrument 7, Steam Generator Water Level – Narrow Range

This function is performed using Foxboro N-E13 Series Differential Pressure Transmitters, Foxboro N-2AI-H2V Input Cards, Foxboro N-2AO-V2H+P Series Converters, and a Weschler VX-252 Indicator. The Foxboro N-2AO-V2H+P Series Converters and the Weschler VX-252 Indicator were not evaluated for drift based on the generic discussion for Instrument 1 above. The Foxboro N-E13 Series Differential Pressure Transmitters and Foxboro N-2AI-H2V Input Cards were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of these analyses will support a 24 month Surveillance interval.

Instrument 8, Refueling Water Storage Tank Water Level

This function is performed using a Foxboro E13 Series Differential Pressure Transmitters, Foxboro N-2AI-H2V Input Cards, Foxboro N-2AO-V2H+P Series Converters, Devar 18-119 Series Isolators, a Leeds & Northrup 124 Series Recorder, and a Weschler VX-252 Indicator. The Foxboro N-2AO-V2H+P Series Converters, Devar 18-119 Series Isolators, Leeds & Northrup 124 Series Recorder, and Weschler VX-252 Indicator were not evaluated for drift based on the generic discussion for Instrument 1 above. The Foxboro E13 Series Differential Pressure Transmitters and Foxboro N-2AI-H2V Input Cards were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of these analyses will support a 24 month Surveillance interval.

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Instrument 10, Auxiliary Feedwater Flow Rate

This function is performed using Foxboro N-E13 Series Differential Pressure Transmitters, Foxboro N-2AI-H2V and N-2CCA-SC & -DC Input Cards, Foxboro N-2AO-V2H+P Series Converters, and a Weschler VX-252 Indicator. The Foxboro N-2CCA-SC & -DC Input Cards, Foxboro N-2AO-V2H+P Series Converters, and the Weschler VX-252 Indicator were not evaluated for drift based on the generic discussion for Instrument 1 above. The Foxboro N-E13 Series Differential Pressure Transmitters and Foxboro N-2AI-H2V Input Cards were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of these analyses will support a 24 month Surveillance interval.

Instrument 11, Reactor Coolant System Subcooling Margin Monitor

This function is performed by using various instrument loop inputs to the Subcooling Margin Monitor indication. Inputs from the Core Exit Thermocouples are provided by Whittaker Type K thermocouples as the sensing elements, Foxboro N 2AI-T2V+K+K, 2AO-V3I, 2AO-VAI, and 2AO-V2H Input Cards, and Foxboro N-2AO-V2H+P Series Converters. Inputs for Reactor Coolant System Wide Range Temperature are provided by 200 Ω Platinum RTDs as the sensing elements, Foxboro 66 Special and 66-BC-OH Input Cards, and Foxboro N-2AO-V2H+P and N-2AI-H2V+P Series Converters. Inputs for the Reactor Coolant System Wide Range Pressure are provided by Foxboro N-E11 Series Pressure Transmitters, Foxboro N-2AI-H2V Input Cards, and Foxboro N-2AO-V2H+P and N-2AI-H2V+P Series Converters. Foxboro N-2CCA-SC Spec 200 Micro Control Cards provide the Subcooling Margin computation and provide output to the Subcooling Margin Monitor Indicators via Foxboro N-2AO-V2I+P Series Converters. The Indicators are Wavetek Model 500D Indicators. The RTDs and thermocouples are not calibrated, and as such, instrument drift does not apply to these devices. Response of the RTDs and thermocouples to temperature variations during normal plant operation verifies proper operation of the input signal. With the exception of the Foxboro N-2AI-H2V Input Cards, the Input Cards, Converters, and Indicators were not evaluated for drift based on the generic discussion for Instrument 1 above. The Foxboro N-E11 Pressure Transmitters and Foxboro N-2AI-H2V Input Cards were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of these analyses will support a 24 month Surveillance interval.

Instrument 15, Incore Thermocouples (Core Exit Thermocouples)

This function is performed using Whittaker Type K thermocouples as the sensing elements, Foxboro 2AO-V3I and 2AO-VAI Input Cards, a Foxboro N-2AI-T2V+K+K Series Converter, and a Yokogawa DR 240 Recorder. The thermocouples are not calibrated, and as such, instrument drift does not apply to these devices. Response of the thermocouples to temperature variations during normal plant operation verifies proper operation of the input signal. The Foxboro 2AO-V3I and 2AO-VAI Input Cards, Foxboro N-2AI-2V+K+K

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Series Converter, and Yokogawa DR 240 Indicators were not evaluated for drift based on the generic discussion for Instrument 1 above. The results of these analyses will support a 24 month Surveillance interval.

Instrument 16, Reactor Coolant Inventory Tracking System (Reactor Vessel Level Indication)

This function is performed by a loop consisting of sensing elements, signal processing equipment, and indicators. The sensing elements include Foxboro N-E11 Series Transmitters and Barton 764 Differential Pressure Transmitters providing pressure and level signals and Conax RTDs providing Wide Range RCS Temperature signals. The Barton 764 Differential Pressure Transmitter (level) sensing lines are temperature (sensing line and RCS) and pressure (RCS) compensated, with the sensing line temperature compensation signal provided by Minco RTDs. The signal processing equipment is contained not only within the various sensing element loops, but also in a Westinghouse 7300 Rack that generates the actual level signal for output to the Level Indicators. The Foxboro rack equipment for signal processing includes Model N-2AI-H2V and N-2AI-P2V Input Cards and N-2AO-V2H+P Converters. The Westinghouse 7300 rack signal processing equipment consists of Model NRA2 and NLP2 Input Cards, Model NCT4 and NTC4 test Input Cards, and Model NCH9, NCH10, NCH11, NCH12, NCH13, NCI1, NLL1, NLP3, NMD1, NPC1, NSA, NSA2, NSA3, NSA4 and NSC7 Converters and signal processing cards. The Level Indicators are Weschler VX-252 Indicators. The RTDs are not calibrated, and as such, instrument drift does not apply to these devices. Response of the RTDs to temperature variations during normal plant operation verifies proper operation of the input signal. The signal processing equipment and Indicators (with the exception of the Foxboro N-2AI-H2V and Foxboro N-2AI-P2V Input Cards) were not evaluated for drift based on the generic discussion for Instrument 1 above. The Foxboro N-E11 Series Transmitters, Barton 764 Differential Pressure Transmitters, Foxboro N-2AI-H2V Input Cards for the RCS Pressure input, and the Foxboro N-2AI-P2V Input Cards for the RCS Temperature input were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions with the extended calibration interval was consistent with drift for normal operating conditions at the current calibration interval. The results of these analyses will support a 24 month Surveillance interval.

Instrument 18, Containment Water Level

This function is performed using a FCI CL-86 Level Transmitter, Foxboro N-2AI-H2V Input Cards, Foxboro N-2AO-V2H+P Series Converters, and a Weschler VX-252 Indicator. The Foxboro N-2AO-V2H+P Converter and the Weschler VX-252 Indicator were not evaluated for drift based on the generic discussion for Instrument 1 above. The FCI CL-86 Level Transmitters and the Foxboro N-2AI-H2V Input Cards were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of these analyses will support a 24 month Surveillance interval.

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CTS Table 4.3-3

Instrument 1.A.ii, Containment High Range Area Monitors

This function is performed using Victoreen 877-1 Hi Range Radiation Monitoring Element as the sensing element and Victoreen 876-A-1 and 879-1 Hi Range Radiation Monitoring Readout Modules and Eberline SPING-4 Hi Range Radiation Monitoring Readout Modules for the output indication. These components were not evaluated for drift because, for radiation monitors, the major error contributor is the accuracy of the detector and the calibration sources. In the case of the calibration sources, normally multiple readings are required and an average reading is used to confirm operation. The accuracy of the decay curves and detector sensitivity may be from 12% to 30%. This accuracy far overshadows the accuracy of the electronic signal conditioning circuit. Therefore, drift of the electronic circuit does not provide a measure of functional performance over time between calibrations. This is substantiated by the ANSI N42.18 acceptance criteria of + 20%, which also recognizes that + 30% for alarm points satisfies the accuracy needed for Emergency Plan decisions and license requirements. The results of these analyses will support a 24 month Surveillance interval or the interval.

Based on the design of the instrumentation and the drift evaluations (where applicable), it is concluded that the impact, if any, from this change on system availability is minimal. A review of the Surveillance test history was performed to validate the above conclusion. This review demonstrates that there are no failures that would invalidate the conclusion that the impact, if any, on system availability from this change is minimal. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the unit licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.7 *(Category 1 – Relaxation of LCO Requirements)* CTS 3.3.3.1 and CTS Table 3.3-6, Instrument 1.A.ii provides alarm setpoint requirements for the Containment High Range Area Monitors. CTS 3.3.3.1 Action a provides actions to take when the Containment High Range Area Monitors alarm setpoint exceeds the specified value. ITS 3.3.3 does not include alarm setpoint for the Containment Area Radiation (High Range) instrumentation. This changes the CTS by eliminating the alarm setpoint requirements for the Containment High Range Area Monitors.

The purpose of the Containment High Range Area Monitors PAM instrumentation is to provide the control room operator with indication of adverse conditions in containment. This change is acceptable because the alarm setpoint is not necessary for the Containment High Range Area Monitors PAM instrumentation to perform its specified function of providing indication to the control room operators. ITS 3.3.3 requires the Containment Area Radiation (High Range) instrumentation to be OPERABLE. The ITS 3.3.3 requirement and the definition of OPERABLE-OPERABILITY are adequate to ensure that the Containment Area Radiation (High Range) PAM instrumentation remain capable of providing

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indication to the control room operators. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L.8 *(Category 5 – Deletion of Surveillance Requirement)* CTS 4.3.3.1 and CTS Table 4.3-3 require the performance of a CHANNEL FUNCTIONAL TEST of Containment High Range Area Monitors. ITS 3.3.3 does not require a CHANNEL FUNCTIONAL TEST be performed for Containment Area Radiation (High Range) PAM instrumentation. This changes the CTS by eliminating the CHANNEL FUNCTIONAL TEST for the Containment Area Radiation (High Range) PAM instrumentation.

The purpose of CTS Table 4.3-3 Surveillances is to ensure the Containment Area Radiation (High Range) PAM instrumentation will function as designed during an analyzed event. This change is acceptable because the deleted Surveillance Requirement is not necessary to verify that the capability of equipment used to meet the LCO is consistent with assumption in the safety analysis. Thus, appropriate equipment continues to be tested in a manner and at a Frequency necessary to give confidence that the assumptions in the safety analyses are satisfied. The ITS SRs for the instruments continue to provide sufficient test requirements to ensure the OPERABILITY of the Containment Area Radiation (High Range) PAM instrumentation. The elimination of the CTS SR does not affect reactor protection or accident mitigation. The ITS SRs are consistent with other PAM instrumentation channels and ensure the functions remain OPERABLE. This change is designated as less restrictive because Surveillances which are required in the CTS will not be required in the ITS.

L.9 *(Category 2 – Relaxation of Applicability)* CTS Tables 3.3-6 and 4.3-3 require the Containment High Range Area Monitors to be OPERABLE in MODES 1, 2, 3, and 4. ITS 3.3.3 requires the Containment Area Radiation (High Range) PAM Function to be OPERABLE in MODES 1, 2, and 3. This changes the CTS by deleting the requirements for the Function in MODE 4.

The purpose of the Containment Area Radiation (High Range) PAM instrumentation requirements is to ensure that the control room operators are provided with information regarding adverse conditions in containment following a design basis event. This change is acceptable because the requirements continue to ensure that the instruments are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. Containment Area Radiation (High Range) PAM instrumentation is required to be OPERABLE in MODES 1, 2, and 3. This is acceptable because in MODES 4, 5, and 6, accidents of the type that would require these instruments are less likely to occur because of reduced temperature and pressure in the RCS and secondary system. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L.10 Not used.

L.11 *(Category 3 – Relaxation of Completion Time)* CTS Table 3.3-6 Action 22A requires, when one or both Containment High Range Area Monitor channels become inoperable, the inoperable channels to be restored to OPERABLE status

DISCUSSION OF CHANGES
ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

within 7 days. ITS 3.3.3 ACTION A allows 30 days to restore one inoperable channel of the Containment Area Radiation (High Range) Function to OPERABLE status. This changes the CTS by allowing one channel of the Containment Area Radiation (High Range) Function to be inoperable for a period of 30 days.

The purpose of the CTS allowed outage times is to limit unit operation in the MODES of Applicability when required equipment is inoperable. This change is acceptable due to the passive function of these PAM instruments and the operator's ability to respond to an accident utilizing redundant instruments. The change is also considered acceptable since the probability of an event requiring the operator to utilize this instrumentation to respond to the event is low. This change is designated as less restrictive because additional time is allowed to restore instrument channels to OPERABLE status than was allowed in the CTS.

L.12 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS Table 4.3-3 requires the performance of a CHANNEL CHECK of the Containment High Range Area Monitors once per 12 hours. ITS SR 3.3.3.1 requires the performance of a CHANNEL CHECK of the Containment Area Radiation (High Range) Function instrumentation once per 31 days. This changes the CTS by extending the Surveillance interval for performance of a CHANNEL CHECK of the Containment Area Radiation (High Range) Function instrumentation from 12 hours to 31 days.

The purpose of the CHANNEL CHECK is to perform a qualitative assessment to ensure that gross instrumentation failure has not occurred. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. This change extends the Surveillance Frequency for performance of a CHANNEL CHECK of the Containment Area Radiation (High Range) Function instrumentation from 12 hours to 31 days. This change is acceptable since a Frequency of 31 days for the CHANNEL CHECK of this instrumentation provides adequate assurance that a gross failure will be detected since operating experience demonstrates that channel failure is rare. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.13 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS 4.6.4.1 requires each hydrogen analyzer to be demonstrated OPERABLE at least once per 92 days "on a STAGGERED TEST BASIS" by performing a CHANNEL CALIBRATION. ITS SR 3.3.3.2 requires a CHANNEL CALIBRATION of the hydrogen monitors to be performed at a Frequency of every 92 days, but does not include the "STAGGERED TEST BASIS" requirement. This changes the CTS by deleting the requirement to test on a STAGGERED TEST BASIS.

The purpose of the CHANNEL CALIBRATION surveillance is to demonstrate the OPERABILITY of the hydrogen monitors. This change is acceptable because the new Surveillance Frequency has been evaluated to ensure that it provides an acceptable level of equipment reliability. This change deletes the requirement to perform the CHANNEL CALIBRATION on a STAGGERED TEST BASIS. The

DISCUSSION OF CHANGES
ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

intent of a requirement for staggered testing is to increase reliability of the component/system being tested. A number of studies have been performed that have demonstrated that staggered testing has negligible impact on component reliability. These analytical and subjective analyses have determined that staggered testing 1) is operationally difficult, 2) has negligible impact on component reliability, 3) is not as significant as initially thought, 4) has no impact on failure frequency, 5) introduces additional stress on components potentially causing increased component failures rates and component wearout, 6) results in reduced redundancy testing, and 7) increases likelihood of human error by increasing testing intervals. Therefore, the hydrogen monitors CHANNEL CALIBRATION staggered testing requirements have been deleted. This change is designated as less restrictive because the intervals between performances of the Surveillances for the two hydrogen monitors can be larger or smaller under the ITS than under the CTS.

L.14 *(Category 1 – Relaxation of LCO Requirements)* CTS Table 3.3-6, Instrument 1.A.ii specifies the Containment High Range Area Monitor channel instrument numbers to be VRA 1310/1410 (Unit 1) and VRA 2310/2410 (Unit 2). ITS Table 3.3.3-1 Function 10 does not specify the instrument numbers. This changes the CTS by deleting the Containment High Range Area Monitor channel instrument numbers from the Technical Specifications.

The purpose of CTS Table 3.3-6, Instrument 1.A.ii is to ensure the appropriate instrument channels are OPERABLE. This change is acceptable because the LCO and associated Surveillance Requirements continue to ensure that the instrumentation is maintained consistent with the safety analyses and licensing basis. The Containment High Range Area Monitor instrument channel numbers have been deleted from the Technical Specifications. The instrument numbers are not necessary to ensure the equipment is OPERABLE. The requirements to maintain the instrumentation (Containment Area Radiation (High Range) channels) OPERABLE is sufficient to ensure the appropriate equipment is maintained OPERABLE. The use of a description of the instrument channel in the Technical Specifications has been proven to be sufficient. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

Unit 1 LCO 3.3.3.8, Unit 2 LCO 3.3.3.6, LCO 3.3.3.1, LCO 3.6.4.1

LCO 3.3.3 The PAM Instrumentation for each Function in Table 3.3.3-1 shall be OPERABLE.

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

TSTF-359

- NOTES -

DOCs A.2 and M.4

1. LCO 3.0.4 is not applicable.
2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one required channel inoperable.	A.1 Restore required channel to OPERABLE status.	30 days INSERT 1 (8)
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.6. (6)	Immediately (6) INSERT 1A (8)
C. - NOTE - Not applicable to hydrogen monitor channels. One or more Functions with two or more required channels inoperable.	C.1 Restore all but one channel to OPERABLE status. (9)	7 days (8)
D. Two hydrogen monitor channels inoperable.	D.1 Restore one hydrogen monitor channel to OPERABLE status.	72 hours (8)

Handwritten margin notes: Unit 1 3.3.3.8 Actions a and b, Unit 2 3.3.3.6 Actions a and b, 3.6.4.1 Action, Table 3.3-6 Action 22A.1; Unit 1 3.3.3.8 Actions a and b, Unit 2 3.3.3.6 Actions a and b, Table 3.3-6 Action 22A.2, 3.6.4.1 Action a; Unit 1 3.3.3.8 Action a, Unit 2 3.3.3.6 Action a; Table 3.3-6 Action 22A.1, DOC L.5; 3.6.4.1 Action b

CTS

(8) **INSERT 1**

-NOTE-
Not applicable to Functions 14 and 23.

(8) **INSERT 1A**

Unit 1 3.3.3.8 Action a, Unit 2 3.3.3.6 Action a	C. -NOTE- Only applicable to Functions 14 and 23. One or more Functions with one required channel inoperable.	C.1 Restore required channel to OPERABLE status.	30 days

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
E. Required Action and associated Completion Time of Condition C or D not met.	E.1	Enter the Condition referenced in Table 3.3.3-1 for the channel.	Immediately
F. As required by Required Action E.1 and referenced in Table 3.3.3-1.	F.1	Be in MODE 3.	6 hours
	AND		
	F.2	Be in MODE 4.	12 hours
G. As required by Required Action E.1 and referenced in Table 3.3.3-1.	G.1	Initiate action in accordance with Specification 5.6.0.	Immediately

SURVEILLANCE REQUIREMENTS

- NOTE -
SR 3.3.3.1 and SR 3.3.3.2 apply to each PAM Instrumentation Function in Table 3.3.3-1.

SURVEILLANCE		FREQUENCY
SR 3.3.3.1	Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days
SR 3.3.3.2	- NOTE - Neutron detectors are excluded from CHANNEL CALIBRATION. Perform CHANNEL CALIBRATION.	18 months

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CTS

(1) **INSERT 2**

4.6.4.1	SR 3.3.3.2	Perform CHANNEL CALIBRATION for Function 11.	92 days

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(3) (All changes on this page, except where noted)

CTS
Unit 1 Table 3.3-11
Unit 2 Table 3.3-10

Table 3.3.3-1 (page 1 of 1)
Post Accident Monitoring Instrumentation

CTS		FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION E.1
DOC M.4	1.	Power Range Neutron Flux (Steam Generator (SG) Pressure (per SG))	2	E (G)
6	2.	Source Range Neutron Flux	2	E (G)
2	3.	Reactor Coolant System (RCS) Hot Leg Temperature (Wide Range)	2 per loop	E (G)
3	4.	RCS Cold Leg Temperature (Wide Range)	2 per loop	E (G)
4	5.	RCS Pressure (Wide Range)	2	E
16	6.	Reactor Vessel Water Level (Coolant Inventory Tracking System (Reactor Vessel Level Indication))	2	F (H)
18	7.	Containment Sump Water Level (Wide Range)	2	E (G)
1	8.	Containment Pressure (Wide (Narrow) Range)	2	E (G)
DOC M.4	9.	Penetration Flow Path Containment Isolation Valve Position	2 per penetration flow path[(a)(b)]	E
Table 3.3-6 item 1.A.11	10.	Containment Area Radiation (High Range)	2	F (H)
LCO 3.6.4.1	11.	Hydrogen Monitors	2	E (G)
5	12.	Pressurizer Level	2 (4)	E (G)
DOC M.4	13.	Steam Generator Water Level (Wide Range)	2 per steam generator	E
DOC M.4	14.	Condensate Storage Tank Level	2 (1)	E (H) (10)
15	15.	Core Exit Temperature - Quadrant 1 (2)	2[(c)]	E (G)
15	16.	Core Exit Temperature - Quadrant 2	2[(c)]	E (G)
15	17.	Core Exit Temperature - Quadrant 3	2[(c)]	E
15	18.	Core Exit Temperature - Quadrant 4	2[(c)]	E
7, 10	19.	Auxiliary Feedwater Flow (Secondary Heat Sink Indication (per SG))	2 (d)	E

DOC M.4 (a) Not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured.

DOC M.4 (b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

15 (c) A channel consists of two (one) core exit thermocouples (CETs).

- REVIEWER'S NOTE -
Table 3.3.3-1 shall be amended for each unit as necessary to list:
1. All Regulatory Guide 1.97, Type A instruments and
2. All Regulatory Guide 1.97, Category I, non-Type A instruments in accordance with the unit's Regulatory Guide 1.97, Safety Evaluation Report.

(4)

INSERT 3 (3)

INSERT 4 (5) (3)

CTS
Unit 1 Table 3.3-11
Unit 2 Table 3.3-10

(3) **INSERT 3**

DOC M.4	20. Emergency Core Cooling System Flow (per train)	2[e]	G
DOC M.4	21. Containment Pressure (Wide Range)	2	G
8	22. Refueling Water Storage Tank Level	2	G
11	23. RCS Subcooling Margin Monitor	1[f]	G
Doc M.4	24. Component Cooling Water Pump Circuit Breaker Status	2	H

(3)(5) **INSERT 4**

* Note (d) Any combination of two instruments per SG, including Steam Generator Water Level (Narrow Range) and Auxiliary Feedwater Flow, can be used to satisfy Function 19 OPERABILITY requirements.

DOC M.4 (e) Any combination of two instruments per train, including Centrifugal Charging Pump Flow, Safety Injection Pump Flow, Centrifugal Charging Pump Circuit Breaker Status, and Safety Injection Pump Circuit Breaker Status, can be used to satisfy Function 20 OPERABILITY requirements.

** Note (f) An OPERABLE plant process computer subcooling margin readout can be used as a substitute for an inoperable Function 23, RCS Subcooling Margin Monitor.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

1. An additional CHANNEL CALIBRATION (ITS SR 3.3.3.2) has been added consistent with the current licensing basis for performing CHANNEL CALIBRATION of the hydrogen analyzers. The Note to the Surveillance Requirements has been modified and the subsequent Surveillance has been modified and renumbered due to the addition.

2. The brackets are removed and the proper plant specific information/value is provided.

3. The PAM Instrumentation Functions and number of required channels have been revised in ISTS Table 3.3.3-1 to reflect the CNP nomenclature, design, and licensing basis with respect to the plant-specific Regulatory Guide 1.97 Type A instruments and Category 1, non-Type A, instruments.

4. The ISTS Reviewer's Note has been deleted since it is not intended to be included in the ITS.

5. A new footnote (d) is added to ISTS Table 3.3.3-1, Function 19, Auxiliary Feedwater Flow to allow ITS Table 3.3.3-1, Function 22, Steam Generator Water Level (Narrow Range) channel(s) to be credited with satisfying the corresponding Auxiliary Feedwater Flow channel(s) OPERABILITY requirements. This change is consistent with the allowances of the "*" footnote in Unit 1 CTS Table 3.3-11 and Unit 2 CTS Table 3.3-10.

6. Changes have been made due to changes in other Specifications.

7. Not used.

8. A new ACTION, ITS 3.3.3 ACTION C, has been added to cover those PAM Functions that have only one required channel. Currently, ISTS 3.3.3 ACTIONS A and B are written to cover the inoperability of one channel for a Function. However, these ACTIONS are written with the understanding that all the Functions have two required channels. Thus, when one of the two channels are inoperable and not restored within the 30 day Completion Time of ISTS 3.3.3 ACTION A, ISTS 3.3.3 ACTION B is entered and allows the unit to continue to operate as long as a report is submitted. This Action is not appropriate for Functions that have only one required channel. Therefore, ITS ACTION C has been added to require restoration of the inoperable channel in 30 days. If not restored, ITS 3.3.3 ACTION F (ISTS 3.3.3 ACTION E) is entered, which then directs entry into ITS 3.3.3 ACTION G (ISTS 3.3.3 ACTION F), an ACTION that requires a unit shutdown. As Noted, ITS 3.3.3 ACTION C is only applicable to Functions 14 and 23, the two Functions that require only one channel to be OPERABLE. For clarity, a Note is also added to ITS 3.3.3 Condition A stating that it is not applicable to Functions 14 and 23. Due to this new ACTION, subsequent ACTIONS have been renumbered and the ACTIONS referenced in ITS Table 3.3.3-1 have all been renumbered.

9. ISTS 3.3.3 Condition C states "One or more Functions with two required channels inoperable" and ISTS 3.3.3 Required Action C.1 states "Restore one channel to OPERABLE status." This ISTS ACTION is intended to cover the condition of when all required channels of a Function are inoperable. It also assumes that each Function only has two channels. ITS Table 3.3.3-1 Function 13 has four required

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

channels. Therefore, for consistency with the ISTS requirements, ISTS 3.3.3 Condition C (ITS 3.3.3 Condition D) has been changed to cover the Condition of "two or more" required channels inoperable and ISTS 3.3.3 Required Action C.1 (ITS 3.3.3 Required Action D.1) has been changed to require restoring "all but one" channel to OPERABLE status. This ensures the intent of the ISTS is maintained.

10. ISTS Table 3.3.3-1 Function 14, Condensate Storage Tank Level, requires entry into ISTS 3.3.3 Condition F (ITS 3.3.3 Condition G) if two channels are inoperable and not restored within the 7 day Completion Time of ISTS 3.3.3 ACTION C (ITS 3.3.3 ACTION D). ISTS 3.3.3 ACTION F (ITS 3.3.3 ACTION G) requires a unit shutdown. The DC Cook design includes only one Condensate Storage Tank Level channel. In lieu of requiring a unit shutdown per ITS 3.3.3 ACTION G when the one required channel is inoperable and not restored within the 30 day Completion Time of ITS 3.3.3 ACTION C, the ITS will allow entry into ITS 3.3.3 Condition H (ISTS 3.3.3 Condition G), which will allow continued operation as long as a report is submitted to the NRC in accordance with ITS 5.6.6. This is acceptable because, as stated in the NRC Regulatory Guide 1.97 Safety Evaluation for CNP Units 1 and 2, there are multiple alternate methods for monitoring availability of condensate. Furthermore, as required by ITS 5.6.6, the NRC would be required to be notified of the preplanned alternate methods to be used and the schedule for restoring the primary instrument to OPERABLE status.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.3 Post Accident Monitoring (PAM) Instrumentation

BASES

BACKGROUND

The primary purpose of the PAM instrumentation is to display unit variables that provide information required by the control room operators during accident situations. This information provides the necessary support for the operator to take the manual actions for which no automatic control is provided and that are required for safety systems to accomplish their safety functions for Design Basis Accidents (DBAs).

The OPERABILITY of the accident monitoring instrumentation ensures that there is sufficient information available on selected unit parameters to monitor and to assess unit status and behavior following an accident.

The availability of accident monitoring instrumentation is important so that responses to corrective actions can be observed and the need for, and magnitude of, further actions can be determined. These essential instruments are identified by unit specific documents (Ref. 1) addressing the recommendations of Regulatory Guide 1.97 (Ref. 2) as required by Supplement 1 to NUREG-0737 (Ref. 3).

In References 1 and 2 (1)

(3) (4) (1)

The instrument channels required to be OPERABLE by this LCO include two classes of parameters identified during unit specific implementation of Regulatory Guide 1.97 as Type A and Category I variables. (5)

Type A variables are included in this LCO because they provide the primary information required for the control room operator to take specific manually controlled actions for which no automatic control is provided, and that are required for safety systems to accomplish their safety functions for DBAs. Because the list of Type A variables differs widely between units, Table 3.3.3-1 in the accompanying LCO contains no examples of Type A variables, except for those that may also be Category I variables. (2)

Category I variables are the key variables deemed risk significant because they are needed to: (2)

- Determine whether other systems important to safety are performing their intended functions,
- Provide information to the operators that will enable them to determine the likelihood of a gross breach of the barriers to radioactivity release, and

BASES

BACKGROUND (continued)

- Provide information regarding the release of radioactive materials to allow for early indication of the need to initiate action necessary to protect the public, and to estimate the magnitude of any impending threat.

These key variables are identified by the unit specific Regulatory Guide 1.97 analyses (Ref. 1). These analyses identify the unit specific Type A and Category I variables and provide justification for deviating from the NRC proposed list of Category I variables.

- REVIEWER'S NOTE -

Table 3.3.3-1 provides a list of variables typical of those identified by the unit specific Regulatory Guide 1.97 analyses. Table 3.3.3-1 in unit specific Technical Specifications (TS) shall list all Type A and Category I variables identified by the unit specific Regulatory Guide 1.97 analyses, as amended by the NRC's Safety Evaluation Report (SER).

The specific instrument Functions listed in Table 3.3.3-1 are discussed in the LCO section.

APPLICABLE SAFETY ANALYSES

The PAM instrumentation ensures the operability of Regulatory Guide 1.97 Type A and Category I variables so that the control room operating staff can:

- Perform the diagnosis specified in the emergency operating procedures (these variables are restricted to preplanned actions for the primary success path of DBAs), e.g., loss of coolant accident (LOCA),
- Take the specified, pre-planned, manually controlled actions, for which no automatic control is provided, and that are required for safety systems to accomplish their safety function,
- Determine whether systems important to safety are performing their intended functions,
- Determine the likelihood of a gross breach of the barriers to radioactivity release,
- Determine if a gross breach of a barrier has occurred, and

(2) **INSERT 1**

The PAM Instrumentation LCO also ensures the OPERABILITY of Category 1, non-Type A, variables so the control room staff can:

BASES

APPLICABLE SAFETY ANALYSES (continued)

- Initiate action necessary to protect the public and to estimate the magnitude of any impending threat.

PAM instrumentation that meets the definition of Type A in Regulatory Guide 1.97 satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii). Category 1 non-Type A, instrumentation must be retained in TS because it is intended to assist operators in minimizing the consequences of accidents. Therefore, Category 1 non-Type A, variables are important for reducing public risk. (5) (5)

LCO

The PAM instrumentation LCO provides OPERABILITY requirements for Regulatory Guide 1.97 Type A monitors, which provide information required by the control room operators to perform certain manual actions specified in the unit Emergency Operating Procedures. These manual actions ensure that a system can accomplish its safety function, and are credited in the safety analyses. Additionally, this LCO addresses Regulatory Guide 1.97 instruments that have been designated Category 1 non-Type A. (5)

The OPERABILITY of the PAM instrumentation ensures there is sufficient information available on selected unit parameters to monitor and assess unit status following an accident. This capability is consistent with the recommendations of Reference ~~2~~ 3. (1)

LCO 3.3.3 requires two OPERABLE channels for most Functions. Two OPERABLE channels ensure no single failure prevents operators from getting the information necessary for them to determine the safety status of the unit, and to bring the unit to and maintain it in a safe condition following an accident.

Furthermore, OPERABILITY of two channels allows a CHANNEL CHECK during the post accident phase to confirm the validity of displayed information. ~~More than two channels may be required at some units if the unit specific Regulatory Guide 1.97 analyses (Ref. 1) determined that failure of one accident monitoring channel results in information ambiguity (that is, the redundant displays disagree) that could lead operators to defeat or fail to accomplish a required safety function.~~ (1) (1)

~~The~~ One exception to the two channel requirement is Containment Isolation Valve (CIV) Position. In this case, the important information is the status of the containment penetrations. The LCO requires one position indicator for each active CIV. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active

(1) – (All changes on this page) except as Noted

BASES

LCO (continued)

valve and prior knowledge of a passive valve, or via system boundary status. If a normally active CIV is known to be closed and deactivated, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE.

Table 3.3.3-1 provides a list of variables typical of those identified by the unit specific Regulatory Guide 1.97 (Ref. 1) analyses. Table 3.3.3-1 in unit specific TS should list all Type A and Category I variables identified by the unit specific Regulatory Guide 1.97 analyses, as amended by the NRC's SER.

Type A and Category 1 variables are required to meet Regulatory Guide 1.97 Category 1 (Ref. 4) design and qualification requirements for seismic and environmental qualification, single failure criterion, utilization of emergency standby power, immediately accessible display, continuous readout, and recording of display. INSERT 1A

Listed below are discussions of the specified instrument Functions listed in Table 3.3.3-1. These discussions are intended as examples of what should be provided for each Function when the unit specific list is prepared.

1. Power Range and Source Range Neutron Flux (NRI-21 and NRI-23)

Power Range and Source Range Neutron Flux indication is provided to verify reactor shutdown. The two ranges are necessary to cover the full range of flux that may occur post accident. (is a Category 1 variable) INSERT 1B

Neutron flux is used for accident diagnosis, verification of subcriticality, and diagnosis of positive reactivity insertion.

INSERT 2

3, 4. Reactor Coolant System (RCS) Hot and Cold Leg Temperatures (Wide Range)

RCS Hot and Cold Leg Temperatures are Category 1 variables (Type A,) provided for verification of core cooling and long term surveillance.

RCS hot and cold leg temperatures are used to determine RCS subcooling margin. RCS subcooling margin will allow termination of safety injection (SI), if still in progress, or reinitiation of SI if it has been stopped. RCS subcooling margin is also used for unit stabilization and cooldown control.

(1) **INSERT 1A**

, except for approved deviations, as described in References 1 and 2.

(1) **INSERT 1B**

of each of the two neutron flux instruments (10E-8 to 200% power)

(4) (1) **INSERT 2**

2. Steam Generator (SG) Pressure (per SG)

Steam Generator Pressure is a Type A, Category 1 variable provided for determination of required core exit temperature. Three steam generator pressure channels per steam generator are provided (MPP-210, MPP-211, MPP-212, MPP-220, MPP-221, MPP-222, MPP-230, MPP-231, MPP-232, MPP-240, MPP-241, and MPP-242). Each channel has a range of 0 psig to 1200 psig. However, only two steam generator pressure channels per steam generator are required to satisfy the guidance in Reference 3. Each steam generator is treated separately and each steam generator is considered a separate Function. Therefore, separate Condition entry is allowed for each steam generator. This is acceptable since each steam generator has two channels and the channels of one steam generator are independent from the channels of the other steam generators.

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1 — (All changes on this page) except as noted

BASES

LCO (continued)

In addition, RCS cold leg temperature is used in conjunction with RCS hot leg temperature to verify the unit conditions necessary to establish natural circulation in the RCS.

INSERT 3

Reactor outlet temperature inputs to the Reactor Protection System are provided by two fast response resistance elements and associated transmitters in each loop. The channels provide indication over a range of 32°F to 700°F.

5. Reactor Coolant System Pressure (Wide Range) — RCS

RCS wide range pressure is a Category I variable provided for verification of core cooling and RCS integrity long term surveillance. — Type A, 5

RCS pressure is used to verify delivery of SI flow to RCS from at least one train when the RCS pressure is below the pump shutoff head. RCS pressure is also used to verify closure of manually closed spray line valves and pressurizer power operated relief valves (PORVs).

INSERT 4

In addition to these verifications, RCS pressure is used for determining RCS subcooling margin. RCS subcooling margin will allow termination of SI, if still in progress, or reinitiation of SI if it has been stopped. RCS pressure can also be used:

- to determine whether to terminate actuated SI or to reinitiate stopped SI,
- to determine when to reset SI and shut off low head SI,
- to manually restart low head SI,
- as reactor coolant pump (RCP) trip criteria, and
- to make a determination on the nature of the accident in progress and where to go next in the procedure.

RCS subcooling margin is also used for unit stabilization and cooldown control.

RCS pressure is also related to three decisions about depressurization. They are:

INSERT 5

(1) INSERT 3

The RCS hot leg and RCS cold leg channels each receive input from one resistance temperature detector (RTD). In each of RCS loops 1 and 3, there is one RCS hot leg RTD (NTR-110 with MR-9, and NTR-130 with MR-11) and one RCS cold leg RTD (NTR-210 with MR-9, and NTR-230 with MR-11) that satisfy the guidance of Reference 3.

(1) INSERT 4

as criteria to manually trip the reactor coolant pumps

(1) INSERT 5

Two RCS Pressure (Wide Range) channels are provided (NPS-110 and NPS-111, with MR-13), each with a range of 0 psig to 3000 psig.

(1) — (All changes on this page)

BASES

LCO (continued)

- to determine whether to proceed with primary system depressurization,
- to verify termination of depressurization, and
- to determine whether to close accumulator isolation valves during a controlled cooldown/depressurization.

A final use of RCS pressure is to determine whether to operate the pressurizer heaters.

In some units, RCS pressure is a Type A variable because the operator uses this indication to monitor the cooldown of the RCS following a steam generator tube rupture (SGTR) or small break LOCA. Operator actions to maintain a controlled cooldown, such as adjusting steam generator (SG) pressure or level, would use this indication. Furthermore, RCS pressure is one factor that may be used in decisions to terminate RCP operation.

6. Reactor Vessel Water Level (Indication) Reactor Coolant Inventory Tracking System a Category 1 variable

Reactor Vessel Water Level Reactor coolant inventory is provided for verification and long term surveillance of core cooling. It is also used for accident diagnosis and to determine reactor coolant inventory adequacy.

The Reactor Vessel Water Level Monitoring Reactor Coolant Inventory Tracking System provides a direct measurement of the collapsed liquid level above the fuel alignment plate. The collapsed level represents the amount of liquid mass that is in the reactor vessel above the core. Measurement of the collapsed water level is selected because it is a direct indication of the water inventory.

INSERT 6

7. Containment Sump Water Level (Wide Range)

Containment Sump Water Level is provided for verification and long term surveillance of RCS integrity.

Containment Sump Water Level is used to determine:

- containment sump level accident diagnosis,
- when to begin the recirculation procedure, and

INSERT 7

1

INSERT 6

The Reactor Coolant Inventory Tracking System consists of two channels of instrumentation (NLI-110, NLI-111, NLI-120, NLI-121, NLI-130, and NLI-131). Each channel is capable of measuring upper plenum level, narrow range level, and dynamic head (i.e., wide range level).

1

INSERT 7

Containment Water Level is a Type A, Category 1 variable provided for determination of adverse containment conditions. Two containment water level channels are provided (NLI-320 and NLI-321). Each channel is capable of measuring from 599' 3" elevation to 614' elevation (containment floor level to maximum flood level). Additionally, each channel is supplemented by two level switches. Each level switch will provide indication in the control room when the containment water level has exceeded its associated setpoint. One level switch actuates at a containment level of 602' 2 3/4" (NLI-330 and NLI-340) while the other level switch actuates when the containment level reaches 613' 0" (NLI-331 and NLI-341) The low switch provides a decision point associated with Type A use (switch the Emergency Core Cooling System (ECCS) suction source from the refueling water storage tank to the containment recirculation sump) while the high switch confirms whether or not the containment water level has exceeded its design basis value.

(1) (All changes on this page)

BASES

LCO (continued)

- whether to terminate SI if still in progress.

8. Containment Pressure (Wide Range) [Narrow]

[INSERT 8]

Containment Pressure (Wide Range) is provided for verification of RCS and containment OPERABILITY.

Containment pressure is used to verify closure of main steam isolation valves (MSIVs) and containment spray Phase B isolation when High-3 containment pressure is reached.

9. Containment Isolation Valve Position [Penetration Flow Path]

CIV [Containment Isolation Valve] [(excluding check valves)] Position is [a Category 1 variable] provided for verification of Containment OPERABILITY, and Phase A and Phase B isolation.

When used to verify Phase A and Phase B isolation [In the case of CIV position], the important information is the isolation status of the containment penetrations [(UFSAR Table 5.4-1)]. The LCO requires one channel of valve position indication in the control room to be OPERABLE for each active CIV in a containment penetration flow path [requiring post-accident valve position indication], i.e., two total channels of CIV position indication for a penetration flow path with two active valves. For containment penetrations with only one active CIV having control room indication, Note (b) requires a single channel of valve position indication to be OPERABLE. This is sufficient to redundantly verify the isolation status of each isolable penetration either via indicated status of the active valve, as applicable, and prior knowledge of a passive valve, or via system boundary status. If a normally active CIV is known to be closed and deactivated [penetration flow path is isolated], position indication [for the CIVs] is not needed to determine status. Therefore, the position indication for valves in this state [in an isolated penetration flow path] is not required to be OPERABLE. Note (a) to the Required Channels states that the Function is not required for isolation valves whose associated penetration is isolated by at least one closed and deactivated automatic valve, closed manual valve, blind flange, or check valve with flow through the valve secured. Each penetration is treated separately and each penetration flow path is considered a separate function. Therefore, separate Condition entry is allowed for each inoperable penetration flow path.

10. Containment Area Radiation (High Range)

Containment Area Radiation [(High Range)] is [a Type A, Category 1 variable] provided to monitor for the potential of significant radiation releases and to provide release assessment [for determination of adverse containment conditions]

1 **INSERT 8**

Containment Pressure (Narrow Range) is a Type A, Category 1 variable used as criteria to manually establish or trip containment spray. Four containment pressure (narrow range) channels are provided (PPP-300, PPP-301, PPP-302, and PPP-303). Each channel has a range of -5 psig to +12 psig. However, only two of containment pressure (narrow range) channels are required to satisfy the guidance in Reference 3.

(1) (All changes on this page)

BASES

LCO (continued)

INSERT 9

for use by operators in determining the need to invoke site emergency plans. Containment radiation level is used to determine if a high energy line break (HELB) has occurred, and whether the event is inside or outside of containment.

11. Hydrogen Monitors

Type A, Category 1 instruments

Hydrogen Monitors are provided to detect high hydrogen concentration conditions that represent a potential for containment breach from a hydrogen explosion. This variable is also important in verifying the adequacy of mitigating actions.

uncontrolled burn

INSERT 10

12. Pressurizer Level

a Type A, Category 1 variable

Pressurizer Level is used to determine whether to terminate SI, if still in progress, or to reinitiate SI if it has been stopped. Knowledge of pressurizer water level is also used to verify the unit conditions necessary to establish natural circulation in the RCS and to verify that the unit is maintained in a safe shutdown condition.

manually reduce ECCS flow,

INSERT 11

13. Steam Generator Water Level (Wide Range)

a Category 1 variable

SG Water Level is provided to monitor operation of decay heat removal via the SGs. The Category I indication of SG level is the extended startup range level instrumentation. The extended startup range level covers a span of ≥ 6 inches to ≤ 394 inches above the lower tubesheet. The measured differential pressure is displayed in inches of water at 68°F.

INSERT 12

Temperature compensation of this indication is performed manually by the operator. Redundant monitoring capability is provided by two trains of instrumentation. The uncompensated level signal is input to the unit computer, a control room indicator, and the Emergency Feedwater Control System.

SG Water Level (Wide Range) is used to:

- identify the faulted SG following a tube rupture,
- verify that the intact SGs are an adequate heat sink for the reactor,

(1) **INSERT 9**

Two containment area radiation channels are provided (VRA-1310 and VRA-1410 (Unit 1) and VRA-2310 and VRA-2410 (Unit 2)). Each channel is capable of monitoring from 1 R/hr to 10E7 R/hr.

(1) **INSERT 10**

Two hydrogen monitors are provided (PAS-H2-A-CRI and PAS-H2-B-CRI for ESR-1 through 9). Each hydrogen monitor is capable of determining hydrogen concentration in the range of 0% to 30% hydrogen by volume. Each analyzer must be capable of sampling the containment.

(1) **INSERT 11**

Three pressurizer level channels are provided (NLP-151, NLP-152, and NLP-153). Each channel has a range of 0% to 100% (96% of indicated volume). However, only two pressurizer level channels are required to satisfy the guidance in Reference 3.

(1) **INSERT 12**

Four steam generator level (wide range) channels (one per steam generator) are provided (BLI-110, BLI-120, BLI-130, and BLI-140). Each channel is capable of monitoring from 12 inches above the steam generator tube sheet to the separators.

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1 — (All changes on this page)

BASES

LCO (continued)

- determine the nature of the accident in progress (e.g., verify an SGTR), and
- verify unit conditions for termination of SI during secondary unit HELBs outside containment.

At some units, operator action is based on the control room indication of SG level. The RCS response during a design basis small break LOCA depends on the break size. For a certain range of break sizes, the boiler condenser mode of heat transfer is necessary to remove decay heat. Extended startup range level is a Type A variable because the operator must manually raise and control SG level to establish boiler condenser heat transfer. Operator action is initiated on a loss of subcooled margin. Feedwater flow is increased until the indicated extended startup range level reaches the boiler condenser setpoint.

14. Condensate Storage Tank (CST) Level

a Category 1 variable

CST Level is provided to ensure water supply for auxiliary feedwater (AFW). The CST provides the ensured safety grade water supply for the AFW System. The CST consists of two identical tanks connected by a common outlet header. Inventory is monitored by a 0 inch to 144 inch level indication for each tank. CST Level is displayed on a control room indicator, strip chart recorder, and unit computer. In addition, a control room annunciator alarms on low level.

qualified

INSERT 13

(CLI-114)

At some units, CST Level is considered a Type A variable because the control room meter and annunciator are considered the primary indication used by the operator.

The DBAs that require AFW are the loss of electric power, steam line break (SLB), and small break LOCA.

The CST is the initial source of water for the AFW System. However, as the CST is depleted, manual operator action is necessary to replenish the CST or align suction to the AFW pumps from the hotwell.

(1) **INSERT 13**

from essentially the top of the CST to the bottom of the CST (95% total volume) by a single channel provided to satisfy the guidance of Reference 3, as described in Reference 1.

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1 (All changes on this page)

BASES

LCO (continued)

15, 16, 17, 18. Core Exit Temperature

INSERT 14

Core Exit Temperature is provided for verification and long term surveillance of core cooling.

INSERT 15

An evaluation was made of the minimum number of valid core exit thermocouples (CET) necessary for measuring core cooling. The evaluation determined the reduced complement of CETs necessary to detect initial core recovery and trend the ensuing core heatup. The evaluations account for core nonuniformities, including incore effects of the radial decay power distribution, excore effects of condensate runback in the hot legs, and nonuniform inlet temperatures. Based on these evaluations, adequate core cooling is ensured with two valid Core Exit Temperature channels per quadrant with two CETs per required channel. The CET pair are oriented radially to permit evaluation of core radial decay power distribution. Core Exit Temperature is used to determine whether to terminate SI, if still in progress, or to reinitiate SI if it has been stopped. Core Exit Temperature is also used for unit stabilization and cooldown control.

Two OPERABLE channels of Core Exit Temperature (with one core exit thermocouple per channel) are required in each quadrant to provide indication of radial distribution of the coolant temperature rise across representative regions of the core. Power distribution symmetry was considered in determining the specific number and locations provided for diagnosis of local core problems. Therefore, two randomly selected thermocouples are not sufficient to meet the two thermocouples per channel requirement in any quadrant. The two thermocouples in each channel must meet the additional requirement that one is located near the center of the core and the other near the core perimeter, such that the pair of Core Exit Temperatures indicate the radial temperature gradient across their core quadrant. Unit specific evaluations in response to Item II.F.2 of NUREG-0737 (Ref. 3) should have identified the thermocouple pairings that satisfy these requirements. Two sets of two thermocouples (Core exit temperature channels per quadrant) ensure a single failure will not disable the ability to determine the radial temperature gradient.

INSERT 16

19. Auxiliary Feedwater Flow (Secondary Heat Sink Indication (per SG))

AFW Flow is provided to monitor operation of decay heat removal via the SGs.

INSERT 17

(1) **INSERT 14**

a Type A, Category 1 variable used to determine whether to manually reduce ECCS flow. This variable is also

(1) **INSERT 15**

In addition, core exit temperature is used for determining RCS subcooling margin.

(1) **INSERT 16**

Each core exit temperature channel (SG-30 and SG-31 for TC-1 through 65) has a range of 200°F to 2300°F.

(1) **INSERT 17**

Secondary Heat Sink Indication is a Type A, Category 1 variable used to determine whether to manually reduce ECCS flow. This variable is also

BASES

LCO (continued)

INSERT 18

The AFW Flow to each SG is determined from a differential pressure measurement calibrated for a range of 0 gpm to 1200 gpm. Redundant monitoring capability is provided by two independent trains of instrumentation for each SG. Each differential pressure transmitter provides an input to a control room indicator and the unit computer. Since the primary indication used by the operator during an accident is the control room indicator, the PAM specification deals specifically with this portion of the instrument channel. (1)

AFW flow is used three ways:

- to verify delivery of AFW flow to the SGs,
- to determine whether to terminate SI if still in progress, in conjunction with SG water level (narrow range), and
- to regulate AFW flow so that the SG tubes remain covered.

At some units, AFW flow is a Type A variable because operator action is required to throttle flow during an SLB accident to prevent the AFW pumps from operating in runout conditions. AFW flow is also used by the operator to verify that the AFW System is delivering the correct flow to each SG. However, the primary indication used by the operator to ensure an adequate inventory is SG level. (1)

INSERT 19

APPLICABILITY

The PAM instrumentation LCO is applicable in MODES 1, 2, and 3. These variables are related to the diagnosis and pre-planned actions required to mitigate DBAs. The applicable DBAs are assumed to occur in MODES 1, 2, and 3. In MODES 4, 5, and 6, unit conditions are such that the likelihood of an event that would require PAM instrumentation is low; therefore, the PAM instrumentation is not required to be OPERABLE in these MODES.

ACTIONS

Note 1 has been added in the ACTIONS to exclude the MODE change restriction of LCO 3.0.4. This exception allows entry into the applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require unit shutdown. This exception is acceptable due to the passive function of the instruments, the operator's ability to respond to an accident using alternate instruments and methods, and the low probability of an event requiring these instruments. (TSTF-359)

(1) INSERT 18

As stated in Note (d) to Table 3.3.3-1, the requirements for this variable are met by any combination of two instruments per SG, including Steam Generator Water Level (Narrow Range) and Auxiliary Feedwater Flow. One auxiliary feedwater flow channel per SG is provided (FFI-210, FFI-220, FFI-230, and FFI-240). Each channel is capable of measuring from 0 lbm/hr to 250,000 lbm/hr. Three steam generator water level (narrow range) channels per SG are provided (BLP-110, BLP-111, BLP-112, BLP-120, BLP-121, BLP-122, BLP-130, BLP-131, BLP-132, BLP-140, BLP-141, and BLP-142). Each channel is capable of measuring from below the first stage separator to the second stage separator. Thus, there are four available channels of Secondary Heat Sink Indication for each steam generator. Each steam generator is treated separately and each steam generator is considered a separate Function. Therefore, separate Condition entry is allowed for each steam generator. This is acceptable since each steam generator has two required channels and the channels of one steam generator are independent from the channels of the other steam generators.

(1) INSERT 19

20. Emergency Core Cooling System Flow (per train)

Emergency Core Cooling System Flow is a Type A, Category 1 variable used as criteria to manually trip the reactor coolant pumps. As stated in Note (e) to Table 3.3.3-1, the requirements for this variable are met by any combination of two instruments per train, including Centrifugal Charging Pump Flow, Safety Injection Pump Flow, Centrifugal Charging Pump Circuit Breaker Status, and Safety Injection Pump Circuit Breaker Status. Four Centrifugal Charging Pump Flow channels (two channels per train) are provided (IFI-51, IFI-52, IFI-53, and IFI-54). Each channel is capable of measuring from 0 gpm to 200 gpm. Two Safety Injection Pump Flow channels (one channel per train) are provided (IFI-260 and IFI-266). Each channel is capable of measuring from 0 gpm to 500 gpm. Two Centrifugal Charging Pump Circuit Breaker Status channels (one channel per train) are provided. Each channel is capable of indicating circuit breaker position (open or closed). Two Safety Injection Pump Circuit Breaker Status channels (one channel per train) are provided. Each channel is capable of indicating circuit breaker position (open or closed). One train consists of the Train A Safety Injection and Centrifugal Charging Pumps Breaker Status channels, the south Safety Injection Pump Flow channel, and the Loops 1 and 2 Centrifugal Charging Pump Flow channels, while the other train consists of the Train B Safety Injection and Centrifugal Charging Pumps Breaker Status channels, the north Safety Injection Pump Flow channel, and the Loops 3 and 4 Centrifugal Charging Pump Flow channels. Thus, there are five instrument channels per train that can be used to meet the LCO. The selection of which train the instruments are associated with is based upon the instrumentation power supply. Each train is treated separately and each train is considered a separate Function. Therefore, separate Condition entry is allowed for each train. This is acceptable since each train has two required channels and the channels of one train are independent from the channels of the other train.

1

INSERT 19 (continued)

21. Containment Pressure (Wide Range)

Containment Pressure (Wide Range) is a Category 1 variable provided for verification of RCS and containment OPERABILITY. Two containment pressure (wide range) channels are provided (PPA-310 and PPA-312). Each channel is capable of monitoring from -5 psig to +36 psig.

22. Refueling Water Storage Tank Level

Refueling Water Storage Tank Level is a Type A, Category 1 variable provided for determination of when the manual transfer to cold leg recirculation is required, based on low Refueling Water Storage Tank level. Two refueling water storage tank water level channels are provided (ILS-950 with MR-36, and ILS-951). Each channel is capable of monitoring from essentially the top of the tank (bottom of the tank overflow) to the bottom of the tank (bottom of the safety injection suction pipe).

23. RCS Subcooling Margin Monitor

RCS Subcooling Margin Monitor is a Type A variable provided for the determination of when to manually trip or when to reduce pressurizer spray and ECCS flow. This variable is also provided for verification of core cooling. The RCS Subcooling Margin Monitor calculates the margin to saturation for the RCS from inputs for RCS Pressure (Wide Range), Core Exit Temperature, RCS Hot Leg Temperature (Wide Range) and RCS Cold Leg Temperature (Wide Range). The RCS Subcooling Margin Monitor is capable of measuring from 425°F subcooling to 75°F superheat. The output of the RCS Subcooling Margin Monitor is indicated in the control room. As stated in Note (f) to Table 3.3.3-1, the plant process computer subcooling margin readout can also be used in place of the RCS Subcooling Margin Monitor indicator in the control room.

24. Component Cooling Water Pump Circuit Breaker Status

Component Cooling Water Pump Circuit Breaker Status is a Type A, Category 1 variable provided for verification of component cooling water flow to Engineered Safety Feature Systems. Two component cooling water pump circuit breaker status channels (one channel per component cooling water pump) are provided. Each channel is capable of indicating circuit breaker position (open or closed).

BASES

ACTIONS (continued)

(A) Note Ø has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed on Table 3.3.3-1. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function. (TSTF-359)

A.1

Condition A applies when one or more Functions (except Functions 14 and 23) have one required channel that is inoperable. Required Action A.1 requires restoring the inoperable channel to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account the remaining OPERABLE channels ~~or in the case of a Function that has only one required channel, other non-Regulatory Guide 1.97 instrument channels to monitor the Function~~ (INSERT 20), the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval. (6) (1) (4)

B.1

Condition B applies when the Required Action and associated Completion Time for Condition A are not met. This Required Action (6) specifies (immediate) initiation of actions in Specification 5.6.Ø, which requires a written report to be submitted to the NRC ~~immediately~~. This report discusses the results of the ~~root cause~~ evaluation (into the cause) of the inoperability and identifies proposed restorative actions. This action is appropriate in lieu of a shutdown requirement since alternative actions are identified before loss of functional capability, and given the likelihood of unit conditions that would require information provided by this instrumentation. (4) (6) (4) (4)

INSERT 19A

(D) Ø.1

Condition Ø applies when one or more Functions have two (or more) inoperable required channels (i.e., two channels inoperable in the same Function). Required Action Ø.1 requires restoring one channel in the Function(s) to OPERABLE status within 7 days. The Completion Time of 7 days is based on the relatively low probability of an event requiring PAM instrument operation and the availability of alternate means to obtain the required information. Continuous operation with two (or more) required channels (all but) inoperable in a Function is not acceptable because the alternate indications may not fully meet all performance qualification requirements (6)

6 INSERT 19A

C.1

Condition C applies when either Function 14 or 23 (or both) have one required channel that is inoperable. Required Action C.1 requires restoring the inoperable channel to OPERABLE status within 30 days. The 30 day Completion Time is based on operating experience and takes into account other non-Regulatory Guide 1.97 instrument channels to monitor the Function, the passive nature of the instrument (no critical automatic action is assumed to occur from these instruments), and the low probability of an event requiring PAM instrumentation during this interval.

1 INSERT 20

or remaining isolation barrier in the case of containment penetrations with only one CIV

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BASES

ACTIONS (continued)

applied to the PAM instrumentation. Therefore, requiring restoration of one inoperable channel of the Function limits the risk that the PAM Function will be in a degraded condition should an accident occur. Condition C is modified by a Note that excludes hydrogen monitor channels.

D.1

- REVIEWER'S NOTE -

Implementation of WCAP-14986, Rev 1, "Post Accident Sampling System Requirements: A Technical Basis," and the associated NRC Safety Evaluation dated June 14, 2000, allows other core damage assessment capabilities in lieu of the Post Accident Sampling System.

Condition D applies when two hydrogen monitor channels are inoperable. Required Action D.1 requires restoring one hydrogen monitor channel to OPERABLE status within 72 hours. The 72 hour Completion Time is reasonable based on the backup capability of the Post Accident Sampling System to monitor the hydrogen concentration for evaluation of core damage or other core damage assessment capabilities available and to provide information for operator decisions. Also, it is unlikely that a LOCA (which would cause core damage) would occur during this time.

E.1

Condition E applies when the Required Action and associated Completion Time of Condition C or D are not met. Required Action E.1 requires entering the appropriate Condition referenced in Table 3.3.3-1 for the channel immediately. The applicable Condition referenced in the Table is Function dependent. Each time an inoperable channel has not met any Required Action of Condition C or D, and the associated Completion Time has expired, Condition E is entered for that channel and provides for transfer to the appropriate subsequent Condition.

F.1 and F.2

If the Required Action and associated Completion Time of Condition C or D are not met and Table 3.3.3-1 directs entry into Condition F, the unit must be brought to a MODE where the requirements of this LCO do not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and MODE 4 within 12 hours.

BASES

ACTIONS (continued)

The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

(4) H.1

At this unit, alternate means of monitoring Reactor Vessel Water Level (1) and Containment Area Radiation have been developed and tested. , Condensate Storage Tank Level, and Component Cooling Water Flow These alternate means may be temporarily installed if the normal PAM channel cannot be restored to OPERABLE status within the allotted time. If these alternate means are used, the Required Action is not to shut down the unit but rather to follow the directions of Specification 5.6.6, in the Administrative Controls section of the TS. The report provided to the NRC should discuss the alternate means used, describe the degree to which the alternate means are equivalent to the installed PAM channels, justify the areas in which they are not equivalent, and provide a schedule for restoring the normal PAM channels. (6)

SURVEILLANCE REQUIREMENTS

INSERT 20A

A Note has been added to the SR Table to clarify that SR 3.3.3.1 and SR 3.3.3.3 apply to each PAM Instrumentation Function in Table 3.3.3-1. (6)

INSERT 20B

SR 3.3.3.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross instrumentation failure has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. The high radiation (4) Containment Area Radiation (High Range) instrumentation should be compared to similar unit instruments located throughout the unit.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including isolation, indication, and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit. If the channels are within the criteria, it is an indication that the channels are OPERABLE.

INSERT 21

(1)

(6) **INSERT 20A**

As noted at the beginning of the SRs, the following SRs

(6) **INSERT 20B**

, except where identified in the SR

(1) **INSERT 21**

When only one channel of the Reactor Coolant Inventory Tracking System is OPERABLE, the RCS Subcooling Margin Monitor and Core Exit Temperature channels may be used for performance of the CHANNEL CHECK of the OPERABLE Reactor Coolant Inventory Tracking System channel.

BASES

SURVEILLANCE REQUIREMENTS (continued)

As specified in the SR, a CHANNEL CHECK is only required for those channels that are normally energized.

The Frequency of 31 days is based on operating experience that demonstrates that channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels. (6)

SR 3.3.3.2 and SR 3.3.3.3

A CHANNEL CALIBRATION is performed every 92 days for Function 11 and 24 months for all other Functions (6) [18] months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to measured parameter with the necessary range and accuracy. This SR is modified by a Note that excludes neutron detectors. The calibration method for neutron detectors is specified in the Bases of LCO 3.3.1, "Reactor Trip System (RTS) Instrumentation." Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the Core Exit thermocouple sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element. (1) INSERT 22

INSERT 23 The Frequency is based on operating experience and consistency with the typical industry refueling cycle. (1)

REFERENCES

INSERT 24

1. [Unit specific document (e.g., FSAR, NRC Regulatory Guide 1.97 SER letter).] (1)

3 2. Regulatory Guide 1.97, [date] Revision 3, May 1983

4 3. NUREG-0737, Supplement 1, "TMI Action Items." (1)

(1) **INSERT 22**

For Function 9, the CHANNEL CALIBRATION shall consist of verifying that the position indication conforms to actual valve position. For Function 11, the CHANNEL CALIBRATION shall be performed using a 4% and 15% nominal hydrogen gas, balance nitrogen. For Functions 15, 16, 17, and 18, whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the Core Exit Temperature thermocouple sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing elements. For Functions 20 (Circuit Breaker Status channels) and 24, the CHANNEL CALIBRATION shall consist of verifying that the position indication conforms to actual circuit breaker position.

(6) **INSERT 23**

Both the 92 day and 24 month Frequencies are

(1) **INSERT 24**

1. NRC letter, T. G. Colburn (NRC) to M. P. Alexich (Indiana Michigan Power Company), "Emergency Response Capability – Conformance to Regulatory Guide 1.97 Revision 3 for the D. C. Cook Nuclear Plant, Units 1 and 2," dated December 14, 1990.

2. UFSAR, Table 7.8-1.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.3 BASES, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. The Background section of the ISTS 3.3.3 Bases contains information that describes the Type A variables and Category 1 variables. This same descriptive information is effectively duplicated in the Applicable Safety Analyses section of the ISTS 3.3.3 Bases. Therefore, the duplicate descriptive information in the Background section of the Bases is deleted. In addition, the description of these variables in the Applicable Safety Analyses section of the ISTS 3.3.3 Bases has been modified to clearly identify which functions are provided by Type A variables and which functions are provided by Category 1, non-Type A, variables.

3. The ISTS Reviewer's Note is deleted because it is not intended to be included in the plant specific ITS submittal.

4. Changes are made to reflect the Specifications.

5. Grammatical/editorial error corrected.

6. Changes are made to reflect changes made to the Specification.

7. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

8. The brackets have been removed and the proper plant specific information/value has been provided.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.3, POST ACCIDENT MONITORING (PAM) INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 4

ITS 3.3.4, Remote Shutdown Monitoring Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

REMOTE SHUTDOWN INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.4 3.3.3.5 The remote shutdown monitoring instrumentation channels ~~shown in Table 3.3-9~~ (LA.1) shall be OPERABLE ~~with readouts displayed external to the control room~~ (LA.2).

APPLICABILITY: MODES 1, 2 and 3.

ACTION: ← Add proposed ACTIONS Note (A.2)

ACTIONS A and B a. With the number of OPERABLE remote shutdown monitoring channels less than required by Table 3.3-9, either restore the inoperable channel to OPERABLE status within 30 days, or be in HOT SHUTDOWN within the next 12 hours.

Add proposed Required Action B.1 (M.1)

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1, SR 3.3.4.2 4.3.3.5 Each remote shutdown monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-6.

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D. C. COOK-UNIT 1

TABLE 3.3-9

REMOTE SHUTDOWN MONITORING INSTRUMENTATION

INSTRUMENT	READOUT LOCATION	MEASUREMENT RANGE	MINIMUM CHANNELS OPERABLE
1. Reactor Trip Breaker Indication	Hot Shutdown Panel in Unit No. 2 Control Room	OPEN-CLOSE	1/trip breaker
2. Pressurizer Pressure	Hot Shutdown Panel in Unit No. 2 Control Room	1700-2500 psig	1
3. Pressurizer Level	Hot Shutdown Panel in Unit No. 2 Control Room	0-100% of instrument span	1
4. Steam Generator Pressure	Hot Shutdown Panel in Unit No. 2 Control Room	0-1200 psig	1/steam generator
5. Steam Generator Level	Hot Shutdown Panel in Unit No. 2 Control Room	0-100% wide range instrument span	1/steam generator

A.1

LA.1

3/4 3-47

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ITS 3.3.4

ITS

A.1

TABLE 4.3-6

REMOTE SHUTDOWN MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

LA.1

INSTRUMENT	CHANNEL CHECK (SR 3.3.4.1)	CHANNEL CALIBRATION (SR 3.3.4.2)
1. Reactor Trip Breaker Indication	N.A.	N/A. ← 24 months (M.2)
2. Pressurizer Pressure	M	R
3. Pressurizer Level	M	R ← 24 months (L.1)
4. Steam Generator Level	M	R
5. Steam Generator Pressure	M	R

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ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

REMOTE SHUTDOWN INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.4 3.3.3.5 The remote shutdown monitoring instrumentation channels shown in Table 3.3-9 shall be OPERABLE with readouts displayed external to the control room. (LA.1) (LA.2)

APPLICABILITY: MODES 1, 2 and 3.

ACTION: Add proposed ACTIONS Note (A.2)

ACTIONS A and B a. With the number of OPERABLE remote shutdown monitoring channels less than required by Table 3.3-9, either restore the inoperable channel to OPERABLE status within 30 days, or be in HOT SHUTDOWN within the next 12 hours.

Add proposed Required Action B.1 (M.1)

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1, SR 3.3.4.2 4.3.3.5 Each remote shutdown monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-6.

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A.1

TABLE 3.3-9

REMOTE SHUTDOWN MONITORING INSTRUMENTATION

INSTRUMENT	READOUT LOCATION	MEASUREMENT RANGE	MINIMUM CHANNELS OPERABLE
1. Reactor Trip Breaker Indication	Hot Shutdown Panel in Unit No. 1 Control Room	OPEN-CLOSE	1/trip breaker
2. Pressurizer Pressure	Hot Shutdown Panel in Unit No. 1 Control Room	1700-2500 psig	1
3. Pressurizer Level	Hot Shutdown Panel in Unit No. 1 Control Room	0-100% of instrument span	1
4. Steam Generator Pressure	Hot Shutdown Panel in Unit No. 1 Control Room	0-1200 psig	1/steam generator
5. Steam Generator Level	Hot Shutdown Panel in Unit No. 1 Control Room	0-100% wide range instrument span	1/steam generator

LA.1

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TABLE 4.3-6

REMOTE SHUTDOWN MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

LA.1

INSTRUMENT	LOCATION	CHANNEL CHECK (SR 3.3.4.1)	CHANNEL CALIBRATION (SR 3.3.4.2)
1. Reactor Trip Breaker Indication	Hot Shutdown Panel in Unit No. 1 Control Room	N.A.	N.A. (24 months — M.2)
2. Pressurizer Pressure	Hot Shutdown Panel in Unit No. 1 Control Room	M	R
3. Pressurizer Level	Hot Shutdown Panel in Unit No. 1 Control Room	M	R (24 months — L.1)
4. Steam Generator Level	Hot Shutdown Panel in Unit No. 1 Control Room	M	R
5. Steam Generator Pressure	Hot Shutdown Panel in Unit No. 1 Control Room	M	R

A.1

DISCUSSION OF CHANGES
ITS 3.3.4, REMOTE SHUTDOWN MONITORING INSTRUMENTATION

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.3.3.5 Action a provides the compensatory actions to take when remote shutdown monitoring instrumentation is inoperable. ITS 3.3.4 ACTIONS provide the compensatory actions for inoperable remote shutdown monitoring instrumentation. The ITS 3.3.4 ACTIONS include a Note that allows separate Condition entry for each Function. This modifies the CTS by providing a specific allowance to enter the Action for each inoperable remote shutdown monitoring instrumentation Function.

This change is acceptable because it clearly states the current requirement. The CTS considers each remote shutdown monitoring instrumentation Function to be separate and independent from the others. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS 3.3.3.5 Action a requires, if an inoperable channel cannot be returned to OPERABLE status within the allowed outage time, then the unit shall be placed in HOT SHUTDOWN within the next 12 hours. ITS 3.3.4 ACTION B requires, if a required channel cannot be returned to OPERABLE status within the associated Completion Time, then the unit shall be in MODE 3 (HOT STANDBY) within 6 hours and MODE 4 (HOT SHUTDOWN) within 12 hours. This changes the CTS requirements by specifying that MODE 3 must be achieved within 6 hours.

The purpose of ITS 3.3.4 Required Action B.1 is to specify consistent Completion Times to shutdown the unit from full power to MODE 3. This change is acceptable because the proposed Completion Time is sufficient to allow an operator to reduce power from full power to MODE 3 in a controlled manner without challenging unit safety systems. The 6 hour time provided to reach MODE 3 is also consistent with the time provided in similar actions in both the CTS and ITS. The change has been designated as more restrictive because it specifies the amount of time within which the unit must be placed in MODE 3.

M.2 CTS Table 4.3-6 provides Surveillance Requirements for the remote shutdown monitoring instrumentation. For the Reactor Trip Breaker Indication Function, CTS Table 4.3-6 does not require Surveillances to be performed. ITS SR 3.3.4.2 requires a CHANNEL CALIBRATION for each required instrumentation channel be performed every 24 months, including the Reactor Trip Breaker Indication Function. This changes the CTS by requiring a CHANNEL CALIBRATION of the

DISCUSSION OF CHANGES
ITS 3.3.4, REMOTE SHUTDOWN MONITORING INSTRUMENTATION

Reactor Trip Breaker Indication Function of the remote shutdown monitoring instrumentation.

The purpose of the CHANNEL CALIBRATION is to ensure that the remote shutdown monitoring instrumentation is capable of performing its intended monitoring function should the control room become inaccessible. This change is acceptable because it provides additional assurance that the operator will be capable of monitoring reactor trip breaker status on the hot shutdown panel should the control room become inaccessible. The change is designated as more restrictive because it adds a new Surveillance Requirement to the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.3.3.5 requires the remote shutdown monitoring instrumentation in Table 3.3-9 to be OPERABLE. CTS Table 3.3-9 lists each of the required remote shutdown monitoring instruments, the measurement range of each instrument, the location of the remote shutdown monitoring instrumentation readout, and the minimum number of channels required for each instrument. CTS Table 4.3-6 lists the required remote shutdown monitoring instruments and their associated Surveillance Requirements. ITS LCO 3.3.4 states that the remote shutdown monitoring instrumentation Functions shall be OPERABLE. This changes the CTS by moving the details in Tables 3.3-9 and 4.3-6, with the exception of the Surveillance Requirements, from the Technical Specifications to the ITS Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the remote shutdown monitoring instrumentation to be OPERABLE. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.2 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS 3.3.3.5 states that the remote shutdown monitoring instrumentation channels shown in Table 3.3-9 shall be OPERABLE "with readouts displayed external to the control room." ITS LCO 3.3.4 states that the remote shutdown monitoring instrumentation Functions shall be OPERABLE.

DISCUSSION OF CHANGES
ITS 3.3.4, REMOTE SHUTDOWN MONITORING INSTRUMENTATION

This changes the CTS by moving the requirement for readouts displayed external to the control room from the Technical Specifications to the ITS Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the remote shutdown monitoring instrumentation to be OPERABLE. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 11 – 18 to 24 Month Surveillance Frequency Change, Channel Calibration Type)* CTS Table 4.3-6 requires a CHANNEL CALIBRATION of the remote shutdown monitoring pressurizer pressure, pressurizer level, steam generator pressure, and steam generator level instruments every 18 months. ITS SR 3.3.4.2 requires the performance of a CHANNEL CALIBRATION for these instruments every 24 months. This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

The purpose of CTS Table 4.3-6 is to ensure remote shutdown monitoring instruments will function as designed during an analyzed event. Extending the SR Frequency is acceptable because the remote shutdown monitoring instruments are designed to be highly reliable. Furthermore, a CHANNEL CHECK for the remote shutdown monitoring pressurizer pressure, pressurizer level, steam generator pressure, and steam generator level instruments is performed on a more frequent basis (ITS SR 3.3.4.1). The CHANNEL CHECK provides a qualitative demonstration of the OPERABILITY of the instrument.

This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. The impacted remote shutdown monitoring instrumentation has been evaluated through a failure analysis as well as a quantitative and qualitative analysis for drift to verify the instrument drift did not adversely impact instrument performance or availability.

DISCUSSION OF CHANGES
ITS 3.3.4, REMOTE SHUTDOWN MONITORING INSTRUMENTATION

CTS Table 4.3-6

Instrument 2, Pressurizer Pressure

This function is performed using a Foxboro N-E11 Series Pressure Transmitter, Foxboro N-2AI-H2V Input Cards, Foxboro N-2AO-V2H+P Series Converters, and a Weschler VX-252 Indicator. The Foxboro N-E11 Pressure Transmitter and Foxboro N-2AI-H2V Input Card were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of the quantitative drift analysis demonstrate that the Transmitter and Input Card will provide acceptable accuracy for the Remote Shutdown Monitoring indication in the event an evacuation of the control room is required. The Foxboro N-2AO-V2H+P Series Converters and Weschler VX-252 Indicator were not evaluated for drift because mirror Indicators exist in the control room for the same variables, in many cases with signals provided by the same Transmitters. Monthly CHANNEL CHECKS are required to compare the control room reading with the remote panel reading. Thus the periodic CHANNEL CHECKS provide an excellent indication that the Remote Shutdown Monitoring indication loop is properly functioning. The Transmitter and its associated Input Card are analyzed because a single Transmitter may provide the signal for both control room and remote shutdown panel indications. Therefore, the specific accuracy of the Transmitter is verified by analysis and the accuracy of the Indicators and Converter are verified by the CHANNEL CHECKS. The results of these analyses will support a 24 month Surveillance interval.

Instrument 3, Pressurizer Level

This function is performed using a Foxboro N-E13 Series Differential Pressure Transmitter, Foxboro N-2AI-H2V Input Card, Foxboro N-2AO-V2H+P Series Converter, and a Hughes VX-252 Indicator. The Foxboro N-E13 Series Differential Pressure Transmitter and Foxboro N-2AI-H2V Input Card were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of the quantitative drift analysis demonstrate that the Transmitter and Input Card will provide acceptable accuracy for the Remote Shutdown Monitoring indication in the event an evacuation of the control room is required. The Foxboro N-2AO-V2H+P Series Converter and Hughes VX-252 Indicator were not evaluated for drift because mirror indicators exist in the control room for the same variables, in many cases with signals provided by the same Transmitters. Monthly CHANNEL CHECKS are required to compare the control room reading with the remote panel reading. Thus the periodic CHANNEL CHECKS provide an excellent indication that the Remote Shutdown Monitoring indication loop is properly functioning. The Transmitter and its associated Input Card are analyzed because a single Transmitter may provide the signal for both control room and remote shutdown panel indications. Therefore, the specific accuracy of the Transmitter is verified by analysis and the accuracy of the Indicators and Converter are verified by the CHANNEL CHECKS. The results of these analyses will support a 24 month Surveillance interval.

DISCUSSION OF CHANGES
ITS 3.3.4, REMOTE SHUTDOWN MONITORING INSTRUMENTATION

Instrument 4, Steam Generator Pressure

This function is performed using a Foxboro N-E11 Series Pressure Transmitter, Foxboro N-2AI-H2V Input Card, Foxboro N-2AO-V2H+P Series Converter, and a Weschler VX-252 Indicator. The Foxboro N-E11 Pressure Transmitter and Foxboro N-2AI-H2V Input Card were evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of the quantitative drift analysis demonstrate that the Transmitter will provide acceptable accuracy for the Remote Shutdown Monitoring indication in the event an evacuation of the control room is required. The Foxboro N-2AO-V2H+P Series Converter and Weschler VX-252 Indicator were not evaluated for drift because mirror indicators exist in the control room for the same variables, in many cases with signals provided by the same Transmitters. Monthly CHANNEL CHECKS are required to compare the control room reading with the remote panel reading. Thus the periodic CHANNEL CHECKS provide an excellent indication that the Remote Shutdown Monitoring indication loop is properly functioning. The Transmitter and its associated Input Card are analyzed because a single Transmitter may provide the signal for both control room and remote shutdown panel indications. Therefore, the specific accuracy of the Transmitter is verified by analysis and the accuracy of the Indicators and Converter are verified by the CHANNEL CHECKS. The results of these analyses will support a 24 month Surveillance interval.

Instrument 5, Steam Generator Level

This function is performed using a Foxboro N-E13 Series Differential Pressure Transmitter and a Weschler VX-252 Indicator. The Foxboro N-E13 Series Differential Pressure Transmitter was evaluated quantitatively through a drift analysis to verify that drift for normal operating conditions is consistent with similar plant instruments used for protective functions. The results of the quantitative drift analysis demonstrate that the Transmitter will provide acceptable accuracy for the Remote Shutdown Monitoring indication in the event an evacuation of the control room is required. The Remote Shutdown Monitoring Indicators were not evaluated for drift because mirror indicators exist in the control room for the same variables, in many cases with signals provided by the same Transmitters. Monthly CHANNEL CHECKS are required to compare the control room reading with the remote panel reading. Thus the periodic CHANNEL CHECKS provide an excellent indication that the Remote Shutdown Monitoring indication loop is properly functioning. The Transmitter and its associated Input Card are analyzed because a single Transmitter may provide the signal for both control room and remote shutdown panel indications. Therefore, the specific accuracy of the Transmitter is verified by analysis and the accuracy of the Indicators and Converter are verified by the CHANNEL CHECKS. The results of these analyses will support a 24 month Surveillance interval.

Based on the design of the instrumentation and the drift evaluations (where applicable), it is concluded that the impact, if any, from this change on system availability is minimal. A review of the Surveillance test history was performed to validate the above conclusion. This review demonstrates that there are no

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DISCUSSION OF CHANGES
ITS 3.3.4, REMOTE SHUTDOWN MONITORING INSTRUMENTATION

failures that would invalidate the conclusion that the impact, if any, on system availability from this change is minimal. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the unit licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.3 INSTRUMENTATION Monitoring Instrumentation (1)

3.3.4 Remote Shutdown System

3.3.3.5 LCO 3.3.4 The Remote Shutdown System monitoring instrumentation Functions shall be OPERABLE. (1)

APPLICABILITY: MODES 1, 2, and 3.

ACTIONS

- NOTES -

1. LCO 3.0.4 is not applicable.

DOC A.2 2. Separate Condition entry is allowed for each Function. TSTF-359

	CONDITION	REQUIRED ACTION	COMPLETION TIME
Action a.	A. One or more required Functions inoperable.	A.1 Restore required Function to OPERABLE status.	30 days
Action a.	B. Required Action and associated Completion Time not met.	B.1 Be in MODE 3. AND B.2 Be in MODE 4.	6 hours 12 hours

SURVEILLANCE REQUIREMENTS

	SURVEILLANCE		FREQUENCY
4.3.3.5 & Table 4.3-6	SR 3.3.4.1	[ ] Perform CHANNEL CHECK for each required instrumentation channel that is normally energized.	31 days [ ] (2)
	SR 3.3.4.2	Verify each required control circuit and transfer switch is capable of performing the intended function.	[18] months (1)

Monitoring Instrumentation (1)

Remote Shutdown System
3.3.4

CTS

SURVEILLANCE REQUIREMENTS (continued)

CTS	SURVEILLANCE		FREQUENCY	
4.3.3.5 & Table 4.3-6	SR 3.3.4.3 (2)	- NOTE - Neutron detectors are excluded from CHANNEL CALIBRATION.		(1)
		Perform CHANNEL CALIBRATION for each required instrumentation channel.	18 24 months	(2)
	SR 3.3.4.4	[Perform TADOT of the reactor trip breaker open/ closed indication.	18 months]	(3)

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.4, REMOTE SHUTDOWN MONITORING INSTRUMENTATION

1. ISTS 3.3.4 requires Remote Shutdown System Functions to be OPERABLE. As stated in the Bases, these Functions include not only instrumentation to monitor plant parameters, but also control switches and circuits to operate equipment necessary to shut down and maintain the unit in MODE 3. The requirements of ITS 3.3.4 only include the instrumentation necessary to monitor the prompt shutdown to MODE 3, including the necessary instrumentation to support maintaining the unit in a safe condition in MODE 3. This change is consistent with the current licensing basis for the Remote Shutdown Instrumentation in CTS 3/4.3.3.5. As a result of this change, the Specification's title and LCO statement have been changed from "Protection System" to "Monitoring Instrumentation," and ISTS SR 3.3.4.2, which verifies control circuit and transfer switch capability, has not been included in the ITS.

2. The brackets are removed and the proper plant specific information/value is provided.

3. ISTS SR 3.3.4.4 requires performance of a TADOT of the reactor trip breaker open/closed indication. This requirement has not been included in the CNP Unit 1 and Unit 2 ITS. CTS 3/4.3.3.5 does not contain this requirement. Thus, this deviation from the ISTS has been made to retain the current licensing basis. OPERABILITY of the Reactor Trip Breaker Indication will be adequately verified by the performance of a CHANNEL CALIBRATION (ITS SR 3.3.4.2).

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.4 Remote Shutdown System

BASES

BACKGROUND

The Remote Shutdown System provides the control room operator with sufficient instrumentation and controls to place and maintain the unit in a safe shutdown condition from a location other than the control room. This capability is necessary to protect against the possibility that the control room becomes inaccessible. A safe shutdown condition is defined as MODE 3. With the unit in MODE 3, the Auxiliary Feedwater (AFW) System and the steam generator (SG) safety valves or the SG atmospheric dump valves (ADVs) can be used to remove core decay heat and meet all safety requirements. The long term supply of water for the AFW System and the ability to borate the Reactor Coolant System (RCS) from outside the control room allows extended operation in MODE 3.

If the control room becomes inaccessible, the operators can establish control at the remote shutdown panel and place and maintain the unit in MODE 3. Not all controls and necessary transfer switches are located at the remote shutdown panel. Some controls and transfer switches will have to be operated locally at the switchgear, motor control panels, or other local stations. The unit automatically reaches MODE 3 following a unit shutdown and can be maintained safely in MODE 3 for an extended period of time.

The OPERABILITY of the remote shutdown control and instrumentation functions ensures there is sufficient information available on selected unit parameters to place and maintain the unit in MODE 3 should the control room become inaccessible.

APPLICABLE SAFETY ANALYSES

The Remote Shutdown System is required to provide equipment at appropriate locations outside the control room with a capability to promptly shut down and maintain the unit in a safe condition in MODE 3.

The criteria governing the design and specific system requirements of the Remote Shutdown System are located in 10 CFR 50, Appendix A, GDC 19 (Ref. 1).

The Remote Shutdown System satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

(2) **INSERT 1**

The hot shutdown panel is located in the rear of the opposite unit's control room.

(1) **INSERT 2**

monitor the prompt shutdown to MODE 3, including the necessary instrumentation to support maintaining

(2) **INSERT 3**

Plant Specific Design Criterion (PSDC) 11

1 All changes on this page, except as noted

BASES

LCO

The Remote Shutdown System LCO provides the OPERABILITY requirements of the instrumentation and controls necessary to place and maintain the unit in MODE 3 from a location other than the control room. The instrumentation and controls required are listed in Table B 3.3.4-1.

The controls, instrumentation, and transfer switches are required for:

- Core reactivity control (initial and long term);
- RCS pressure control;
- Decay heat removal via the AFW System and the SG safety valves or SG ADVs;
- RCS inventory control via charging flow; and
- Safety support systems for the above Functions, including service water, component cooling water, and onsite power, including the diesel generators.

A Function of a Remote Shutdown System is OPERABLE if all instrument and control channels needed to support the Remote Shutdown System Function are OPERABLE. In some cases, Table B 3.3.4-1 may indicate that the required information or control capability is available from several alternate sources. In these cases, the Function is OPERABLE as long as one channel of any of the alternate information or control sources is OPERABLE.

The remote shutdown instrument and control circuits covered by this LCO do not need to be energized to be considered OPERABLE. This LCO is intended to ensure the instruments and control circuits will be OPERABLE if unit conditions require that the Remote Shutdown System be placed in operation.

APPLICABILITY

The Remote Shutdown System LCO is applicable in MODES 1, 2, and 3. This is required so that the unit can be placed and maintained in MODE 3 for an extended period of time from a location other than the control room.

This LCO is not applicable in MODE 4, 5, or 6. In these MODES, the facility is already subcritical and in a condition of reduced RCS energy. Under these conditions, considerable time is available to restore necessary instrument control functions if control room instruments or controls become unavailable.

(2) **INSERT 4**

with readout displayed external to the control room (i.e., on the hot shutdown panel located in the other unit's control room). For Function 1, each reactor trip breaker indication channel is provided by a single light to indicate whether the breaker is open or closed

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(1) All changes on this page; except as noted

Monitoring Instrumentation

Remote Shutdown System
B 3.3.4

BASES

ACTIONS

Note 1 is included which excludes the MODE change restriction of LCO 3.0.4. This exception allows entry into an applicable MODE while relying on the ACTIONS even though the ACTIONS may eventually require a unit shutdown. This exception is acceptable due to the low probability of an event requiring the Remote Shutdown System and because the equipment can generally be repaired during operation without significant risk of spurious trip. TSTF-379

monitoring instrumentation

A Remote Shutdown System division is inoperable when each function is (8) not accomplished by at least one designated Remote Shutdown System channel that satisfies the OPERABILITY criteria for the channel's Function. These criteria are outlined in the LCO section of the Bases. monitoring instrumentation

(A) Note 2 has been added to the ACTIONS to clarify the application of Completion Time rules. Separate Condition entry is allowed for each Function. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function. TSTF-379 (2)

A.1

monitoring instrumentation

Condition A addresses the situation where one or more required Functions of the Remote Shutdown System are inoperable. This includes the control and transfer switches for any required Function.

The Required Action is to restore the required Function to OPERABLE status within 30 days. The Completion Time is based on operating experience and the low probability of an event that would require evacuation of the control room.

B.1 and B.2

If the Required Action and associated Completion Time of Condition A is not met, the unit must be brought to a MODE in which the LCO does not apply. To achieve this status, the unit must be brought to at least MODE 3 within 6 hours and to MODE 4 within 12 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

(1)

Monitoring Instrumentation

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.4.1

Performance of the CHANNEL CHECK once every 31 days ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If the channels are within the criteria, it is an indication that the channels are OPERABLE. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

As specified in the Surveillance, a CHANNEL CHECK is only required for those channels which are normally energized.

The Frequency of 31 days is based upon operating experience which demonstrates that channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels. (7)

SR 3.3.4.2

SR 3.3.4.2 verifies each required Remote Shutdown System control circuit and transfer switch performs the intended function. This verification is performed from the remote shutdown panel and locally, as appropriate. Operation of the equipment from the remote shutdown panel is not necessary. The Surveillance can be satisfied by performance of a continuity check. This will ensure that if the control room becomes inaccessible, the unit can be placed and maintained in MODE 3 from the remote shutdown panel and the local control stations. The [18] month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. (However, this Surveillance is not required to be performed only during a unit outage.) Operating (1)

1
Monitoring Instrumentation

Remote Shutdown System
B 3.3.4

BASES

SURVEILLANCE REQUIREMENTS (continued)

experience demonstrates that remote shutdown control channels usually pass the Surveillance test when performed at the [18] month Frequency. (1)

SR 3.3.4.3 4 (2) (1)

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

Whenever a sensing element is replaced, the next required CHANNEL CALIBRATION of the resistance temperature detectors (RTD) sensors is accomplished by an inplace cross calibration that compares the other sensing elements with the recently installed sensing element. (2) INSERT 5

The Frequency of [18] months is based upon operating experience and consistency with the typical industry refueling cycle. 24 (5) (2)

[SR 3.3.4.4

SR 3.3.4.4 is the performance of a TADOT every 18 months. This test should verify the OPERABILITY of the reactor trip breakers (RTBs) open and closed indication on the remote shutdown panel, by actuating the RTBs. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The Frequency is based upon operating experience and consistency with the typical industry refueling outage.] (1)

REFERENCES 1. 10 CFR 50, Appendix A, GDC 19.

UFSAR, Section 1.4.3 (3)

(2) **INSERT 5**

For the Reactor Trip Breaker Indication Function on the hot shutdown panel, the CHANNEL CALIBRATION shall consist of verifying that the position indication conforms to actual reactor trip breaker position.

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Monitoring Instrumentation (1)

Remote Shutdown System
B 3.3.4

Monitoring (1)

Table B 3.3.4-1 (page 1 of 1)
Remote Shutdown System Instrumentation and Controls

INSERT 6 (2)

FUNCTION/INSTRUMENT OR CONTROL PARAMETER	REQUIRED NUMBER OF FUNCTIONS
1. Reactivity Control	
a. Source Range Neutron Flux	[1]
b. Reactor Trip Breaker Position	[1 per trip breaker]
c. Manual Reactor Trip	[2]
2. Reactor Coolant System (RCS) Pressure Control	
a. Pressurizer Pressure or RCS Wide Range Pressure	[1]
b. Pressurizer Power Operated Relief Valve (PORV) Control and Block Valve Control	[1, controls must be for PORV & block valves on same line]
3. Decay Heat Removal via Steam Generators (SGs)	
a. RCS Hot Leg Temperature	[1 per loop]
b. RCS Cold Leg Temperature	[1 per loop]
c. AFW Controls Condensate Storage Tank Level	[1]
d. SG Pressure	[1 per SG]
e. SG Level or AFW Flow	[1 per SG]
4. RCS Inventory Control	
a. Pressurizer Level	[1]
b. Charging Pump Controls	[1]

(4)

- REVIEWER'S NOTE -
For channels that fulfill GDC 19 requirements, the number of OPERABLE channels required depends upon the unit licensing basis as described in the NRC unit specific Safety Evaluation Report (SER). Generally, two divisions are required OPERABLE. However, only one channel per a given Function is required if the unit has justified such a design, and NRC's SER accepted the justification.

- REVIEWER'S NOTE -
This Table is for illustration purposes only. It does not attempt to encompass every Function used at every unit, but does contain the types of Functions commonly found.

(2) **INSERT 6**

FUNCTION	MEASUREMENT RANGE	REQUIRED NUMBER OF CHANNELS
1. Reactor Trip Breaker Indication	Open - Close	1 per trip breaker
2. Pressurizer Pressure	1700 – 2500 psig	1
3. Pressurizer Level	0 – 100% of instrument span	1
4. Steam Generator Pressure (per steam generator)	0 – 1200 psig	1
5. Steam Generator Level (per steam generator)	0 – 100% wide range instrument span	1

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JUSTIFICATION FOR DEVIATIONS
ITS 3.3.4 BASES, REMOTE SHUTDOWN MONITORING INSTRUMENTATION

1. Changes are made to reflect changes made to the Specification.

2. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

3. CNP Units 1 and 2 were designed and under construction prior to the promulgation of 10 CFR 50, Appendix A. CNP Units 1 and 2 were designed and constructed to meet the intent of the proposed General Design Criteria, published in 1967. However, the CNP UFSAR contains discussions of the Plant Specific Design Criteria (PSDCs) used in the design of CNP Units 1 and 2. Bases references to the 10 CFR 50, Appendix A criteria have been replaced with references to the appropriate section of the UFSAR.

4. The ISTS Reviewer's Notes have been deleted since they are not intended to be included in the ITS.

5. The brackets are removed and the proper plant specific information/value is provided.

6. These punctuation corrections have been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03, Section 5.1.3.

7. These instruments are not normally monitored during normal operations. Thus, this sentence has been deleted.

8. Typographical error corrected.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.4, REMOTE SHUTDOWN MONITORING INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 5

ITS 3.3.5, Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION — A.2

LIMITING CONDITION FOR OPERATION

LCO 3.3.5 — 3.3.2.1 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4. — See ITS 3.3.2 — LA.1

APPLICABILITY: As shown in Table 3.3-3.

ACTION: ← Add proposed ACTIONS Note — A.3

ACTION A — a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value. — LA.1

ACTION A — b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1, SR 3.3.5.2, SR 3.3.5.3 — 4.3.2.1.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION, ~~CHANNEL FUNCTIONAL TEST~~ and TRIP ACTUATING DEVICE OPERATIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2. — A.4

4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the automatic actuation logic test. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. — See ITS 3.3.2

~~4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3.~~ — A.5

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ITS 3.3.5

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any Stm. Gen.	2/Stm. Gen.	1, 2, 3	14
b. 4 kV Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3	14
Pump Start		2/bus (T11A - Train B; T11D - Train A)			
Valve Actuation (Both trains)		2/bus on (T11A & T11B or 2/busses T11C & T11D)			
c. Safety Injection	2	1	2	1, 2, 3	18
d. Loss of Main Feedwater Pumps	2	2	2	1, 2	18
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	2/Stm. Gen.	1, 2, 3	14
b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3	1, 2, 3	19

See ITS 3.3.2

LCO 3.3.5, APPLICABILITY, and ACTION A

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
8. LOSS OF POWER					
a. 4 kV Bus Loss of Voltage	~~3/Bus~~	~~2/Bus~~	~~2~~ 3/Bus	1, 2, 3, 4	14
b. 4 kV Bus Degraded Voltage	~~3/Bus (T11A – Train B; T11D – Train A)~~	~~2/Bus (T11A – Train B; T11D – Train A)~~	~~2~~ 3/~~Bus~~ train ~~(T11A – Train B; T11D – Train A)~~	1, 2, 3, 4	14

A.6

when associated DG is required to be OPERABLE by LCO 3.8.2

M.1

A.7

LA.2

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-3 (Continued)

TABLE NOTATION

\# Trip function may be bypassed in this MODE below P-11.

\## Trip function may be bypassed in this MODE below P-12.

\### The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode.

\#### Manually trip all bistables which would be automatically tripped in the event pressure in the associated active loop were less than the pressure in the inactive loop. For example, if loop 1 is the inactive loop then the bistables which indicate low pressure in loops 2, 3 and 4 relative to loop 1 should be tripped.

See ITS 3.3.2

ACTION STATEMENTS

ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

L.1

ACTION A ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

L.3

Add proposed ACTION B

Add proposed ACTION C

L.4

ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

See ITS 3.3.2

ITS 3.3.5

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
	6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS			
	a. Steam Generator Water Level–Low-Low	Greater than or equal to 17% of narrow-range instrument span each steam generator	Greater than or equal to 16% of narrow-range instrument span each steam generator	See ITS 3.3.2
	b. 4 kv Bus Loss of Voltage	3286 volts with a time delay of 2 seconds	≥ 3245 volts and ≤ 3328 volts with a time delay of 2 ± 0.2 seconds	
	c. Safety Injection	Not Applicable	Not Applicable	
	d. Loss of Main Feedwater Pumps	Not Applicable	Not Applicable	
	7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS			
	a. Steam Generator Water Level–Low-Low	Greater than or equal to 17% of narrow-range instrument span each steam generator	Greater than or equal to 16% of narrow-range instrument span each steam generator	
	b. Reactor Coolant Pump Bus Undervoltage	Greater than or equal 2750 Volts–each bus	Greater than or equal to 2725 Volts–each bus	
	8. LOSS OF POWER			
SR 3.3.5.3	a. 4 kv Bus Loss of Voltage	~~3286 volts with a time delay of 2 seconds~~	≥ ~~3245~~ 3238.9 volts and ≤ ~~3328~~ 3332.6 volts with a time delay of 2 ± 0.2 seconds	M.3
SR 3.3.5.3	b. 4 kv Bus Degraded Voltage	~~3959 volts with a time delay of 9 seconds when a steam generator water level low-low or a safety injection signal is present~~	≥ ~~3910~~ 3930.9 volts and ≤ ~~4000~~ 3983.6 volts with a time delay of 9 ± ~~0.25~~ seconds when a steam generator water level low-low or a safety injection signal is present	LA.1, L.6

ITS 3.3.5

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	SR 3.3.5.1 CHANNEL CHECK	SR 3.3.5.3 CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	SR 3.3.5.2 TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS					
a. Steam Generator Water Level--Low-Low	S	R	SA	N.A.	1, 2, 3
b. Reactor Coolant Pump Bus Undervoltage	N.A.	R	M	N.A.	1, 2, 3
8. LOSS OF POWER					
a. 4 kv Bus Loss of Voltage	S	R -3	M	N.A -2	1, 2, 3, 4
b. 4 kv Bus Degraded Voltage	S	R -3	M	N.A -2	1, 2, 3, 4

A.4

See ITS 3.3.2

LCO 3.3.5 and APPLICABILITY

A.4

Add proposed Note to SR 3.3.5.2

when associated DG is required to be OPERABLE by LCO 3.8.2

M.1

184 days

M.2

A.8

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ITS 3.3.5

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION — A.2

LIMITING CONDITION FOR OPERATION

LCO 3.3.5 — 3.3.2.1 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4. (See ITS 3.3.2) (LA.1)

APPLICABILITY: As shown in Table 3.3-3.

ACTION: ← Add proposed ACTIONS Note (A.3)

ACTION A — a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value. (LA.1)

ACTION A — b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1, SR 3.3.5.2, SR 3.3.5.3 — 4.3.2.1.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION, CHANNEL FUNCTIONAL TEST and TRIP ACTUATING DEVICE OPERATIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2. (A.4)

4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the automatic actuation logic test. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. (See ITS 3.3.2)

4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3. (A.5)

ITS 3.3.5

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION	
	7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS						See ITS 3.3.2
	a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	2/Stm. Gen.	1, 2, 3	14	
	b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3	1, 2, 3	19	A.6
LCO 3.3.5, APPLICABILITY, and ACTION A	8. LOSS OF POWER						
	a. 4 kV Bus Loss of Voltage	~~3/Bus~~	~~2/Bus~~	~~2~~ 3/Bus	1, 2, 3, 4 when associated DG is required to be OPERABLE by LCO 3.8.2	14	M.1
	b. 4 kV Bus Degraded Voltage	~~3/Bus (T21A - Train B) (T21D - Train A)~~	~~2/Bus (T21A-Train B) (T21D-Train A)~~	~~2~~ 3/~~Bus~~ train ~~(T21A-Train B) (T21D-Train A)~~	1, 2, 3, 4	14	A.7, LA.2
	9. MANUAL						
	a. Safety Injection (ECCS) Feedwater Isolation Reactor Trip (SI) Containment Isolation-Phase "A" Containment Purge and Exhaust Isolation Auxiliary Feedwater Pumps Essential Service Water System	2/train	1/train	2/train	1, 2, 3, 4	18	See ITS 3.3.6; See ITS 3.3.2
	b. Containment Spray Containment Isolation - Phase "B" Containment Purge and Exhaust Isolation	1/train	1/train	1/train	1, 2, 3, 4	18	See ITS 3.3.2 and ITS 3.3.6
	c. Containment Isolation - Phase "A" Containment Purge and Exhaust Isolation	1/train	1/train	1/train	1, 2, 3, 4	18	
	d. Steam Line Isolation	2/steam line (1 per train)	2/steam line (1 per train)	2/operating steam line (1 per train)	1, 2, 3	20	See ITS 3.3.2

ITS 3.3.5

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-3 (Continued)

TABLE NOTATION

Trip function may be bypassed in this MODE below P-11.

Trip function may be bypassed in this MODE below P-12.

The channel(s) associated with the protective functions derived from the out of service Reactor Coolant Loop shall be placed in the tripped mode. [See ITS 3.3.2]

Manually trip all bistables which would be automatically tripped in the event pressure in the associated active loop were less than the pressure in the inactive loop. For example, if loop 1 is the inactive loop then the bistables which indicate low pressure in loops 2, 3 and 4 relative to loop 1 should be tripped.

ACTION STATEMENTS

ACTION 13 - With the number of OPERABLE Channels one less than the Total Number of Channels, be in HOT STANDBY within 6 hours and in COLD SHUTDOWN within the following 30 hours; however, one channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

ACTION A — ACTION 14 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour. [L.1] [L.3] [Add proposed ACTION B] [Add proposed ACTION C] [L.4]

ACTION 15 - With a channel associated with an operating loop inoperable, restore the inoperable channel to OPERABLE status within 2 hours or be in HOT SHUTDOWN within the following 12 hours; however, one channel associated with an operating loop may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1.

ACTION 16 - With the number of OPERABLE Channels one less than the Total Number of Channels, operation may proceed provided the inoperable channel is placed in the bypassed condition and the Minimum Channels OPERABLE requirement is met; one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.1. [See ITS 3.3.2]

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ITS 3.3.5

ITS

(A.1)

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
	6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS			
	a. Steam Generator Water Level--Low-Low	Greater than or equal to 21% of narrow range instrument span each steam generator	Greater than or equal to 19.2% of narrow range instrument span each steam generator	See ITS 3.3.2
	b. 4 kV Bus Loss of Voltage	3241 volts with a time delay of 2 seconds	≥ 3195 volts and ≤ 3280 volts with a time delay of 2 ± 0.2 seconds	
	c. Safety Injection	Not Applicable	Not Applicable	
	d. Loss of Main Feedwater Pumps	Not Applicable	Not Applicable	
	7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS			
	a. Steam Generator Water Level - - Low-Low	Greater than or equal to 21% of narrow range instrument span each steam generator	Greater than or equal to 19.2% of narrow range instrument span each steam generator	
	b. Reactor Coolant Pump Bus Undervoltage	Greater than or equal to 2750 Volts -- each bus	Greater than or equal to 2725 Volts -- each bus	
	8. LOSS OF POWER			
SR 3.3.5.3	a. 4 kV Bus Loss of Voltage	~~3241 volts with a time delay of 2 seconds~~ (LA.1)	≥ ~~3195~~ 3207.2 volts and ≤ ~~3280~~ 3302.7 volts with a time delay of 2 ± 0.2 seconds (M.3)	
SR 3.3.5.3	b. 4 kV Bus Degraded Voltage	~~3959 volts with a time delay of 9 seconds when a steam generator water level low-low or a safety injection signal is present~~ (LA.1)	≥ ~~3910~~ 3930.9 volts and ≤ ~~4000~~ 3983.6 volts with a time delay of 9 ± 0.25 seconds when a steam generator water level low-low or a safety injection signal is present (L.6)	

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS (A.4)

FUNCTIONAL UNIT	SR 3.3.5.1 CHANNEL CHECK	SR 3.3.5.3 CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	SR 3.3.5.2 TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED	
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMP						
a. Steam Generator Water Level – Low-Low	S	R	SA	N.A.	1, 2, 3	See ITS 3.3.2
b. Reactor Coolant Pump Bus Undervoltage	N.A.	R	M	N.A.	1, 2, 3	Add proposed Note to SR 3.3.5.2 (A.8)
LCO 3.3.5 and APPLICABILITY — 8. LOSS OF POWER						
a. 4 kv Bus Loss of Voltage	S	~~R~~ 184 days -3	~~M~~	~~N.A.~~ M -2	1, 2, 3, 4	when associated DG is required to be OPERABLE by LCO 3.8.2 (A.4) (M.1)
b. 4 kv Bus Degraded Voltage	S	~~R~~ 184 days -3	~~M~~	~~N.A.~~ M -2	1, 2, 3, 4	
9. MANUAL						
a. Safety Injection (ECCS) Feedwater Isolation Reactor Trip (SI) Containment Isolation - Phase "A" Containment Purge and Exhaust Isolation Auxiliary Feedwater Pumps Essential Service Water System	N.A.	N.A.	N.A.	R	1, 2, 3, 4	(M.2) See ITS 3.3.2
b. Containment Spray Containment Isolation - Phase "B" Containment Purge and Exhaust Isolation	N.A.	N.A.	N.A.	R	1, 2, 3, 4	See ITS 3.3.6
c. Containment Isolation - Phase "A" Containment Purge and Exhaust Isolation	N.A.	N.A.	N.A.	R	1, 2, 3, 4	See ITS 3.3.2
d. Steam Line Isolation	N.A.	N.A.	Q	R	1, 2, 3	
e. Containment Air Recirculation Fan	N.A.	N.A.	N.A.	R	1, 2, 3, 4	
10. CONTAINMENT AIR RECIRCULATION FAN						
a. Manual	See Functional Unit 9					See ITS 3.3.2
b. Automatic Actuation Logic	N.A.	N.A.	Q (2)	N.A.	1, 2, 3	
c. Containment Pressure – High	S	R	SA (3)	N.A.	1, 2, 3	

DISCUSSION OF CHANGES
ITS 3.3.5, LOP DG START INSTRUMENTATION

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.3.2.1, "Engineered Safety Feature Actuation System Instrumentation," requires the Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 to be OPERABLE. ITS 3.3.5, "Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation," requires specific channels per bus for the Loss of Voltage and specific channels per train for the Degraded Voltage Functions to be OPERABLE. This changes the CTS by having a separate Specification for the LOP DG Start Instrumentation in lieu of including it with the ESFAS Instrumentation Specification.

This change is acceptable because the technical requirements for the LOP DG start instrumentation are maintained with the change in format. The LOP DG Start Instrumentation Specification continues to require the start of the DGs on Loss of Voltage and Degraded Voltage signals. This change is designated as administrative because it does not result in a technical change to the CTS.

A.3 CTS 3.3.2.1 Actions provide the compensatory actions to take when Loss of Power instrumentation is inoperable. ITS 3.3.5 ACTIONS provide the compensatory actions for inoperable LOP DG start instrumentation. The ITS 3.3.5 ACTIONS include a Note that allows separate Condition entry for each Function. This modifies the CTS by providing a specific allowance to enter the Action for each inoperable LOP DG Start Instrumentation Function.

This change is acceptable because it clearly states the current requirement. The CTS considers each Loss of Power Function to be separate and independent from the other. This change is designated as administrative because it does not result in technical changes to the CTS.

A.4 CTS 4.3.2.1.1 and CTS Table 4.3-2 require that Loss of Power Function channels be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST once per 31 days. ITS SR 3.3.5.2 requires the performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) once per 31 days. This changes the CTS by changing the CHANNEL FUNCTIONAL TEST requirements to a TADOT.

This change is acceptable because the TADOT continues to perform a test similar to the current CHANNEL FUNCTIONAL TEST (CFT). The change is one of format only. The CTS CFT definition states to inject a simulated signal into the channel as close to the primary sensor as practicable to verify OPERABILITY including alarm and/or trip functions. The ITS TADOT definition states to operate the trip actuating device and verifying the OPERABILITY of all devices in the

DISCUSSION OF CHANGES
ITS 3.3.5, LOP DG START INSTRUMENTATION

channel required for trip actuating device OPERABILITY. For a loss of power or degraded voltage relay, the method to perform the test in both cases is to interrupt the voltage supply to the loss of power or degraded voltage relay (e.g., pull a fuse) so that voltage is not sensed. Thus, while the words in the two definitions are not exactly the same, the test is performed in the same manner. The ITS TADOT definition requires that the test include the adjustment, as necessary, of the trip actuating device so that it actuates at the required setpoint within the necessary accuracy. While the CTS CFT definition does not include this requirement, the ITS SR 3.3.5.2 include a Note stating that verification of the setpoint is not required. Lastly, the ITS TADOT definition states that the test may be performed by means of any series of sequential, overlapping, or total channel steps. Again, while this allowance is not explicitly specified in the CTS CFT definition, it is not precluded; Surveillances can always be performed by a series of steps. Therefore, the testing method will be the same in the ITS as it is in the CTS. This change is designated as administrative because it does not result in technical changes to the CTS.

A.5 CTS 4.3.2.1.3 requires ENGINEERED SAFETY FEATURES RESPONSE TIME testing of "each" ESFAS function. ITS 3.3.5 does not include response time testing for the LOP DG Start Instrumentation Functions. This changes the CTS by clearly identifying that the ENGINEERED SAFETY FEATURES RESPONSE TIME testing does not apply to the LOP DG Start Instrumentation Functions.

The purpose of the CTS 4.3.2.1.3 requirements is to ensure that the actuation response time is less than or equal to the maximum value assumed in the accident analysis. UFSAR Table 7.2-7, which was previously in CTS 3.3.2 as Table 3.3-5, only specifies response times for those ESFAS Functions assumed in the CNP safety analyses. CTS Table 3.3-5 did not include response times for the CTS 3.3.2 Loss of Power Functions. Therefore, this change is acceptable since ENGINEERED SAFETY FEATURES RESPONSE TIME testing of the Loss of Power Functions was not required. These response times were removed from CTS 3.3.2 and placed under CNP control as documented in the NRC Safety Evaluation for License Amendments 202 (Unit 1) and 187 (Unit 2). In addition, UFSAR Table 7.2-7 currently does not require response time testing of the CTS 3.3.2 Loss of Power Functions. This change is designated as administrative because it does not result in technical changes to the CTS.

A.6 CTS Table 3.3-3 specifies the "TOTAL NO. OF CHANNELS" as 3/Bus and the "MINIMUM CHANNELS OPERABLE" as 2/Bus for the Loss of Voltage and Degraded Voltage Functions. CTS Table 3.3-3 Action 14 specifies the actions to take with the number of Loss of Voltage or Degraded Voltage channels OPERABLE one less than required by the "TOTAL NO. OF CHANNELS" column. ITS LCO 3.3.5 requires the LOP DG Start Instrumentation Functions to be OPERABLE and specifies the required number of channels. The required number of channels specified in ITS LCO 3.3.5 is consistent with the TOTAL NO. OF CHANNELS specified in CTS Table 3.3-3. The ITS 3.3.5 ACTIONS require entry when the OPERABLE channels are less than required by the LCO. This changes the CTS by effectively changing the "MINIMUM CHANNELS OPERABLE" column to the required number of channels in the LCO and changes the number of channels to reflect when actions must be taken when a required channel becomes inoperable.

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This change is acceptable because the requirements for when actions must be taken remain unchanged. The required channels specified in ITS LCO 3.3.5 reflect the current requirements in the CTS Table 3.3-3 Actions for when actions are required to be taken. The "MINIMUM CHANNELS OPERABLE" column for CTS Table 3.3-3 Functional Units 8.a and 8.b have effectively been changed to correspond to the number of channels in the "TOTAL NO. OF CHANNELS" column as reflected in ITS LCO 3.3.5. This change is designated as administrative because it does not result in technical changes to the CTS.

A.7 CTS Table 3.3-3 requires 3 channels/bus (T11D – Train A and T11A – Train B (Unit 1) and T21D – Train A and T21A – Train B (Unit 2)) to be OPERABLE for the Degraded Voltage Function (Functional Unit 8.b). ITS LCO 3.3.5, for the Degraded Voltage Function, requires 3 channels per train to be OPERABLE. This changes the CTS by specifying, for the Degraded Voltage Function, the required number of channels on a "per train" basis instead of on a "per bus" basis.

This change is acceptable because the number of channels of the Degraded Voltage Function required to be OPERABLE remains unchanged. The CNP design includes two 4.16 kV emergency buses for each of two trains (Train "A" and Train "B"). Only one of these 4.16 kV emergency buses in each train has Degraded Voltage Function channels. As described for the Degraded Voltage Function in CTS Table 3.3-3, there are 3 channels per bus, on one bus in each of two trains, required to be OPERABLE (i.e., 3 channels per train as reflected in ITS LCO 3.3.5). This change is designated as administrative because it does not result in technical changes to the CTS.

A.8 CTS Table 4.3-2 requires a CHANNEL FUNCTIONAL TEST be performed for Functions 8.a (Loss of Power, 4 kv Bus Loss of Voltage) and 8.b (Loss of Power, 4 kv Bus Degraded Voltage). ITS 3.3.5 requires performance of SR 3.3.5.2, a TADOT, for these Functions. However, the Surveillances are modified by a Note that states that a verification of the relay setpoints is not required. This changes the CTS by explicitly stating that setpoint verification is not part of the TADOT. The change from a CHANNEL FUNCTIONAL TEST to a TADOT is discussed in DOC A.4.

The CTS definition of CHANNEL FUNCTIONAL TEST does not require a setpoint verification. However, the ITS definition of TADOT does include a setpoint verification. Therefore, to be consistent with the current requirements and with current practice, the Note has been added. Since a setpoint verification is not currently required during performance of this test, this change is acceptable. This change is designated as administrative because it does not result in a technical change to the CTS.

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MORE RESTRICTIVE CHANGES

M.1 CTS Tables 3.3-3 and 4.3-2 requirements for the Loss of Voltage Function are applicable in MODES 1, 2, 3, and 4. ITS 3.3.5 requires the Loss of Voltage Function to be OPERABLE in MODES 1, 2, 3, and 4 and when the associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown." This changes the CTS by expanding the conditions under which the Loss of Voltage Function must be OPERABLE.

This change is acceptable because requiring the Loss of Voltage Function to be OPERABLE when LCO 3.8.2 requires a DG to be OPERABLE ensures that the automatic loss of power start of the DG is available when needed. This change is designated as more restrictive because the ITS expands MODES in which equipment is required to be OPERABLE.

M.2 CTS Table 4.3-2 requires a CHANNEL CALIBRATION of the Loss of Voltage and Degraded Voltage instrumentation every 18 months, however the Surveillances are currently being performed more frequently. ITS SR 3.3.5.3 requires the performance of a CHANNEL CALIBRATION every 184 days. This changes the CTS by changing the Frequency of the Surveillance from 18 months to 184 days.

The purpose of CTS Table 4.3-2 is to ensure LOP DG start instrumentation will function as designed during an analyzed event. Changing the SR Frequency is acceptable because a 184 day calibration interval is assumed in the setpoint analysis. This change is designated as more restrictive because Surveillances will be performed more frequently under the ITS than under the CTS.

M.3 CTS Table 3.3-4 provides the Allowable Values for Functional Unit 8.a (Loss of Power 4 kV Bus Loss of Voltage). ITS SR 3.3.5.3 provides the Allowable Values for the Loss of Voltage Function. This change revises the CTS Table 3.3-4 4 kV Bus Loss of Voltage Allowable Values to the ITS Allowable Values.

The purpose of the Allowable Values is to ensure the instruments function as assumed in the safety analyses. ITS 3.3.5 reflects Allowable Values consistent with the philosophy of Westinghouse ISTS, NUREG-1431. These Allowable Values have been established consistent with the methods described in AEP's Instrument Setpoint Methodology (EG-IC-004, "Instrument Setpoint Uncertainty," Rev. 4). For all cases where a SAL exists, the Allowable Value determinations were calculated using plant specific operating and surveillance trend data. For all other cases, existing Allowable Values were converted directly to the ITS Allowable Values. The Allowable Value verification used actual plant operating and surveillance trend information to ensure the validity of the developed Allowable Value. There were no changes to SALs required due to instrument performance. All design limits applied in the methodologies were confirmed as ensuring that applicable design requirements of the associated systems and equipment are maintained. The methodologies used have been compared with the guidance of ANSI/ISA S67.04-Part I-1994 and ANSI/ISA RP67.04-Part II-1994. Plant calibration procedures will ensure that the assumptions regarding calibration accuracy, measurement and test equipment accuracy, and setting tolerance are maintained. Setpoints for each SAL have been established by accounting for the applicable instrument accuracy, calibration and drift

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accounting for the applicable instrument accuracy, calibration and drift uncertainties, environmental effects, power supply fluctuations, as well as uncertainties related to process and primary element measurement accuracy using the instrument setpoint methodology. The Allowable Values have also been established from each SAL by combining the errors associated with the CHANNEL CALIBRATION (e.g., device accuracy, setting tolerance, and drift) with the calculated Nominal Trip Setpoint (NTSP) using the instrument setpoint methodology. Where a SAL exists, trigger values are used to ensure that the Allowable Value provides sufficient margin from the SAL to account for any associated errors not confirmed by the CHANNEL CALIBRATION. Use of the previously discussed methodologies for determining Allowable Values, NTSPs, and analyzing channel/instrument performance ensure that the design basis and associated SALs will not be exceeded during plant operation. These evaluations, determinations, and analyses now form a portion of the CNP design bases. Additionally, each applicable channel/instrument has been evaluated and analyzed to support an extension to a 184 day interval. These drift evaluations and drift analyses have been performed utilizing the guidance provided in EPRI TR-103335, "Statistical Analysis of Instrument Calibration Data/ Guidelines for Instrument Calibration Extension/Reduction Programs," Rev. 1. The EPRI guidance was used to demonstrate that the data collected by the operating plant (from Surveillance testing) has remained acceptable and reasonable with regard to the manufacturers design specifications. Therefore, based on the above discussion, the changes to the Allowable Values are acceptable. This change is designated as more restrictive because more stringent Allowable Values are being applied in the ITS than were applied in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 3.3.2.1 requires the ESFAS instrumentation and interlocks setpoints to be set consistent with the Trip Setpoint values shown in Table 3.3-4. CTS 3.3.2.1 Action a is required to be entered when the setpoint is less conservative than the Allowable Value. The channel is to be declared inoperable until adjusted consistent with the Trip Setpoint value. CTS Table 3.3-4 specifies the Trip Setpoints and Allowable Values for the ESFAS Instrumentation Functions. ITS 3.3.5 requires the LOP DG Start Instrumentation Functions to be OPERABLE. ITS SR 3.3.5.3 specifies the Allowable Values for the LOP DG Start Instrumentation Functions. This changes the CTS by moving the Trip Setpoints and associated requirements to the Technical Requirements Manual (TRM).

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The removal of these details for meeting Technical Specification requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the Allowable Values associated with the LOP DG Start Instrumentation. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LA.2 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-3 for ESFAS instrumentation has three columns stating various requirements for the Loss of Voltage and Degraded Voltage Functions. These columns are labeled, "TOTAL NO. OF CHANNELS," "CHANNELS TO TRIP," and "MINIMUM CHANNELS OPERABLE." In addition, CTS Table 3.3-3 also specifies the tag numbers of the emergency buses in each train that include the Degraded Voltage Function instrumentation. ITS LCO 3.3.5 does not retain the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns and does not include the tag numbers of the emergency buses that include the Degraded Voltage Function instrumentation. This changes the CTS by moving the information of the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns and emergency bus tag numbers to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 - Relaxation of Required Action)* CTS Table 3.3-3 Action 14 states, in part, that with the number of OPERABLE channels one less than the total number of channels, "operation may proceed until performance of the next required CHANNEL FUNCTIONAL TEST." This CTS Action applies to the Loss of Voltage and Degraded Voltage Functions of CTS Table 3.3-3. ITS 3.3.5 ACTION A is the applicable action for the Loss of Voltage and Degraded Voltage Functions when one channel is inoperable, and does not include the restoration time limit of "until performance of the next required CHANNEL FUNCTIONAL TEST." This changes the CTS by allowing operation with an inoperable channel

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ITS 3.3.5, LOP DG START INSTRUMENTATION

for an unlimited amount of time provided the inoperable channel is in the tripped condition.

The purpose of CTS Table 3.3-3 Action 14 is to only allow operation until performance of the next required CHANNEL FUNCTIONAL TEST. This requirement is based upon the assumption that when it is time to test the other OPERABLE channels in the associated Function, the OPERABLE channels cannot be tested with the inoperable channel in trip. However, CTS 3.0.6 (ITS LCO 3.0.5) is a generic allowance that will allow the inoperable channel to be restored to service in order to perform Surveillances on the other OPERABLE channels in the associated Function. Thus, using this generic allowance, it is possible to test the remaining OPERABLE channels in the associated Function, and there is no reason to restrict the generic allowance from applying to these specific channels. As such, the CTS Table 3.3-3 Action 14 statement is not necessary and has been deleted. The administrative controls required by ITS LCO 3.0.5 will ensure the time the channel is returned to service in conflict with the requirements of ITS 3.3.5 ACTION A is limited to the time absolutely necessary to perform the required testing to demonstrate OPERABILITY of the other channels. In addition, this specific example (taking an inoperable channel out of the tripped condition) is discussed in the Bases of ISTS SR 3.0.5. Therefore, this change is acceptable for the above described reasons. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.2 Not used.

L.3 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-3 Action 14 provides requirements for when one Loss of Voltage or Degraded Voltage channel per bus is inoperable. With more than one channel per bus of these channels inoperable, the shutdown requirements of CTS 3.0.3 would apply since the applicable CTS Table 3.3-3 Actions do not address this condition. ITS 3.3.5 ACTION B requires, with one or more Functions with two or more channels per bus or train inoperable, restoration of all but one channel per bus or train to OPERABLE status in 1 hour. This changes the CTS to allow more than one channel per bus or train of the Loss of Voltage and Degraded Voltage Functions to be inoperable. The change to the presentation of the required number of channels (i.e., on a "per train" basis instead of a "per bus" basis for the Degraded Voltage Function) is addressed in DOC A.7.

The Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. This change is acceptable because the Required Actions are consistent with safe operation under the specified Condition, considering a reasonable time for repairs or replacement of most failures and the low probability of a DBA occurring during the repair period. The ITS ACTION will allow 1 hour to restore all but one channel per bus or train to OPERABLE status. This is a reasonable period of time because of the low probability of an event occurring that would require a LOP DG start. In addition, the 1 hour time is consistent with the 1 hour time to initiate a unit shutdown provided in CTS 3.0.3. This change is designated as less

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restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.4 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-3 Action 14 requires, with the number of OPERABLE channels one less than the total number of channels, that the inoperable channel be placed in trip within 1 hour. If this action is not accomplished, the shutdown requirements of CTS 3.0.3 would apply. ITS 3.3.5 ACTION C requires, when the Required Action and associated Completion Time are not met, that the applicable Condition(s) and Required Action(s) for the associated DG made inoperable by LOP DG start instrumentation be immediately entered. This changes the CTS by allowing the associated DG to be declared inoperable instead of entering CTS 3.0.3 and shutting down the unit.

The Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. This change is acceptable because the Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant systems or features. This includes the capacity and capability of remaining systems or features, a reasonable time for repairs or replacement, and the low probability of a DBA occurring during the repair period. This instrumentation provides a start signal for the DGs (i.e., it supports DG OPERABILITY) and the appropriate action in this condition is to declare the DG inoperable. The current requirements are overly restrictive. For example, if a DG were inoperable for other reasons, then a 72 hour allowed outage time is provided. However, if an instrument is inoperable but the DG is otherwise fully OPERABLE, then an immediate shutdown is required. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.5 Not used.

L.6 *(Category 14 – Changing Instrumentation Allowable Values)* CTS Table 3.3-4 provides the Allowable Values for Functional Unit 8.b (Loss of Power 4 kV Bus Degraded Voltage). ITS SR 3.3.5.3 provides the Allowable Values for the Degraded Voltage Function. This change revises the CTS Table 3.3-4 4 kV Bus Degraded Voltage Allowable Values to the ITS Allowable Values.

The purpose of the Allowable Values is to ensure the instruments function as assumed in the safety analyses. ITS 3.3.5 reflects Allowable Values consistent with the philosophy of Westinghouse ISTS, NUREG-1431. These Allowable Values have been established consistent with the methods described in AEP's Instrument Setpoint Methodology (EG-IC-004, "Instrument Setpoint Uncertainty," Rev. 4). For all cases where an S A L exists, the Allowable Value determinations were calculated using plant specific operating and surveillance trend data. For all other cases, existing Allowable Values were converted directly to the ITS Allowable Values.. The Allowable Value verification used actual plant operating and surveillance trend information to ensure the validity of the developed Allowable Value. There were no changes to SALs required due to instrument performance. All design limits applied in the methodologies were confirmed as

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ITS 3.3.5, LOP DG START INSTRUMENTATION

ensuring that applicable design requirements of the associated systems and equipment are maintained. The methodologies used have been compared with the guidance of ANSI/ISA S67.04-Part I-1994 and ANSI/ISA RP67.04-Part II-1994. Plant calibration procedures will ensure that the assumptions regarding calibration accuracy, measurement and test equipment accuracy, and setting tolerance are maintained. Setpoints for each SAL have been established by accounting for the applicable instrument accuracy, calibration and drift uncertainties, environmental effects, power supply fluctuations, as well as uncertainties related to process and primary element measurement accuracy using the instrument setpoint methodology. The Allowable Values have also been established from each SAL by combining the errors associated with the CHANNEL CALIBRATION (e.g., device accuracy, setting tolerance, and drift) with the calculated NTSP using the instrument setpoint methodology. Where a SAL exists, trigger values are used to ensure that the Allowable Value provides sufficient margin from the SAL to account for any associated errors not confirmed by the CHANNEL CALIBRATION. Use of the previously discussed methodologies for determining Allowable Values, NTSPs, and analyzing channel/instrument performance ensure that the design basis and associated SALs will not be exceeded during plant operation. These evaluations, determinations, and analyses now form a portion of the CNP design bases. Additionally, each applicable channel/instrument has been evaluated and analyzed to support a fuel cycle extension to a 24 month interval. These drift evaluations and drift analyses have been performed utilizing the guidance provided in EPRI TR-103335, "Statistical Analysis of Instrument Calibration Data/ Guidelines for Instrument Calibration Extension/Reduction Programs," Rev. 1. The EPRI guidance was used to demonstrate that the data collected by the operating plant (from surveillance testing) has remained acceptable and reasonable with regard to the manufacturers design specifications. Therefore, based on the above discussion, the changes to the Allowable Values are acceptable. This change is designated as less restrictive because the less stringent Allowable Values are being applied in the ITS than were applied in the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.3 INSTRUMENTATION

3.3.5 Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation

LCO 3.3.2.1, Table 3.3-3 Functional Units 8a and 8.b

LCO 3.3.5 [Three] channels per bus of the loss of voltage Function and [three] channels per bus of the degraded voltage Function shall be OPERABLE. (1) (4) (train) (2)

Table 3.3-3 Functional Units 8.a and 8.b

APPLICABILITY: MODES 1, 2, 3, and 4,
When associated DG is required to be OPERABLE by LCO 3.8.2, "AC Sources - Shutdown." (for the Loss of Voltage Function only) (1) (5)

ACTIONS

Doc A.3

- NOTE -
Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel per bus (or train) inoperable.	A.1 ~~- NOTE - The inoperable channel may be bypassed for up to [4] hours for surveillance testing of other channels.~~ (3) Place channel in trip.	[6] hours (1) (4) (2) TSTF-418 Rev. 2
B. One or more Functions with two or more channels per bus (or train) inoperable.	B.1 Restore all but one channel per bus (or train) to OPERABLE status.	1 hour (2)
C. Required Action and associated Completion Time not met.	C.1 Enter applicable Condition(s) and Required Action(s) for the associated DG made inoperable by LOP DG start instrumentation.	Immediately

3.3.2.1 Actions a and b, Table 3.3-3 Action 14

Doc L.3

Doc L.4

CTS

SURVEILLANCE REQUIREMENTS

CTS	SURVEILLANCE		FREQUENCY	
4.3.2.1.1, Table 4.3-2 Functional Units 8.a and 8.b	SR 3.3.5.1	Perform CHANNEL CHECK.	12 hours	4, 6
4.3.2.1.1, Table 4.3-2 Functional Units 8.a and 8.b	SR 3.3.5.2	Perform TADOT. INSERT 2	[31] days	4
4.3.2.1.1, Tables 3.3-7 and 4.3-2 Functional Units 8.a and 8.b	SR 3.3.5.3	Perform CHANNEL CALIBRATION with [Nominal Trip Setpoint and] Allowable Value as follows: a. Loss of voltage Function Allowable Value ≥ [2912] 3332.6 (Unit 1) and 3302.7 (Unit 2) V and ≤ [ ] V with a time delay of [0.8] 2.0 ± [ ] 0.2 second. (5) [Loss of voltage Nominal Trip Setpoint [2975] V with a time delay of [0.8] ± [ ] second.] b. Degraded voltage Function Allowable Value ≥ [3683] 3983.6 V and ≤ [ ] V with a time delay of [20] 9 ± [ ] 0.25 seconds when a Steam Generator Water Level - Low Low signal or Safety Injection signal is present. [Degraded voltage Nominal Trip Setpoint [3746] V with a time delay of [20] ± [ ] seconds.]	[18] months 184 days	4, 7

INSERT 1

Not Used

6

INSERT 2

-NOTE-

Verification of relay setpoints not required.

INSERT 3

Not Used

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.5, LOP DG START INSTRUMENTATION

1. Grammatical/editorial change made for consistency.

2. ISTS LCO 3.3.5 requires [three] channels per bus of the loss of voltage Function and [three] channels per bus of the degraded voltage Function to be OPERABLE. ISTS LCO 3.3.5 is revised in ITS LCO 3.3.5 to reflect the design of the CNP Units 1 and 2 Degraded Voltage Function. The CNP Units 1 and 2 design includes two 4.16 kV emergency buses for each of two trains (Train "A" and Train "B"). Only one of these 4.16 kV emergency buses in each train has Degraded Voltage Function channels. Therefore, ITS LCO 3.3.5 requires three channels per bus of the Loss of Voltage Function and three channels per train of the Degraded Voltage Function to be OPERABLE. Commensurate changes to ISTS 3.3.5 ACTIONS A and B to address the "per train" design of the Degraded Voltage Function are made by adding the phrase "or train" to the references to "channels per bus."

3. ISTS 3.3.5 Required Action A.1 is modified by a Note that allows an inoperable channel to be bypassed for up to 4 hours for surveillance testing of other channels. The ISTS 3.3.5 Bases states the Note is provided where bypassing the channel does not cause an actuation and where two other channels are monitoring the parameter. For the CNP Units 1 and 2, the design of each of the LOP DG Start Instrumentation Functions includes 3 channels per bus or train monitoring the parameters. As such, when one channel of a Function on a bus or train is inoperable and another channel of the same Function on the same bus or train is made inoperable for Surveillance testing, only one channel of the Function on that bus or train is available for monitoring the parameter. Therefore, the ISTS 3.3.5 Required Action A.1 Note is not included in the CNP Units 1 and 2 ITS 3.3.5.

4. The brackets are removed and the proper plant specific information/value is provided.

5. The second part of the ISTS LCO 3.3.5 Applicability has been modified so that it only applies to the Loss of Voltage Function. The Degraded Voltage Function is only required to be OPERABLE during MODES 1, 2, 3, and 4. This proposed Applicability for the Degraded Voltage Function is consistent with the current licensing basis.

6. A Note has been added consistent with the Note in ITS SR 3.3.2.6, which performs a TADOT on the actual or similar instruments. This is also consistent with the current licensing basis.

7. Typographical error corrected.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

(1) All changes on this page, except as noted

B 3.3 INSTRUMENTATION

B 3.3.5 Loss of Power (LOP) Diesel Generator (DG) Start Instrumentation

BASES

BACKGROUND

The DGs provide a source of emergency power when offsite power is either unavailable or is insufficiently stable to allow safe unit operation. Undervoltage protection will generate an LOP start if a loss of voltage or degraded voltage condition occurs in the switchyard. There are two LOP start signals, one for each 4.16 kV vital bus.

(associated with offsite power) (actuation of the DG(s)) (either) (a)

Three undervoltage relays with inverse time characteristics are provided on each 4160 Class 1E instrument bus for detecting a sustained degraded voltage condition or a loss of bus voltage. The relays are combined in a two-out-of-three logic to generate an LOP signal if the voltage is below 75% for a short time or below 90% for a long time. The LOP start actuation is described in FSAR, Section 8.3 (Ref. 1).

(time delays) (for) (4.16 kV emergency) (INSERT 1) (approximately 78%) (discussed) (u) (4) (INSERT 2)

The Allowable Value in conjunction with the trip setpoint and LCO establishes the threshold for Engineered Safety Features Actuation System (ESFAS) action to prevent exceeding acceptable limits such that the consequences of Design Basis Accidents (DBAs) will be acceptable. The Allowable Value is considered a limiting value such that a channel is OPERABLE if the setpoint is found not to exceed the Allowable Value during the CHANNEL CALIBRATION. Note that although a channel is OPERABLE under these circumstances, the setpoint must be left adjusted to within the established calibration tolerance band of the setpoint in accordance with uncertainty assumptions stated in the referenced setpoint methodology, (as-left-criteria) and confirmed to be operating within the statistical allowances of the uncertainty terms assigned.

(for the Loss of Voltage Function)

Allowable Values and LOP DG Start Instrumentation Setpoints

- REVIEWER'S NOTE -

Alternatively, a TS format incorporating an Allowable Value only may be proposed by a licensee. In this case the Nominal Trip Setpoint value is located in the TS Bases or in a licensee controlled document outside the TS. Changes to the trip setpoint value would be controlled by 10 CFR 50.59 or administratively as appropriate, and adjusted per the setpoint methodology and applicable surveillance requirements. At their option, the licensee may include the trip setpoint in the surveillance requirement as shown, or suggested by the licensee's setpoint methodology.

(2)

(1) **INSERT 1**

(i.e., the required number of channels required to trip to generate an LOP signal is two per bus)

(1) **INSERT 2**

Undervoltage relays and time delays are also provided for detecting a sustained degraded voltage condition. Three undervoltage relays with time delays are provided for one Train "A" 4.16 kV emergency bus (T11D (Unit 1) and T21D (Unit 2)). Three undervoltage relays with time delays are provided for one Train "B" 4.16 kV emergency bus (T11A (Unit 1) and T21A (Unit 2)). The relays are combined in a two-out-of-three logic to generate an LOP signal (i.e., the required number of channels required to trip to generate an LOP signal is two per train) if the voltage is below approximately 93% for a specified delay time. If an accident signal (i.e., Steam Generator Water Level - Low Low signal or a Safety Injection signal) is present coincident with a degraded voltage condition, the delay time is approximately 9 seconds. If no accident signal is present coincident with a degraded voltage condition, the delay time is approximately 2 minutes. The LOP start actuation for the Degraded Voltage Function is discussed in UFSAR, Section 8.5 (Ref. 2).

BACKGROUND (continued)

The Trip Setpoints used in the relays are based on the analytical limits presented in FSAR, Chapter 15 (Ref. 2). The selection of these trip setpoints is such that adequate protection is provided when all sensor and processing time delays are taken into account.

Setpoints adjusted consistent with the requirements of the Allowable Value ensure that the consequences of accidents will be acceptable, providing the unit is operated from within the LCOs at the onset of the accident and that the equipment functions as designed.

Allowable Values and/or Nominal Trip Setpoints are specified for each Function in SR 3.3.5.3. Nominal Trip Setpoints are also specified in the unit specific setpoint calculations. The trip setpoints are selected to ensure that the setpoint measured by the surveillance procedure does not exceed the Allowable Value if the relay is performing as required. If the measured setpoint does not exceed the Allowable Value, the relay is considered OPERABLE. Operation with a trip setpoint less conservative than the Nominal Trip Setpoint, but within the Allowable Value, is acceptable provided that operation and testing is consistent with the assumptions of the unit specific setpoint calculation (Ref. 3).

APPLICABLE SAFETY ANALYSES

The LOP DG start instrumentation is required for the Engineered Safety Features (ESF) Systems to function in any accident with a loss of offsite power. Its design basis is that of the ESF Actuation System (ESFAS).

Accident analyses credit the loading of the DG based on the loss of offsite power during a loss of coolant accident (LOCA). The actual DG start has historically been associated with the ESFAS actuation. The DG loading has been included in the delay time associated with each safety system component requiring DG supplied power following a loss of offsite power. The analyses assume a non-mechanistic DG loading, which does not explicitly account for each individual component of loss of power detection and subsequent actions.

The required channels of LOP DG start instrumentation, in conjunction with the ESF systems powered from the DGs, provide unit protection in the event of any of the analyzed accidents discussed in Reference 2, in which a loss of offsite power is assumed.

The delay times assumed in the safety analysis for the ESF equipment include the 10 second DG start delay, and the appropriate sequencing delay, if applicable. The response times for ESFAS actuated equipment in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS)

(1) All changes on this page, except as noted

APPLICABLE SAFETY ANALYSES (continued)

Instrumentation," include the appropriate DG loading and sequencing delay.

The LOP DG start instrumentation channels satisfy Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO for LOP DG start instrumentation requires that three channels per bus of both the loss of voltage and degraded voltage Functions shall be OPERABLE in MODES 1, 2, 3, and 4 when the LOP DG start instrumentation supports safety systems associated with the ESFAS. In MODES 5 and 6, the three channels must be OPERABLE whenever the associated DG is required to be OPERABLE to ensure that the automatic start of the DG is available when needed. A channel is OPERABLE with a trip setpoint value outside its calibration tolerance band provided the trip setpoint "as-found" value does not exceed its associated Allowable Value and provided the trip setpoint "as-left" value is adjusted to a value within the "as-left" calibration tolerance band of the Nominal Trip Setpoint. A trip setpoint may be set more conservative than the Nominal Trip Setpoint as necessary in response to plant conditions. Loss of the LOP DG Start Instrumentation Function could result in the delay of safety systems initiation when required. This could lead to unacceptable consequences during accidents. During the loss of offsite power the DG powers the motor driven auxiliary feedwater pumps. Failure of these pumps to start would leave only one turbine driven pump, as well as an increased potential for a loss of decay heat removal through the secondary system.

(Handwritten markups: "Function"; "three channels per train of the"; "Since"; "LOP DG start instrumentation for the Loss of Voltage Function"; "unit" (1); (5) INSERT 2A)

APPLICABILITY

The LOP DG Start Instrumentation Functions are required in MODES 1, 2, 3, and 4 because ESF Functions are designed to provide protection in these MODES. Actuation in MODE 5 or 6 is required whenever the required DG must be OPERABLE so that it can perform its function on an LOP or degraded power to the 4 kV bus.

(Handwritten markups: (5); "loss of voltage" (5); "associated emergency"; (2) "TSTF-418 Rev. 2 Reviewer's Note Not Shown"; INSERT 2B (1))

ACTIONS

In the event a channel's trip setpoint is found nonconservative with respect to the Allowable Value, or the channel is found inoperable, then the function that channel provides must be declared inoperable and the LCO Condition entered for the particular protection function affected.

Because the required channels are specified on a per bus basis, the Condition may be entered separately for each bus as appropriate. (5)

A Note has been added in the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be

(5) **INSERT 2A**

or other specified conditions other than MODES 1, 2, 3, and 4

(1) **INSERT 2B**

The Degraded Voltage Function is not required in MODES or other specified conditions other than MODES 1, 2, 3, and 4 since the accident analysis does not assume this protection is OPERABLE. The Degraded Voltage Function is only required to provide undervoltage protection to automatically actuated ESFAS equipment during a sustained degraded voltage condition, and in MODES other than MODES 1, 2, 3, and 4, the ESFAS equipment is not automatically actuated.

ACTIONS (continued)

entered independently for each Function listed in the LCO. The Completion Time(s) of the inoperable channel(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A applies to the LOP DG start Functions with one loss of voltage or one degraded voltage channel per bus inoperable.

If one channel is inoperable, Required Action A.1 requires that channel to be placed in trip within [6] hours. With a channel in trip, the LOP DG start instrumentation channels are configured to provide a one-out-of-three logic to initiate a trip of the incoming offsite power.

A Note is added to allow bypassing an inoperable channel for up to [4] hours for surveillance testing of other channels. This allowance is made where bypassing the channel does not cause an actuation and where at least two other channels are monitoring that parameter.

The specified Completion Time and time allowed for bypassing one channel are reasonable considering the Function remains fully OPERABLE on every bus and the low probability of an event occurring during these intervals.

B.1

Condition B applies when more than one loss of voltage or more than one degraded voltage channel per bus are inoperable.

Required Action B.1 requires restoring all but one channel per bus to OPERABLE status. The 1 hour Completion Time should allow ample time to repair most failures and takes into account the low probability of an event requiring an LOP start occurring during this interval.

C.1

Condition C applies to each of the LOP DG start Functions when the Required Action and associated Completion Time for Condition A or B are not met.

In these circumstances the Conditions specified in LCO 3.8.1, "AC Sources - Operating," or LCO 3.8.2, "AC Sources - Shutdown," for the

(5) INSERT 3

maintains LOP DG start actuation capability on each associated 4.16 kV emergency bus

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ACTIONS (continued)

DG made inoperable by failure of the LOP DG start instrumentation are required to be entered immediately. The actions of those LCOs provide for adequate compensatory actions to assure unit safety.

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

The Frequency is based on operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the LCO required channels. (1)

SR 3.3.5.2

SR 3.3.5.2 is the performance of a TADOT. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This test is performed every [31 days]. The test checks trip devices that provide actuation signals directly, bypassing the analog process control equipment. For these tests, the relay trip setpoints are verified and adjusted as necessary. The Frequency is based on the known reliability (6) (3)

...

INSERT 3A

(3) **INSERT 3A**

The SRs are modified by a Note that excludes verification of setpoints for relays. Relay setpoints require elaborate bench calibration and are verified during CHANNEL CALIBRATION.

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(1) All changes on this page

SURVEILLANCE REQUIREMENTS (continued)

of the relays and controls and the multichannel redundancy available, and has been shown to be acceptable through operating experience.

SR 3.3.5.3

SR 3.3.5.3 is the performance of a CHANNEL CALIBRATION. (4)

The setpoints, as well as the response to a loss of voltage and a degraded voltage test, shall include a single point verification that the trip occurs within the required time delay as shown in Reference 1.

A CHANNEL CALIBRATION is performed every [18] months or approximately at every refueling (184 days) (3). CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

The Frequency of [18] months is based on operating experience and consistency with the typical industry refueling cycle (3) and is justified by the assumption of an [18] month (184 day) calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis. (3)

REFERENCES

1. (U)FSAR, Section [8.3] (8.4). (1) (6)
2. (U)FSAR, Chapter [15] (Section 8.5). (1) (6)
3. Plant specific setpoint methodology study (UFSAR, Chapter 14).

INSERT <1

(1) **INSERT 4**

4. WCAP-12741, "Westinghouse Menu Driven Setpoint Calculation Program (STEPIT)," as approved in Unit 1 and Unit 2 License Amendments 175 and 160, dated May 13, 1994.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.3.5 BASES, LOP DG START INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.
2. The ISTS Reviewer's Note has been deleted since it is not intended to be included in the ITS.
3. Changes are made to reflect changes made to the Specification.
4. Grammatical/editorial change made for consistency.
5. Changes are made to reflect the Specification.
6. The brackets are removed and the proper plant specific information/value is provided.

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.5, LOP DG START INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

ATTACHMENT 6

ITS 3.3.6, Containment Purge Supply and Exhaust System Isolation Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

(A.1)

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION (A.2)

LIMITING CONDITION FOR OPERATION

LCO 3.3.6 3.3.2.1 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks (See ITS 3.3.2) shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4. (LA.3)

APPLICABILITY: As shown in Table 3.3-3.

Add proposed ACTIONS Note 1 (A.3)

ACTION:

Add proposed ACTIONS Note 2 (L.12)

ACTIONS C and D a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value. (LA.3)

ACTIONS C and D b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

SR Table Note 4.3.2.1.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION, CHANNEL FUNCTIONAL TEST and TRIP ACTUATING DEVICE OPERATIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2. COT (A.4)

4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the automatic actuation logic test. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. (See ITS 3.3.2)

4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3. (A.5)

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A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.1

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	3. CONTAINMENT ISOLATION					
	a. Phase "A" Isolation					
	1) Manual	See Functional Unit 9				
	2) From Safety Injection Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
	b. Phase "B" Isolation					
	1) Manual	See Functional Unit 9				
	2) Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
	3) Containment Pressure -- High-High	4	2	3	1, 2, 3	16
	c. Purge and Exhaust Isolation					
Function 1	1) Manual	See Functional Unit 9				
Function 3	2) Containment Radioactivity-* High Train A (VRS 1101, ERS-1301, ERS 1305)	3	1	2 3	1, 2, 3, 4	17 D
Function 3	3) Containment Radioactivity-* High Train B (VRS 1201, ERS-1401, ERS 1405)	3	1	2 3	1, 2, 3, 4	17 D

See ITS 3.3.2

M.5

LA.1

L.4

Add proposed Function 2 — M.2

Add proposed Function 4 — M.3

*This specification only applies during PURGE. — M.1

A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.1

ITS	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	9. MANUAL					
Function 4	a. Safety Injection (ECCS) Feedwater Isolation Reactor Trip (SI) Containment Isolation-Phase "A" Containment Purge and Exhaust Isolation Auxiliary Feedwater Pumps Essential Service Water System	2/train	1/train	2/train	1, 2, 3, 4	18
Function 1	b. Containment Spray Containment Isolation - Phase "B" Containment Purge and Exhaust Isolation	1/train	1/train	1/train (1 per train)	1, 2, 3, 4	18 C
Function 1	c. Containment Isolation - Phase "A" Containment Purge and Exhaust Isolation	1/train	1/train	1/train	1, 2, 3, 4	18 C
	d. Steam Line Isolation	2/steam line (1 per train)	2/steam line (1 per train)	2/operating steam line (1 per train)	1, 2, 3	20
	e. Containment Air Recirculation Fan	1/train	1/train	1/train	1, 2, 3, 4	18
	10. CONTAINMENT AIR RECIRCULATION FAN					
	a. Manual	See Functional Unit 9				
	b. Automatic Actuation Logic	2	1	2	1, 2, 3	13
	c. Containment Pressure - High	3	2	2	1, 2, 3	14

See ITS 3.3.2 (item 9.a)

L.10

LA.1

LA.2

See ITS 3.3.2 (items 9.d through 10.c)

(A.1)

ITS 3.3.6

ITS

Add proposed ACTION A (M.5)

two or more

TABLE 3.3-3 (Continued)

ACTION D — ACTION 17 - With less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.

ACTION C — ACTION 18 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours

ACTION D — or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (L.3)

ACTION 19 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 1 hour.

b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.

ACTION 20 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.

See ITS 3.3.2

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A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

LA.3

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
2. CONTAINMENT SPRAY		
a. Manual Initiation	See Functional Unit 9	
b. Automatic Actuation Logic	Not Applicable	Not Applicable
c. Containment Pressure--High-High	Less than or equal to 2.9 psig	Less than or equal to 3 psig
3. CONTAINMENT ISOLATION		
a. Phase "A" Isolation		
1. Manual	See Functional Unit 9	
2. From Safety Injection Automatic Actuation Logic	Not Applicable	Not Applicable
b. Phase "B" Isolation		
1. Manual	See Functional Unit 9	
2. Automatic Actuation Logic	Not Applicable	Not Applicable
3. Containment Pressure--High-High	Less than or equal to 2.9 psig	Less than or equal to 3 psig
c. Purge and Exhaust Isolation		
1. Manual	See Functional Unit 9	

See ITS 3.3.2

Function 1

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A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

LA.3

A.7

ITS	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
Function 3	2. Containment Radioactivity--High Train A (VRS-1101, ERS-1301, ERS-1305)	See Table 3.3-6	Not Applicable
Function 3	3. Containment Radioactivity--High Train B (VRS-1201, ERS-1401, ERS-1405)	See Table 3.3-6	Not Applicable
	4. STEAM LINE ISOLATION		
	a. Manual	See Functional Unit 9	
	b. Automatic Actuation Logic	Not Applicable	Not Applicable
	c. Containment Pressure--High-High	Less than or equal to 2.9 psig	Less than or equal to 3 psig
	d. Steam Flow in Two Steam Lines--High Coincident with T_{avg}--Low-Low	Less than or equal to 1.42 x 10^6 lbs/hr from 0% load to 20% load. Linear from 1.42 x 10^6 lbs/hr at 20% load to 3.88 x 10^6 lbs/hr at 100% load.	Less than or equal to 1.56 x 10^6 lbs/hr from 0% load to 20% load. Linear from 1.56 x 10^6 lbs/hr at 20% load to 3.93 10^6 lbs/hr at 100% load.
		T_{avg} greater than or equal to 541°F	T_{avg} greater than or equal to 539°F
	e. Steam Line Pressure--Low	Greater than or equal to 500 psig steam line pressure	Greater than or equal to 480 psig steam line pressure
	5. TURBINE TRIP AND FEEDWATER ISOLATION		
	a. Steam Generator Water Level--High-High	Less than or equal to 67% of narrow-range instrument span each steam generator	Less than or equal to 68% of narrow-range instrument span each steam generator

A.7

L.4

See ITS 3.3.2

(A.1)

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

ITS	FUNCTIONAL UNIT	~~TRIP SETPOINT~~	ALLOWABLE VALUES	
	9. Manual			LA.3
	a. Safety Injection (ECCS)	N.A.	N.A.	See ITS 3.3.2
	Feedwater Isolation	N.A.	N.A.	See ITS 3.3.2
	Reactor Trip (SI)	N.A.	N.A.	See ITS 3.3.2
	Containment Isolation - Phase "A"	N.A.	N.A.	See ITS 3.3.2
Function 4	Containment Purge and Exhaust Isolation	~~N.A.~~	N.A.	LA.3
	Auxiliary Feedwater Pumps	N.A.	N.A.	See ITS 3.3.2
	Essential Service Water System	N.A.	N.A.	See ITS 3.3.2
	b. ~~Containment Spray~~	~~N.A.~~	N.A.	LA.2
	~~Containment Isolation - Phase "B"~~	~~N.A.~~	N.A.	LA.2
Function 1	Containment Purge and Exhaust Isolation	~~N.A.~~	N.A.	LA.3
	c. ~~Containment Isolation - Phase "A"~~	~~N.A.~~	N.A.	LA.2
Function 1	Containment Purge and Exhaust Isolation	~~N.A.~~	N.A.	
	d. Steam Line Isolation	N.A.	N.A.	See ITS 3.3.2
	e. Containment Air Recirculation Fan	N.A.	N.A.	See ITS 3.3.2
	10. CONTAINMENT AIR RECIRCULATION FAN			See ITS 3.3.2
	a. Manual	See Functional Unit 9	See Functional Unit 9	See ITS 3.3.2
	b. Automatic Actuation Logic	Not Applicable	Not Applicable	See ITS 3.3.2
	c. Containment Pressure - High	Less than or equal to 1.1 psig	Less than or equal to 1.2 psig	See ITS 3.3.2

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A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	FUNCTIONAL UNIT	CHANNEL CHECK (SR 3.3.6.1)	CHANNEL CALIBRATION (SR 3.3.6.7)	~~CHANNEL FUNCTIONAL TEST~~ COT (SR 3.3.6.4)	TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	3. CONTAINMENT ISOLATION					
	a. Phase "A" Isolation					
	1) Manual	See Functional Unit 9				
	2) From Safety Injection Automatic Actuation Logic	N.A.	N.A.	Q (2)	N.A.	1, 2, 3, 4
	b. Phase "B" Isolation					
	1) Manual	See Functional Unit 9				
	2) Automatic Actuation Logic	N.A.	N.A.	Q (2)	N.A.	1, 2, 3, 4
	3) Containment Pressure--High-High	S	R	SA (3)	N.A.	1, 2, 3
	c. Purge and Exhaust Isolation					
Function 1	1) Manual	See Functional Unit 9				
Function 3	2) Containment Radioactivity--High	S -1	~~R~~ -7 (24 months)	Q -4	N.A.	1, 2, 3, 4

A.4

See ITS 3.3.2

M.1

L.5

Add proposed SRs 3.3.6.2, 3.3.6.3, and 3.3.6.5 for Function 2

M.2

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A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

SR 3.3.6.6

	FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	9. Manual					
Function 4	a. Safety Injection (ECCS) Feedwater Isolation Reactor Trip (SI) Containment Isolation-Phase "A" Containment Purge and Exhaust Isolation Auxiliary Feedwater Pumps Essential Service Water System	N.A.	N.A.	N.A.	R	1, 2, 3, 4
Function 1	b. ~~Containment Spray Containment Isolation-Phase "B"~~ Containment Purge and Exhaust Isolation	N.A.	N.A.	N.A.	~~R~~ -6	1, 2, 3, 4
Function 1	c. ~~Containment Isolation-Phase "A"~~ Containment Purge and Exhaust Isolation	N.A.	N.A.	N.A.	~~R~~ -6	1, 2, 3, 4
	d. Steam Line Isolation	N.A.	N.A.	Q	R	1, 2, 3
	e. Containment Air Recirculation Fan	N.A.	N.A.	N.A.	R	1, 2, 3, 4
	10. CONTAINMENT AIR RECIRCULATION FAN					
	a. Manual	See Functional Unit 9				
	b. Automatic Actuation Logic	N.A.	N.A.	Q (2)	N.A.	1, 2, 3
	c. Containment Pressure - High	S	R	SA (3)	N.A.	1, 2, 3

See ITS 3.3.2

A.9 Add proposed Note to SR 3.3.6.6

L.6 24 months

A.9 Add proposed Note to SR 3.3.6.6

LA.2

See ITS 3.3.2

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A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING INSTRUMENTATION — A.2

LIMITING CONDITION FOR OPERATION

LCO 3.3.6 — 3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits. — LA.3

Add proposed ACTIONS Note1 — A.3

Add proposed ACTIONS Note2 — L.12

APPLICABILITY: As shown in Table 3.3-6.

ACTION:

Inoperable, restore the channel — L.1

ACTION B — a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable.

ACTION D — b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.

c. The provisions of Specification 3.0.3 are not applicable. — A.8

SURVEILLANCE REQUIREMENTS

SR Table Note — 4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-3.

COT — A.4

A.1

ITS 3.3.6

ITS

Table 3.3.6-1

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

See ITS 3.3.3

ALLOWABLE VALUE — A.7

	OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION	
	1. Modes 1, 2, 3 & 4					
	A. Area Monitors					M.1
Function 3.c	i. Upper Containment[#] (VRS ~~1101~~/1201)	1	N/A	≤ 54 mR/hr	21	See CTS 3/4.3.3.1; L.4
	ii. Containment High Range (VRA 1310/1410)	2	≤ 10R/hr	N/A	22A	See ITS 3.3.3
	B. Process Monitors					M.1
Function 3.b	i. Particulate Channel[#] (ERS ~~1301~~/1401)	1	N/A	≤ 2.52 μCi	20	See ITS 3.4.15
Function 3.a	ii. Noble Gas Channel[#] (ERS ~~1305~~/1405)	1	N/A	≤ 4.4x10⁻³ μCi/cc	20	L.4
	C. Noble Gas Effluent Monitors					See CTS 3/4.3.3.1
	i. Unit Vent Effluent Monitors					
	a. Low Range (VRS 1505)	------------(see the ODCM)------------				
	b. Mid Range (VRS 1507)	1	N/A	N/A	22B	
	c. High Range (VRS 1509)	1	N/A	N/A	22B	
	ii. Steam Generator PORV					
	a. MRA 1601 (Loop 1)	1	N/A	N/A	22B	
	b. MRA 1602 (Loop 4)	1	N/A	N/A	22B	
	c. MRA 1701 (Loop 2)	1	N/A	N/A	22B	
	d. MRA 1702 (Loop 3)	1	N/A	N/A	22B	
	iii. Gland Steam Condenser Vent Monitor					
	a. Low Range (SRA 1805)	------------(see the ODCM)------------				
	iv. Steam Jet Air Ejector Vent Monitors					
	a. Low Range (SRA 1905)	------------(see the ODCM)------------				
	b. Mid Range (SRA 1907)	1	N/A	N/A	22B	
	c. High Range (SRA 1909)	1	N/A	N/A	22B	

A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 3.3-6 (Continued)
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

L.7 | ALLOWABLE VALUE | A.7 | See CTS 3/4.3.3.1

ITS	OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION
Footnote (a)	2. Mode 6 (During movement of irradiated fuel assemblies within containment)				
	A. Train A	any 2/3 channels (Footnote (b))			22 D
Function 3.c	i. Containment Area* Radiation Channel (VRS-1101)		N/A	≤ 54 mR/hr	
Function 3.b	ii. Particulate Channel* (ERS-1301)		N/A	≤ 2.52 µCi	
Function 3.a	iii. Noble Gas Channel* (ERS-1305)		N/A	≤ 4.4x10⁻³ µCi/cc	
	B. Train B	any 2/3 channels (Footnote (b))			22 D
Function 3.c	i. Containment Area* Radiation Channel (VRS-1201)		N/A	≤ 54 mR/hr	
Function 3.b	ii. Particulate Channel* (ERS-1401)		N/A	≤ 2.52 µCi	
Function 3.a	iii. Noble Gas Channel* (ERS-1405)		N/A	≤ 4.4x10⁻³ µCi/cc	
	3. Mode ***				
	A. Spent Fuel Storage (RRC-330)	1	≤ 15 mR/hr	≤ 15 mR/hr	21

L.7 | L.4 | See CTS 3/4.3.3.1

* This specification only applies during PURGE

*** With fuel in storage pool or building

L.7 | See CTS 3/4.3.3.1

A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.4.6.1. (See ITS 3.4.15)

ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per day. (See CTS 3/4.3.3.1)

ACTION D — ACTION 22 - With the number of channels OPERABLE [two or more] less than required by the Minimum Channels Operable requirements, comply with the ACTION requirements of Specification 3.9.9. ~~This ACTION is not required during the performance of containment integrated leak rate test.~~ (L.1) (M.4)

ACTION 22A- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements:

1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or (See ITS 3.3.3)

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status. (See ITS 5.6)

3. Technical Specification Section 3.0.3 is Not Applicable. (See ITS 3.3.3)

ACTION 22B- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements.

1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status. (See CTS 3/4.3.3.1)

3. In the event of an accident involving radiological releases initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours.

4. Technical Specification Section 3.0.3 is Not Applicable.

A.1

ITS

Table 3.3.6-1

TABLE 4.3-3 (Continued)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

	OPERATION MODE/INSTRUMENT	CHANNEL CHECK (SR 3.3.6.1)	CHANNEL CALIBRATION (SR 3.3.6.7)	CHANNEL FUNCTIONAL TEST (COT) (SR 3.3.6.4)	APPLICABLE MODES
	2. Mode 6				
	A. Train A				
Function 3.c	i. Containment Area Radiation Channel (VRS 1101)	1-S*	7-R	4-Q	6 Footnote (a)
Function 3.b	ii. Particulate Channel (ERS 1301)	1-S*	7-R	4-Q	During movement of irradiated fuel assemblies within containment
Function 3.a	iii. Noble Gas Channel (ERS 1305)	1-S*	7-R	4-Q	
	B. Train B				6 Footnote (a)
Function 3.c	i. Containment Area Radiation Channel (VRS 1201)	1-S*	7-R	4-Q	
Function 3.b	ii. Particulate Channel (ERS 1401)	1-S*	7-R	4-Q	
Function 3.a	iii. Noble Gas Channel (ERS 1405)	1-S*	7-R	4-Q	
	3. Mode **				
	A. Spent Fuel Storage (RRC-330)	S	R	Q	**

24 months (L.5)

A.4 L.11 L.5 L.7 L.4

See CTS 3/4.3.3.1

* To include SOURCE CHECK per T/S Section 1.27 (L.11)

** With fuel in storage pool or building (See CTS 3/4.3.3.1)

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A.1

ITS 3.3.6

ITS

REFUELING OPERATIONS

CONTAINMENT PURGE AND EXHAUST ISOLATION SYSTEM — A.2

LIMITING CONDITION FOR OPERATION

LCO 3.3.6 — 3.9.9 The Containment Purge and Exhaust isolation system [instrumentation] shall be OPERABLE.

Table 3.3.6-1 Footnote (a) — APPLICABILITY: During ~~Core Alterations or~~ movement of irradiated fuel within the containment. (L.2)

ACTION:

ACTION D — With the Containment Purge and Exhaust isolation system inoperable, close each of the Purge and Exhaust penetrations providing direct access from the containment atmosphere to the outside atmosphere. ~~The provision of Specification 3.0.3 are not applicable.~~ (A.8)

92 days for (containment radiation monitors) — L.9

24 months (for manual initiation) — L.6

SURVEILLANCE REQUIREMENTS

SR 3.3.6.4, SR 3.3.6.6 — 4.9.9 The ~~Containment~~ Purge and Exhaust isolation system shall be demonstrated OPERABLE ~~within 100 hours prior to the start of~~ and at least once per ~~7 days~~ ~~during CORE ALTERATIONS~~ by verifying that containment Purge and Exhaust isolation occurs on manual initiation and on a high radiation signal from each of the containment radiation instrumentation monitors. (L.2) (L.8) (See ITS 3.9.3)

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.2 ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION — A.2

LIMITING CONDITION FOR OPERATION

LCO 3.3.6 — 3.3.2.1 The Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 shall be OPERABLE with their trip setpoints set consistent with the values shown in the Trip Setpoint column of Table 3.3-4. — See ITS 3.3.2 — LA.3

APPLICABILITY: As shown in Table 3.3-3.

ACTION: — Add proposed ACTIONS Note 1 — A.3 — Add proposed ACTIONS Note 2 — L.12

ACTIONS C and D — a. With an ESFAS instrumentation channel trip setpoint less conservative than the value shown in the Allowable Values column of Table 3.3-4, declare the channel inoperable and apply the applicable ACTION requirement of Table 3.3-3 until the channel is restored to OPERABLE status with the trip setpoint adjusted consistent with the Trip Setpoint value. — LA.3

ACTIONS C and D — b. With an ESFAS instrumentation channel inoperable, take the ACTION shown in Table 3.3-3.

SURVEILLANCE REQUIREMENTS

SR Table Note — 4.3.2.1.1 Each ESFAS instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION, CHANNEL FUNCTIONAL TEST [COT] and TRIP ACTUATING DEVICE OPERATIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-2. — A.4

4.3.2.1.2 The logic for the interlocks shall be demonstrated OPERABLE during the automatic actuation logic test. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. — See ITS 3.3.2

4.3.2.1.3 The ENGINEERED SAFETY FEATURES RESPONSE TIME of each ESFAS function shall be demonstrated to be within the limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once per N times 18 months where N is the total number of redundant channels in a specific ESFAS function as shown in the "Total No. of Channels" Column of Table 3.3-3. — A.5

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(A.1)

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURES ACTUATION SYSTEM INSTRUMENTATION

(LA.1)

	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
	3. CONTAINMENT ISOLATION					
	a. Phase "A" Isolation					
	1) Manual	See Functional Unit 9				
	2) From Safety Injection Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
	b. Phase "B" Isolation					
	1) Manual	See Functional Unit 9				
	2) Automatic Actuation Logic	2	1	2	1, 2, 3, 4	13
	3) Containment Pressure -- High-High	4	2	3	1, 2, 3	16
	c. Purge and Exhaust Isolation					
Function 1	1) Manual	See Functional Unit 9				
Function 3	2) Containment Radioactivity-* High Train A (VRS-2101, ERS-2301, ERS-2305)	3	1	2	1, 2, 3, 4	17 D
Function 3	3) Containment Radioactivity-* High Train B (VRS-2201, ERS-2401, ERS-2405)	3	1	2	1, 2, 3, 4	17 D

(See ITS 3.3.2)

3 (M.5)

(LA.1)

(L.4)

Add proposed Function 2 (M.2)

Add proposed Function 4 (M.3)

*This specification only applies during PURGE. (M.1)

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A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 3.3-3 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION

LA.1

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION	
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMPS						
a. Steam Generator Water Level -- Low-Low	3/Stm. Gen.	2/Stm. Gen. any 2 Stm. Gen.	2/Stm. Gen.	1, 2, 3	14	See ITS 3.3.2
b. Reactor Coolant Pump Bus Undervoltage	4-1/Bus	2	3	1, 2, 3	19	
8. LOSS OF POWER						
a. 4 kV Bus Loss of Voltage	3/Bus	2/Bus	2/Bus	1, 2, 3, 4	14	See ITS 3.3.5
b. 4 kV Bus Degraded Voltage	3/Bus (T21A - Train B) (T21D - Train A)	2/Bus (T21A-Train B) (T21D-Train A)	2/Bus (T21A-Train B) (T21D-Train A)	1, 2, 3, 4	14	
9. MANUAL						
a. Safety Injection (ECCS) Feedwater Isolation Reactor Trip (SI) Containment Isolation-Phase "A" Containment Purge and Exhaust Isolation (Function 4) Auxiliary Feedwater Pumps Essential Service Water System	2/train	1/train	2/train	1, 2, 3, 4	18	See ITS 3.3.2
b. ~~Containment Spray Containment Isolation Phase "B"~~ Containment Purge and Exhaust Isolation (Function 1)	~~1/train~~	~~1/train~~	~~1/train~~ 1 per train (L.10)	1, 2, 3, 4	18 C	LA.1, LA.2
c. ~~Containment Isolation Phase "A"~~ Containment Purge and Exhaust Isolation (Function 1)	~~1/train~~	~~1/train~~	~~1/train~~	1, 2, 3, 4	18 C	LA.1, LA.2
d. Steam Line Isolation	2/steam line (1 per train)	2/steam line (1 per train)	2/operating steam line (1 per train)	1, 2, 3	20	See ITS 3.3.2

(A.1)

ITS

Add proposed ACTION A — (M.5)

two or more — (M.5)

TABLE 3.3-3 (Continued)

ACTION D — ACTION 17 - With [two or more] less than the Minimum Channels OPERABLE, operation may continue provided the containment purge and exhaust valves are maintained closed.

ACTION C — ACTION 18 - With the number of OPERABLE Channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours

ACTION D — or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. (L.3)

ACTION 19 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 1 hour.

b. The Minimum Channels OPERABLE requirement is met; however, one additional channel may be bypassed for up to 2 hours for surveillance testing per Specification 4.3.2.1.

ACTION 20 - With the number of OPERABLE channels one less than the Total Number of Channels, restore the inoperable channel to OPERABLE status within 48 hours or declare the associated valve inoperable and take the ACTION required by Specification 3.7.1.5.

See ITS 3.3.2

A.1

ITS 3.3.6

ITS

Table 3.3.6-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS (LA.3)

	FUNCTIONAL UNIT	TRIP SETPOINTS	ALLOWABLE VALUES (A.7)
	2. CONTAINMENT SPRAY		
	a. Manual Initiation	------------ See Functional Unit 9 -----------	
	b. Automatic Actuation Logic	Not Applicable	Not Applicable
	c. Containment Pressure--High-High	Less than or equal to 2.9 psig	Less than or equal to 3.0 psig
	3. CONTAINMENT ISOLATION		
	a. Phase "A" Isolation		
	1. Manual	------------ See Functional Unit 9 -----------	
	2. From Safety Injection Automatic Actuation Logic	Not Applicable	Not Applicable
	b. Phase "B" Isolation		
	1. Manual	------------ See Functional Unit 9 -----------	
	2. Automatic Actuation Logic	Not Applicable	Not Applicable
	3. Containment Pressure-High-High	Less than or equal to 2.9 psig	Less than or equal to 3.0 psig
	c. Purge and Exhaust Isolation		
Function 1	1. Manual	------------ See Functional Unit 9 -----------	
Function 3	2. Containment Radio-activity--High Train A (VRS-2101, ERS-2301, ERS-2305)	See Table 3.3-6	Not Applicable
Function 3	3. Containment Radio-activity--High Train B (VRS-2201, ERS-2401, ERS-2405)	See Table 3.3-6	Not Applicable

See ITS 3.3.2

A.7

L.4

COOK NUCLEAR PLANT - UNIT 2 3/4 3-24 AMENDMENT NO. 80, 126, 137

A.1

ITS 3.3.6

ITS

Table 3.3.6-1

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP SETPOINTS

LA.3

	FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES	
	9. Manual			
	a. Safety Injection (ECCS)	N.A.	N.A.	See ITS 3.3.2
	Feedwater Isolation	N.A.	N.A.	
	Reactor Trip (SI)	N.A.	N.A.	
	Containment Isolation - Phase "A"	N.A.	N.A.	
Function 4	Containment Purge and Exhaust Isolation	N.A.	N.A.	LA.3
	Auxiliary Feedwater Pumps	N.A.	N.A.	See ITS 3.3.2
	Essential Service Water System	N.A.	N.A.	
	b. Containment Spray	N.A.	N.A.	
	Containment Isolation - Phase "B"	N.A.	N.A.	
Function 1	Containment Purge and Exhaust Isolation	N.A.	N.A.	LA.3
	c. Containment Isolation - Phase "A"	N.A.	N.A.	
Function 1	Containment Purge and Exhaust Isolation	N.A.	N.A.	LA.2
	d. Steam Line Isolation	N.A.	N.A.	See ITS 3.3.2
	e. Containment Air Recirculation Fan	N.A.	N.A.	
	10. CONTAINMENT AIR RECIRCULATION FAN			
	a. Manual	See Functional Unit 9		
	b. Automatic Actuation Logic	Not Applicable	Not Applicable	
	c. Containment Pressure - High	Less than or equal to 1.1 psig	Less than or equal to 1.2 psig	

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A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

COT — A.4

ITS	FUNCTIONAL UNIT	CHANNEL CHECK (SR 3.3.6.1)	CHANNEL CALIBRATION (SR 3.3.6.7)	CHANNEL FUNCTIONAL TEST (SR 3.3.6.4)	TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
	c. Purge and Exhaust Isolation					
Function 1	1) Manual	See Functional Unit 9				
Function 3	2) Containment Radioactivity -- High	S -1	7- R 24 months	4- Q	N.A.	1, 2, 3, 4
	4. STEAM LINE ISOLATION					
	a. Manual	See Functional Unit 9				
	b. Automatic Actuation Logic	N.A.	N.A.	Q (2)	N.A.	1, 2, 3
	c. Containment Pressure -- High-High	S	R	SA (3)	N.A.	1, 2, 3
	d. Steam Flow in Two Steam Lines -- High Coincident with T_{avg} -- Low-Low	S	R	SA	N.A.	1, 2, 3
	e. Steam Line Pressure -- Low	S	R	SA	N.A.	1, 2, 3
	5. TURBINE TRIP AND FEEDWATER ISOLATION					
	a. Steam Generator Water Level -- High-High	S	R	SA	N.A.	1, 2, 3
	6. MOTOR DRIVEN AUXILIARY FEEDWATER PUMPS					
	a. Steam Generator Water Level -- Low-Low	S	R	SA	N.A.	1, 2, 3
	b. 4 kV Bus Loss of Voltage	S	R	M	N.A.	1, 2, 3
	c. Safety Injection	N.A.	N.A.	Q (2)	N.A.	1, 2, 3
	d. Loss of Main Feed Pumps	N.A.	N.A.	R	N.A.	1, 2

M.1

L.5

See ITS 3.3.2

Add proposed SRs 3.3.6.2, 3.3.6.3, and 3.3.6.5 for Function 2 — M.2

A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 4.3-2 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

FUNCTIONAL UNIT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	SR 3.3.6.6 TRIP ACTUATING DEVICE OPERATIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
7. TURBINE DRIVEN AUXILIARY FEEDWATER PUMP					
a. Steam Generator Water Level -- Low-Low	S	R	SA	N.A.	1, 2, 3
b. Reactor Coolant Pump Bus Undervoltage	N.A.	R	M	N.A.	1, 2, 3
8. LOSS OF POWER					
a. 4 kv Bus Loss of Voltage	S	R	M	N.A.	1, 2, 3, 4
b. 4 kv Bus Degraded Voltage	S	R	M	N.A.	1, 2, 3, 4
9. MANUAL					
a. Safety Injection (ECCS) Feedwater Isolation Reactor Trip (SI) Containment Isolation - Phase "A" Containment Purge and Exhaust Isolation Auxiliary Feedwater Pumps Essential Service Water System	N.A.	N.A.	N.A.	R	1, 2, 3, 4
b. ~~Containment Spray Containment Isolation - Phase "B"~~ Containment Purge and Exhaust Isolation	N.A.	N.A.	N.A.	~~R~~ -6	1, 2, 3, 4
c. ~~Containment Isolation - Phase "A"~~ Containment Purge and Exhaust Isolation	N.A.	N.A.	N.A.	~~R~~ -6	1, 2, 3, 4
d. Steam Line Isolation	N.A.	N.A.	Q	R	1, 2, 3
e. Containment Air Recirculation Fan	N.A.	N.A.	N.A.	R	1, 2, 3, 4
10. CONTAINMENT AIR RECIRCULATION FAN					
a. Manual	See Functional Unit 9				
b. Automatic Actuation Logic	N.A.	N.A.	Q (2)	N.A.	1, 2, 3
c. Containment Pressure -- High	S	R	SA (3)	N.A.	1, 2, 3

Margin annotations:
- Function 7: See ITS 3.3.2
- Function 8: See ITS 3.3.5
- Function 9.a: See ITS 3.3.2; Function 4
- Function 9.b: Function 1; Add proposed Note to SR 3.3.6.6 (A.9); 24 months (L.6)
- Function 9.c: Function 1; Add proposed Note to SR 3.3.6.6 (A.9); LA.2
- Functions 9.d, 9.e, 10: See ITS 3.3.2

(A.1)

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION (A.2)

RADIATION MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

LCO 3.3.6 — 3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE. ~~with their alarm/trip setpoints within the specified limits.~~ (LA.3)

APPLICABILITY: As shown in Table 3.3-6. (A.3)

ACTION:

Add proposed ACTIONS Note 1 (L.12)

Add proposed ACTIONS Note 2

Inoperable, restore the channel (L.1)

ACTION B — a. With a radiation monitoring channel ~~alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit~~ within 4 hours ~~or declare the channel inoperable.~~

ACTION D — b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.

~~c. The provisions of Specification 3.0.3 are not applicable.~~ (A.8)

SURVEILLANCE REQUIREMENTS

SR Table Note — 4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and ~~CHANNEL FUNCTIONAL TEST~~ COT operations during the modes and at the frequencies shown in Table 4.3-3. (A.4)

A.1

ITS 3.3.6

ITS

Table 3.3.6-1

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

See ITS 3.3.3

ALLOWABLE VALUE — A.7

ITS	OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	~~TRIP~~ ~~SETPOINT~~	ACTION
	1. Modes 1, 2, 3 & 4				
	A. Area Monitors				
Function 3.c	i. Upper Containment (VRS ~~2101~~/2201)	1	N/A	≤ 54 mR/hr	21
	ii. Containment High Range (VRA 2310/2410)	2	≤ 10R/hr	N/A	22A
	B. Process Monitors				
Function 3.b	i. Particulate Channel (ERS ~~2301~~/2401)	1	N/A	≤ 2.52 μCi	20
Function 3.a	ii. Noble Gas Channel (ERS ~~2305~~/2405)	1	N/A	≤ 4.4×10^{-3} μCi/cc	20
	C. Noble Gas Effluent Monitors				
	i. Unit Vent Effluent Monitors				
	a. Low Range (VRS 2505)	------------(see the ODCM)------------			
	b. Mid Range (VRS 2507)	1	N/A	N/A	22B
	c. High Range (VRS 2509)	1	N/A	N/A	22B
	ii. Steam Generator PORV				
	a. MRA 2601 (Loop 1)	1	N/A	N/A	22B
	b. MRA 2602 (Loop 4)	1	N/A	N/A	22B
	c. MRA 2701 (Loop 2)	1	N/A	N/A	22B
	d. MRA 2702 (Loop 3)	1	N/A	N/A	22B
	iii. Gland Steam Condenser Vent Monitor				
	a. Low Range (SRA 2805)	------------(see the ODCM)------------			
	iv. Steam Jet Air Ejector Vent Monitors				
	a. Low Range (SRA 2905)	------------(see the ODCM)------------			
	b. Mid Range (SRA 2907)	1	N/A	N/A	22B
	c. High Range (SRA 2909)	1	N/A	N/A	22B

M.1

See CTS 3/4.3.3.1

L.4

See ITS 3.3.3

M.1

See ITS 3.4.15

L.4

See CTS 3/4.3.3.1

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(A.1)

ITS 3.3.6

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3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

Table 3.3.6-1

TABLE 3.3-6 (Continued)

RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

(L.7) (A.7)

ITS	OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	~~TRIP SETPOINT~~ ALLOWABLE VALUE	ACTION
Footnote (a)	2. ~~Mode 6~~ During movement of irradiated fuel assemblies within containment		(See CTS 3/4.3.3.1)		
	A. Train A	any 2/3 channels Footnote (b)			22 D
Function 3.c	i. Containment Area ~~*~~ Radiation Channel (VRS 2101)		~~N/A~~	≤ 54 mR/hr	
Function 3.b	ii. Particulate Channel ~~*~~ (ERS 2301)		~~N/A~~	≤ 2.52 μCi	
Function 3.a	iii. Noble Gas Channel ~~*~~ (ERS 2305)		~~N/A~~	≤ 4.4x10^{-3} μCi/cc	
	B. Train B	any 2/3 channels Footnote (b)			22 D
Function 3.c	i. Containment Area ~~*~~ Radiation Channel (VRS 2201)		~~N/A~~	≤ 54 mR/hr	
Function 3.b	ii. Particulate Channel ~~*~~ (ERS 2401)		~~N/A~~	≤ 2.52 μCi	
Function 3.a	iii. Noble Gas Channel ~~*~~ (ERS 2405)		~~N/A~~	≤ 4.4x10^{-3} μCi/cc	
	~~3. Mode ***~~				
	~~A. Spent Fuel Storage (RRC 330)~~	~~1~~	~~≤ 15 mR/hr~~	~~≤ 15 mR/hr~~	~~21~~

(L.7) (L.4) (See CTS 3/4.3.3.1)

(See CTS 3/4.3.3.1)

*** With fuel in storage pool or building

* ~~This specification only applies during PURGE~~ (L.7)

A.1

ITS 3.3.6

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.4.6.1. — See ITS 3.4.15

ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per day. — See CTS 3/4.3.3.1

ACTION D ACTION 22 - With the number of channels OPERABLE [two or more] less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.9.9. ~~This ACTION is not required during the performance of containment integrated leak rate test.~~ — L.1, M.4

ACTION 22A- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements:

1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or — See ITS 3.3.3

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status. — See ITS 5.6

3. Technical Specification Section 3.0.3 Not Applicable. — See ITS 3.3.3

ACTION 22B- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements.

1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

3. In the event of an accident involving radiological releases initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours.

4. Technical Specification Section 3.0.3 Not Applicable.

— See CTS 3/4.3.3.1

A.1

ITS 3.3.6

ITS

Table 3.3.6-1

TABLE 4.3-3 (Continued)

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A.4 L.11 L.5 L.7 L.4

	OPERATION MODE/INSTRUMENT	SR 3.3.6.1 CHANNEL CHECK	SR 3.3.6.7 CHANNEL CALIBRATION	SR 3.3.6.4 CHANNEL FUNCTIONAL TEST (COT) (24 months)	APPLICABLE MODES
	2. Mode 6				
	A. Train A				6 Footnote (a)
Function 3.c	i. Containment Area Radiation Channel (VRS 2101)	1- S*	7- R	4- Q	During movement of irradiated fuel assemblies within containment
Function 3.b	ii. Particulate Channel (ERS 2301)	1- S*	7- R	4- Q	
Function 3.a	iii. Noble Gas Channel (ERS 2305)	1- S*	7- R	4- Q	
	B. Train B				6 Footnote (a)
Function 3.c	i. Containment Area Radiation Channel (VRS 2201)	1- S*	7- R	4- Q	
Function 3.b	ii. Particulate Channel (ERS 2401)	1- S*	7- R	4- Q	
Function 3.a	iii. Noble Gas Channel (ERS 2405)	1- S*	7- R	4- Q	
	3. Mode **				
	A. Spent Fuel Storage (RRC-330)	S	R	Q	**

See CTS 3/4.3.3.1

L.11

* To include SOURCE CHECK per T/S Section 1.27

** With fuel in storage pool or building

See CTS 3/4.3.3.1

A.1

ITS 3.3.6

ITS

REFUELING OPERATIONS

CONTAINMENT PURGE AND EXHAUST ISOLATION SYSTEM — A.2

LIMITING CONDITION FOR OPERATION

LCO 3.3.6 — 3.9.9 The Containment Purge and Exhaust isolation system [instrumentation] shall be OPERABLE.

Table 3.3.6-1 Footnote (a) — APPLICABILITY: During ~~Core Alterations or~~ (L.2) movement of irradiated fuel within the containment.

ACTION:

ACTION D — With the Containment Purge and Exhaust isolation system inoperable, close each of the Purge and Exhaust penetrations providing direct access from the containment atmosphere to the outside atmosphere. ~~The provisions of Specification 3.0.3 are not applicable.~~ (A.8)

SURVEILLANCE REQUIREMENTS

SR 3.3.6.4, SR 3.3.6.6 — 4.9.9 The Containment ~~Purge and Exhaust isolation system shall be~~ (L.2) demonstrated OPERABLE ~~within 100 hours prior to the start of~~ (L.8) and at least once per ~~7 days~~ [92 days for containment radiation monitors] (L.9) [24 months for manual Initiation] (L.6) ~~during CORE ALTERATIONS~~ ~~by verifying that containment Purge and Exhaust isolation occurs~~ (See ITS 3.9.3) on manual initiation and on a high radiation test signal from each of the containment radiation monitoring instrumentation channels.

DISCUSSION OF CHANGES
ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.3.2.1, "Engineered Safety Feature Actuation System Instrumentation," requires the Engineered Safety Feature Actuation System (ESFAS) instrumentation channels and interlocks shown in Table 3.3-3 to be OPERABLE. CTS 3.3.3.1, "Radiation Monitoring Instrumentation," requires the radiation monitoring instrumentation channels shown in Table 3.3-6 to be OPERABLE. CTS 3.9.9 requires the Containment Purge and Exhaust Isolation System to be OPERABLE. ITS 3.3.6, "Containment Purge Supply and Exhaust System Isolation Instrumentation," requires specific channels for the Manual Initiation, Automatic Actuation Logic and Actuation Relays, Containment Radiation, and Safety Injection Functions to be OPERABLE. This changes the CTS by having a separate Specification for the Containment Purge Supply and Exhaust System isolation instrumentation in lieu of including it with the ESFAS Instrumentation Specification.

This change is acceptable because the technical requirements for the Containment Purge Supply and Exhaust System isolation instrumentation are maintained with the change in format. The Containment Purge Supply and Exhaust System Isolation Instrumentation Specification continues to require the isolation of the Containment Purge Supply and Exhaust System on Manual Initiation, Containment Radiation, and Safety Injection Input from ESFAS signals. This change is designated as administrative because it does not result in a technical change to the CTS.

A.3 CTS 3.3.2.1 Actions and CTS 3.3.3.1 Actions provide the compensatory actions to take when Containment Purge Supply and Exhaust System isolation instrumentation is inoperable. ITS 3.3.6 ACTIONS provide the compensatory actions for inoperable Containment Purge Supply and Exhaust System isolation instrumentation. The ITS 3.3.6 ACTIONS include a Note (Note 1) that allows separate Condition entry for each Function. In addition, separate Condition entry is allowed within a Function on a train basis for Function 3 (Containment Radiation (per train)) since the title of the Function includes the term "(per train)." This modifies the CTS by providing a specific allowance to enter the Action for each inoperable Containment Purge Supply and Exhaust System Isolation Instrumentation Function.

This change is acceptable because it clearly states the current requirement. The CTS considers each Containment Purge Supply and Exhaust System Isolation Instrumentation Function to be separate and independent from the other. This change is designated as administrative because it does not result in technical changes to the CTS.

A.4 CTS 4.3.2.1.1, Table 4.3-2, 4.3.3.1, and Table 4.3-3 require that Containment Radiation Function channels be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST. ITS SR 3.3.6.4 requires the performance of a CHANNEL OPERATIONAL TEST (COT) of the Containment Radiation Function channels. This changes the CTS by changing the CHANNEL FUNCTIONAL TEST requirements to a COT.

This change is acceptable because the COT continues to perform a test similar to the current CHANNEL FUNCTIONAL TEST. The change is one of format only. In addition, the change to the CHANNEL FUNCTIONAL TEST definition is described in Discussion of Changes for ITS 1.0. This change is designated as administrative because it does not result in technical changes to the CTS.

A.5 CTS 4.3.2.1.3 requires ENGINEERED SAFETY FEATURES RESPONSE TIME testing of "each" ESFAS function. ITS 3.3.6 does not include response time testing for the Containment Purge Supply and Exhaust System Isolation Instrumentation Functions. This changes the CTS by clearly identifying that the ENGINEERED SAFETY FEATURES RESPONSE TIME testing does not apply to the Containment Purge Supply and Exhaust System Isolation Instrumentation Functions.

The purpose of the CTS 4.3.2.1.3 requirements is to ensure that the actuation response times are less than or equal to the maximum values assumed in the accident analysis. UFSAR Table 7.2-7, which was previously in CTS 3.3.2 as Table 3.3-5, only specifies response times for those ESFAS Functions assumed in the CNP safety analyses. CTS Table 3.3-5 did not include response times for the CTS 3.3.2 Purge and Exhaust Isolation Functions. Therefore, this change is acceptable since ENGINEERED SAFETY FEATURES RESPONSE TIME testing of the Purge and Exhaust Isolation Functions was not required. These response times were removed from CTS 3.3.2 and placed under CNP control as documented in the NRC Safety Evaluation for License Amendments 202 (Unit 1) and 187 (Unit 2). In addition, UFSAR Table 7.2-7 currently does not require response time testing of the CTS 3.3.2 Purge and Exhaust Isolation Functions. This change is designated as administrative because it does not result in technical changes to the CTS.

A.6 Not used.

A.7 CTS 3.3.2.1 Action a requires action to be taken if the channel's trip setpoint is less conservative than the value shown in the Allowable Value column of Table 3.3-4. However, no Allowable Value is provided for Functional Units 3.c.2 and 3.c.3 (the Containment Radioactivity - High monitors); only a Trip Setpoint is provided. CTS 3.3.3.1 requires the radiation monitoring instrumentation channels shown in Table 3.3-6 to be OPERABLE with their alarm/trip setpoints within specified limits. CTS 3.3.3.1 Action a requires the channel to be declared inoperable when the setpoint exceeds the Trip Setpoint value shown in CTS Table 3.3-6 and not restored to within limit within 4 hours. ITS Table 3.3.6-1 specifies this value as an "Allowable Value" consistent with other ISTS Section 3.3 Tables. This changes the CTS by specifying an "Allowable Value" in ITS Table 3.3.6-1 instead of a "Trip Setpoint."

This change is acceptable because, in accordance with current plant procedures and practices, the Trip Setpoints specified in CTS Table 3.3-6 are applied as the OPERABILITY limits for the associated instruments. Therefore, the use of the term "Trip Setpoint" in the CTS is the same as the use of the term "Allowable Value" in the ITS. This change is designated as administrative because it does not result in a technical change to the CTS.

A.8 CTS 3.3.3.1 Action c applies, in part, to the MODE 6 requirements for CTS Table 3.3-6 Functional Units 2.A (Train A Containment Area Radiation, Particulate, and Noble Gas Channels) and 2.B (Train B Containment Area Radiation, Particulate, and Noble Gas Channels), and states that the provisions of Specification 3.0.3 are not applicable. The CTS 3.9.9 Action, which applies when the above channels are inoperable, also states that the provisions of Specification 3.0.3 are not applicable. ITS 3.3.6 does not contain equivalent statements. This changes the CTS by deleting the Specification 3.0.3 exception.

This change is acceptable because the technical requirements have not changed. ITS LCO 3.0.3 is not applicable in MODE 6. Therefore, the LCO 3.0.3 exception is not needed. This change is designated as administrative because it does not result in a technical change to the CTS.

A.9 CTS Table 4.3-2 requires a TADOT be performed on Functional Units 9.b and 9.c. CTS 1.40 states that a TADOT includes verification that the trip actuating devices actuate at the required setpoint. For these Functional Units, the CTS does not specify a setpoint since they are Manual Initiation Functions. ITS SR 3.3.6.5, the TADOT for these Functions, includes a Note that states verification of setpoint is not required. This changes the CTS by adding a clarifying Note to the TADOT Surveillance.

The addition of the Note is acceptable since it is only adding clarifying information. Since the Manual Initiation Functions do not have setpoints, then verification of the setpoints during performance of a TADOT is obviously not required. This change is designated as administrative because it does not result in a technical change to the CTS.

MORE RESTRICTIVE CHANGES

M.1 The Applicability for CTS Table 3.3-3 Functional Units 3.c.2) (Containment Radioactivity - High Train A) and 3.c.3) (Containment Radioactivity - High Train B) is MODES 1, 2, 3, and 4. This requirement is modified by Note * that states that the Specification only applies during PURGE. ITS 3.3.6 requires the Containment Radiation Function of the Containment Purge Supply and Exhaust System isolation instrumentation to be OPERABLE in MODES 1, 2, 3, and 4 when any Containment Purge Supply and Exhaust System penetration flow path is open. This changes the CTS by requiring the Containment Radiation Function of the Containment Purge Supply and Exhaust System isolation instrumentation to be OPERABLE in MODES 1, 2, 3, and 4 when any Containment Purge Supply and Exhaust System penetration flow path is open, in lieu of just when PURGING. In addition, the Applicability for CTS Table 4.3-2 Functional Unit 3.c.2) (Containment Radioactivity - High) Surveillance Requirements is MODES 1, 2, 3, and 4, and the CTS footnote concerning PURGING is not included. This change also administratively corrects the Applicability of the CTS Surveillances to match the actual Specification Applicability.

This change is acceptable because requiring the Containment Radiation Function of the Containment Purge Supply and Exhaust System isolation instrumentation to be OPERABLE during MODES 1, 2, 3, and 4 when any Containment Purge Supply and Exhaust System penetration flow path is open ensures that automatic isolation of the containment purge supply and exhaust isolation valves is available when needed (i.e., whenever a containment purge supply and exhaust penetration flow path is open, not just during purging operations, which is when both purge supply and exhaust penetration flow paths are open). This change is designated as more restrictive because the ITS expands the MODES and other specified conditions in which equipment is required to be OPERABLE.

M.2 CTS Table 3.3-3 Functional Unit 3.c provides requirements for Purge and Exhaust Isolation Functions, but does not explicitly provide requirements for the Automatic Actuation Logic and Actuation Relays Function that results in closure of the containment purge supply and exhaust isolation valves. ITS 3.3.6, "Containment Purge Supply and Exhaust System Isolation Instrumentation," provides requirements for the Automatic Actuation Logic and Actuation Relays Function (Function 2) to be OPERABLE and provides Surveillance Requirements (ITS SR 3.3.6.2, SR 3.3.6.3, and SR 3.3.6.5) to ensure the proper functioning of the associated actuation logic and relays. This changes the CTS by explicitly requiring the Automatic Actuation Logic and Actuation Relays Function for the Containment Purge Supply and Exhaust System isolation instrumentation to be OPERABLE.

This change is acceptable because the Automatic Actuation Logic and Actuation Relays Function is required to support the OPERABILITY of the containment purge supply and exhaust isolation valves. As such, explicitly including requirements for the Automatic Actuation Logic and Actuation Relays Function in the Technical Specifications provides additional assurance that the OPERABILITY of the Containment Purge Supply and Exhaust System isolation instrumentation will be maintained. The change provides explicit requirements for the Automatic Actuation Logic and Actuation Relays Function (ITS Table 3.3.6-1 Function 2) to be OPERABLE. The addition of SR 3.3.6.2 (an ACTUATION LOGIC TEST) and SR 3.3.6.3 (a MASTER RELAY TEST) is acceptable since the actuation logic is through the Solid Sate Protection System (SSPS) and the Frequencies are consistent with similar tests in ITS 3.3.1 and 3.3.2 for SSPS equipment. The addition of ITS SR 3.3.6.5 (a SLAVE RELAY TEST) is acceptable since it ensures the slave relays are OPERABLE and the Frequency is consistent with the Surveillance Frequency in ITS 3.3.2 for similar types of SSPS relays. The requirements for the Containment Purge Supply and

DISCUSSION OF CHANGES
ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

Exhaust System isolation instrumentation continue to require the isolation of the Containment Purge Supply and Exhaust System on Manual Initiation, Containment Radiation, and Safety Injection Input from ESFAS signals. This change is designated as more restrictive because it adds explicit OPERABILITY requirements and SRs for the Automatic Actuation Logic and Actuation Relays Function to the CTS.

M.3 CTS Table 3.3-3 Functional Unit 3.c provides requirements for Purge and Exhaust Isolation Functions, but does not explicitly provide requirements for the Safety Injection signal that results in closure of the containment purge supply and exhaust isolation valves, with the exception of the manual Safety Injection signal. ITS 3.3.6, "Containment Purge Supply and Exhaust System Isolation Instrumentation," provides requirements for the Safety Injection Input from ESFAS Function (Function 4) to be OPERABLE in MODES 1, 2, 3, and 4. The proposed change provides a cross-reference to LCO 3.3.2, "ESFAS Instrumentation," Function 1, SI, for all requirements and functions, including ACTIONS and Surveillances. In addition, ITS 3.3.6 ACTION D covers the condition when one or more SI Input from ESFAS trains are inoperable and requires the isolation of the affected penetration flow paths by use of at least one closed automatic valve. This changes the CTS by explicitly requiring the Safety Injection Input from ESFAS Function for the Containment Purge Supply and Exhaust System isolation instrumentation.

This change is acceptable because the Safety Injection Input from ESFAS Function is required to support the OPERABILITY of the containment purge supply and exhaust isolation valves. As such, explicitly including requirements for the Safety Injection Input from ESFAS Function in the Technical Specifications provides additional assurance that the OPERABILITY of the Containment Purge Supply and Exhaust System isolation instrumentation will be maintained. The requirements for the Containment Purge Supply and Exhaust System isolation instrumentation continue to require the isolation of the Containment Purge Supply and Exhaust System on Manual Initiation, Containment Radiation, and Safety Injection Input from ESFAS signals. This change is designated as more restrictive because it adds OPERABILITY requirements for the Safety Injection Input from ESFAS Function to the CTS.

M.4 When one or more required channels of CTS Table 3.3-6 Instrument 2.A (Train A Containment Area Radiation, Particulate, and Noble Gas) or 2.B (Train B Containment Area Radiation, Particulate, and Noble Gas) inoperable, CTS Table 3.3-6 Action 22 requires compliance with the CTS 3.9.9 Action (i.e., close each containment purge and exhaust penetration). However, CTS Table 3.3-6 Action 22 includes an exception that states, "This ACTION is not required during the performance of containment integrated leak rate test." ITS 3.3.6 does not include this exception to CTS Table 3.3-6 Action 22. This changes the CTS by eliminating an exception to Action requirements.

The purpose of the exception to the actions when one or more required containment radiation monitoring channels is inoperable was to eliminate to need to obtain grab samples from containment during a containment integrated leak rate test. Prior to License Amendments 60 (Unit 1) and 43 (Unit 2), when one or more required containment radiation monitoring channels were inoperable, a grab sample was required. The action requirement to obtain a grab sample in the event of inoperability of one or more required containment radiation monitoring channels was eliminated from the Technical Specifications and replaced with the requirement to comply with the action requirements of CTS 3.9.9 (i.e., close each containment purge and exhaust penetration) in License Amendments 60 (Unit 1) and 43 (Unit 2) dated September 9, 1982. This change is acceptable since the exception to compliance with CTS Table 3.3-6 Action 22 is no longer needed. This change is designated as more restrictive because it eliminates an allowance from the CTS.

M.5 CTS Table 3.3-3 "MINIMUM CHANNELS OPERABLE" column only requires two channels to be OPERABLE in MODES 1, 2, 3, and 4 during purging operations for Functional Unit 3.c.2) (Containment Radioactivity - High Train A) and for Functional Unit 3.c.3) (Containment Radioactivity - High Train B). Furthermore, CTS Table 3.3-3 ACTION 17, which is the ACTION referenced in Table 3.3-2 for the Containment Radioactivity - High Trains A and B Functional Units, is only applicable when the number of channels OPERABLE is less than the Minimum Channels OPERABLE requirement. Thus, while the CTS Table 3.3-3 states that each of the two Functional Units include "3" in the TOTAL NO. OF CHANNELS column, only 2 channels per Functional Unit are required to be OPERABLE and Actions are only required when two or more of the total number of channels are inoperable. ITS Table 3.3.6-1 requires three channels per train of the Containment Radiation Function (Function 3) to be OPERABLE in MODES 1, 2, 3, and 4 when any Containment Purge Supply and Exhaust System penetration flow path is open. Furthermore, when one of the three channels are inoperable, ITS 3.3.6 ACTION A requires the inoperable channel to be restored to OPERABLE status prior to entering MODE 4 from MODE 5 following a refueling. This allows continued operation and unlimited MODE changes during the cycle with an inoperable Function 3 channel, and only requires the inoperable channel to be restored before entering MODE 4 after a refueling outage. ITS 3.3.6 ACTION D is entered when two or more channels are inoperable, and provides requirements similar to those required by CTS Table 3.3-3 ACTION 17. This changes the CTS by: a) combining the requirements for Containment Radioactivity - High Train A and Train B Functional Units into one Containment Radiation Function and designating the channel requirements on a "per train" basis (as stated in the Title of Function 3); b) requiring three channels per train to be OPERABLE in lieu of the current requirement of two channels per train; and c) providing a new ACTION (ACTION A) for when one channel (of the three total channels) in a train is inoperable. The change to the Applicability is discussed on DOC M.1.

The purpose of the Containment Radioactivity -High channels is to ensure the containment purge supply and exhaust system will be automatically isolated when required. The change is acceptable since an additional channel per train will help ensure the assumed safety function is met. This change is designated as more restrictive because more Containment Radioactivity -High channels are required in the ITS than in the CTS.

DISCUSSION OF CHANGES
ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-3 for ESFAS instrumentation has three columns stating various requirements for the Purge and Exhaust Isolation Functions. These columns are labeled, "TOTAL NO. OF CHANNELS," "CHANNELS TO TRIP," and "MINIMUM CHANNELS OPERABLE." ITS Table 3.3.6-1 does not retain the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns. This changes the CTS by moving the information of the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.2 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Tables 3.3-3, 3.3-4, and 4.3-2 provide requirements for Functions 9.b (Manual Containment Spray Containment Isolation - Phase "B" Containment Purge and Exhaust Isolation) and 9.c (Manual Containment Isolation - Phase "A" Containment Purge and Exhaust Isolation Function). ITS Table 3.3.6-1 provides requirements for Function 1 (Manual Initiation). This changes the CTS by moving the details of the Manual Initiation Function for Containment Purge Supply and Exhaust System isolation from the Technical Specifications to the Bases.

The removal of these details, which are related to system design, from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the Manual Initiation Function of the Containment Purge Supply and Exhaust System isolation instrumentation to be OPERABLE. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.3 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS 3.3.2.1 requires the ESFAS instrumentation and interlocks setpoints to be set consistent with the Trip Setpoint values shown in Table 3.3-4 and the Trip Setpoint column in CTS Table 3.3-4 references CTS Table 3.3-6. CTS 3.3.3.1 requires the radiation monitoring instrumentation channels shown in Table 3.3-6 to be set consistent with the Trip Setpoint values shown in Table 3.3-6. The radiation monitoring channels in question are the same for both CTS 3.3.2.1 and CTS 3.3.3.1. In addition, CTS 3.3.2.1 Action a is required to be entered when the setpoint is less conservative than the Allowable Value. The channel is to be declared inoperable until adjusted consistent with the Trip Setpoint value. ITS 3.3.6 requires the Containment Purge Supply and Exhaust System Isolation Instrumentation Functions to be OPERABLE. ITS Table 3.3.6-1 specifies the Allowable Values for the Containment Purge Supply and Exhaust System Isolation Instrumentation Functions. This changes the CTS by moving the Trip Setpoints and associated requirements to the Technical Requirements Manual (TRM).

The removal of these details for meeting Technical Specification requirements from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the Allowable Values associated with the Containment Purge Supply and Exhaust System Isolation Instrumentation. Also, this change is acceptable because these types of procedural details will be adequately controlled in the TRM. Any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

<u>LESS RESTRICTIVE CHANGES</u>

L.1 *(Category 3 - Relaxation of Completion Time)* CTS 3.3.3.1 Action a requires, when in MODE 6, that if a radiation monitoring channel alarm/trip setpoint exceeds specified limits (effectively inoperable), then the setpoint is to be adjusted to within the limit within 4 hours (i.e., restore the channel to OPERABLE status) or the channel declared inoperable. CTS Table 3.3-6 Action 22 requires, with the number of OPERABLE containment area radiation, particulate, and noble gas channels less than the minimum number of channels in MODE 6, compliance with the Action requirements of CTS 3.9.9. The CTS 3.9.9 Action, which applies during Core Alterations or movement of irradiated fuel within the containment, requires the containment purge and exhaust penetrations to be closed. ITS 3.3.6 ACTION B is the applicable action for the Containment Radiation Functions when one required channel is inoperable during movement of irradiated fuel assemblies within containment, and allows 4 hours to restore the channel to OPERABLE status. This changes the CTS by providing a 4 hour time to restore a channel to OPERABLE status when one required Containment

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Radiation Function channel is inoperable during movement of irradiated fuel assemblies within containment. As a result, a corresponding change is also made to CTS Table 3.3-6 Action 22 such that this action addresses the condition of two or more required Containment Radiation Function channels inoperable during movement of irradiated fuel assemblies within containment.

The purpose of the Required Actions is to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. This change is acceptable because the Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the redundant instrumentation channels. This includes the capacity and capability of remaining channels, a reasonable time for repairs or replacement, and the low probability of a design basis accident (DBA) occurring during the repair period. The ITS ACTION will allow 4 hours to restore the channel to OPERABLE status when one channel is inoperable. This is a reasonable period of time because of the low probability of an event occurring that would require a Containment Purge Supply and Exhaust System isolation and the Containment Purge Supply and Exhaust System isolation capability provided by the remaining OPERABLE channels of the associated Containment Radiation Function. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.2 *(Category 2 – Relaxation of Applicability)* CTS 3.9.9 is applicable during CORE ALTERATIONS and during movement of irradiated fuel assemblies within containment. The ITS Table 3.3.6-1 requirements for the Manual Initiation and Containment Radiation Functions are applicable, in part, during movement of irradiated fuel assemblies within containment. This changes the CTS by eliminating requirements for the Containment Purge and Exhaust Isolation System during CORE ALTERATIONS.

The purpose of CTS 3.9.9 is to ensure the containment purge supply and exhaust isolation valves are capable of being closed as assumed in the fuel handling accident inside containment analysis. This change is acceptable because the requirements continue to ensure that the structures, systems, and components are maintained in the MODES and other specified conditions assumed in the safety analyses and licensing basis. There are no accidents postulated to occur during CORE ALTERATIONS that result in significant radioactive release except a fuel handling accident. The analysis for a fuel handling accident assumes the event occurs only during movement of irradiated fuel. No CORE ALTERATIONS except the movement of irradiated fuel are assumed to be in progress when a fuel handling accident occurs. Therefore, imposing requirements during CORE ALTERATIONS in addition to during movement of irradiated fuel is unnecessary. This change is designated as less restrictive because the LCO requirements are applicable in fewer operating conditions than in the CTS.

L.3 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-3 Action 18 requires, with the number of OPERABLE channels of the Manual Containment Purge and Exhaust Isolation Functions less than the total number of channels,

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that the channels be restored to OPERABLE status within 48 hours or that the unit be placed in MODE 3 in the next 6 hours and in MODE 5 within the following 30 hours. ITS 3.3.6 ACTION D is the applicable action for the Manual Initiation Functions when inoperable channels are not restored to OPERABLE status within the associated Completion Time, and allows the containment purge supply and exhaust isolation valves to be placed in the closed position immediately. This changes the CTS by allowing the containment purge supply and exhaust isolation valves to be closed, in lieu of requiring a unit shutdown.

The purpose of the requirements for the Manual Initiation Function is to ensure the associated containment purge supply and exhaust isolation valves are capable of being manually closed. The proposed Required Action ensures that the function of the inoperable channels is satisfied by requiring the containment purge supply and exhaust isolation valves to be placed in the closed position. The Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation. This change is acceptable because the Required Actions are consistent with safe operation under the specified Condition, considering the OPERABLE status of the automatic Containment Purge Supply and Exhaust System isolation instrumentation channels, a reasonable time to accomplish the closure of the containment purge supply and exhaust isolation valves, and the low probability of a DBA occurring during the time period. The ITS ACTION will allow the containment purge supply and exhaust isolation valves to be placed in the closed position immediately. This is a reasonable period of time because of the low probability of an event occurring that would require a Containment Purge Supply and Exhaust System isolation and the isolation capability provided by the remaining OPERABLE automatic channels of the Containment Purge Supply and Exhaust System Isolation Instrumentation Functions. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.4 *(Category 1 – Relaxation of LCO Requirements)* CTS Table 3.3-3 specifies the Functional Unit 3.c.2) (Purge and Exhaust Isolation, Containment Radioactivity - High Train A) channel instrument numbers to be VRS-1101, ERS-1301, and ERS-1305 (Unit 1) and VRS-2101, ERS-2301, and ERS-2305 (Unit 2) and the Functional Unit 3.c.3) (Purge and Exhaust Isolation, Containment Radioactivity - High Train B) channel instrument numbers to be VRS-1201, ERS-1401, and ERS-1405 (Unit 1) and VRS-2201, ERS-2401, and ERS-2405 (Unit 2). CTS Table 3.3-4 specifies the Functional Unit 3.c.2 (Purge and Exhaust Isolation, Containment Radioactivity - High Train A) channel instrument numbers to be VRS-1101, ERS-1301, and ERS-1305 (Unit 1) and VRS-2101, ERS-2301, and ERS-2305 (Unit 2) and the Functional Unit 3.c.3 (Purge and Exhaust Isolation, Containment Radioactivity - High Train B) channel instrument numbers to be VRS-1201, ERS-1401, and ERS-1405 (Unit 1) and VRS-2201, ERS-2401, and ERS-2405 (Unit 2). CTS Table 3.3-6 specifies the Instruments 1.A.i (Area Monitor, Upper Containment), 1.B.i (Process Monitors, Particulate Channel), and 1.B.ii (Process Monitors, Noble Gas Channel) channel instrument numbers to be VRS-1101, VRS-1201, ERS-1301, ERS-1401, ERS-1305, and ERS-1405 (Unit 1) and VRS-2101, VRS-2201, ERS-2301, ERS-2401, ERS-2305, and ERS-2405 (Unit 2). CTS Tables 3.3-6 and 4.3-3 specify the Instruments 2.A.i, 2.A.ii, and

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2.A.iii (Containment Area Radiation, Particulate, and Noble Gas Train A) channel instrument numbers to be VRS-1101, ERS-1301, and ERS-1305 (Unit 1) and VRS-2101, ERS-2301, and ERS-2305 (Unit 2) and the Instruments 2.B.i, 2.B.ii, and 2.B.iii (Containment Area Radiation, Particulate, and Noble Gas Train B) channel instrument numbers to be VRS-1201, ERS-1401, and ERS-1405 (Unit 1) and VRS-2201, ERS-2401, and ERS-2405 (Unit 2). ITS Table 3.3.6-1 Functions 3.a, 3.b, and 3.c (Containment Radiation - Gaseous, - Particulate, and - Area Radiation) do not specify the instrument numbers for these instruments. This changes the CTS by deleting the instrument numbers for the channels of the Containment Radioactivity - High Functions from the Technical Specifications.

The purpose of the requirements of CTS Tables 3.3-3, 3.3-4, 3.3-6, and 4.3-3 are to ensure the appropriate Containment Radioactivity - High Functions channels are OPERABLE for isolation of the containment purge supply and exhaust isolation valves. This change is acceptable because ITS LCO 3.3.6 and associated Surveillance Requirements continue to ensure that the instrumentation is maintained consistent with the safety analyses and licensing basis. The channel instrument numbers of the Containment Radioactivity - High Function have been deleted from the Technical Specifications. The instrument numbers are not necessary to ensure the equipment is OPERABLE. The requirements to maintain the Containment Radiation Functions instrumentation OPERABLE is sufficient to ensure the appropriate equipment is maintained OPERABLE. The use of a description of the instrument channel in the Technical Specifications has been proven to be sufficient. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L.5 *(Category 11 – 18 to 24 Month Surveillance Frequency Change, Channel Calibration Type)* CTS Table 4.3-2 requires a CHANNEL CALIBRATION of the Containment Radioactivity - High Functional Unit instrumentation every 18 months and CTS Table 4.3-3 requires a CHANNEL CALIBRATION of the containment area radiation, particulate, and noble gas channels every 18 months. ITS SR 3.3.6.7 requires the performance of a CHANNEL CALIBRATION for the Containment Radiation Function instrumentation every 24 months. This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

The purpose of the CHANNEL CALIBRATION requirement of CTS Tables 4.3-2 and 4.3-3 is to ensure channels of the Containment Radiation Function will function as designed during an analyzed event. Extending the SR Frequency is acceptable because the Containment Radiation Function instruments are designed to be single failure proof, therefore ensuring system availability in the event of a failure of one of the channel components. Furthermore, a CHANNEL CHECK is performed on a more frequent basis (ITS SR 3.3.6.1). The CHANNEL CHECK provides a qualitative demonstration of the OPERABILITY of the instruments.

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This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. The following impacted Containment Radiation Function instrumentation were evaluated:

CTS Table 4.3-2, Functional Unit 3.c.2, Containment Radioactivity - High and CTS Table 4.3-3, Instruments 2.A.i and 2.B.i, Containment Area Radiation

CTS Table 4.3-2, Functional Unit 3.c.2, Containment Radioactivity - High and CTS Table 4.3-3, Instruments 2.A.ii and 2.B.ii, Particulate

CTS Table 4.3-2, Functional Unit 3.c.2, Containment Radioactivity - High and CTS Table 4.3-3, Instruments 2.A.iii and 2.B.iii, Noble Gas

These functions are performed using Eberline Radiation Monitoring Systems including Eberline SPING Radiation Monitoring Systems. These components were not evaluated for drift because, for radiation monitors, the major error contributor is the accuracy of the detector and the calibration sources. In the case of the calibration sources, normally multiple readings are required and an average reading is used to confirm operation. The accuracy of the decay curves and detector sensitivity may be from 12% to 30%. This accuracy far overshadows the accuracy of the electronic signal conditioning circuit. Therefore, drift of the electronic circuit does not provide a measure of functional performance over time between calibrations. This is substantiated by the ANSI N42.18 acceptance criteria of $\pm$ 20%. CHANNEL CHECKS and source checks (where internal source check is possible) verify that the instruments are performing within expected conditions. In addition, there was a failure analysis evaluation performed. This failure analysis did not reveal any time based failure mechanisms or any failure types that would invalidate the conclusion that the system availability and reliability would be impacted by an increased Surveillance interval.

Based on the design of the instrumentation, as well as the qualitative drift analysis and the failure results analysis, it is concluded that the impact, if any, from this change on system availability is minimal. A review of the Surveillance test history was performed to validate the above conclusion. This review demonstrates that there are no failures that would invalidate the conclusion that the impact, if any, on system availability from this change is minimal. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the unit licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.6 *(Category 10 – 18 to 24 Month Surveillance Frequency Change, Non-Channel Calibration Type)* CTS Table 4.3-2 requires the performance of a TRIP ACTUATING DEVICE OPERATIONAL TEST (TADOT) of the Manual Purge and Exhaust Isolation Functional Unit at least once per 18 months. CTS 4.9.9 requires the verification of containment purge and exhaust isolation on a manual

DISCUSSION OF CHANGES
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initiation signal once per 7 days during CORE ALTERATIONS. ITS SR 3.3.6.6 requires the performance of a TADOT of the Manual Initiation Function every 24 months. This changes the CTS by extending the Frequency of the Surveillance to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

The purpose of the requirements of CTS Table 4.3-2 for the Manual Purge and Exhaust Isolation Function is to ensure the proper operation of the associated instrumentation. This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. Reviews of historical surveillance data and maintenance data sufficient to determine failure modes have shown that these tests normally pass their Surveillances at the current Frequency. An evaluation has been performed using this data, and it has been determined that the effect on safety due to the extended Surveillance Frequency will be minimal. Extending the Surveillance test interval for this TADOT is acceptable because the Manual Initiation of the Containment Purge Supply and Exhaust System isolation is not credited in any safety analyses and manual isolation of the Containment Purge Supply and Exhaust System may be accomplished using the individual valve controls. Based on the inherent system and component reliability, the impact, if any, from this change on system availability is minimal. The review of historical surveillance data also demonstrated that there are no failures that would invalidate this conclusion. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the plant licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.7 *(Category 2 – Relaxation of Applicability)* CTS Tables 3.3-6 and 4.3-3 require the Functional Units 2.A and 2.B (Containment Area Radiation, Particulate, and Noble Gas) channels to be OPERABLE in MODE 6. ITS Table 3.3.6-1 Footnote (a) requires the Function 3 (Containment Radiation) channels to be OPERABLE during movement of irradiated fuel assemblies within containment. This changes the CTS by deleting the requirement that the Containment Radiation Functions be OPERABLE in MODE 6 when irradiated fuel assemblies are not being moved in containment.

The purpose of CTS Tables 3.3-6 and 4.3-3 MODE 6 requirements for containment area radiation, particulate, and noble gas channels is to ensure the containment purge supply and exhaust isolation valves are capable of closing to mitigate the consequences of a fuel handling accident as assumed in the safety analyses. This change is acceptable because the ITS 3.3.6 requirements continue to ensure that the instrumentation is maintained OPERABLE in the MODES and other specified conditions assumed in the safety analyses and licensing basis. The fuel handling accident is assumed to occur only during movement of an irradiated fuel assembly. This change is designated as less restrictive because LCO requirements are applicable in fewer conditions than in the CTS.

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L.8 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS 4.9.9 states that the Containment Purge and Exhaust Isolation System shall be demonstrated OPERABLE, in part, "within 100 hours prior to the start of" the specified conditions. ITS SR 3.3.6.4 and ITS SR 3.3.6.6 do not include the "within 100 hours prior to the start of" Frequency. ITS SR 3.0.1 states "SRs shall be met during the MODES or other specified conditions in the Applicability for the individual LCOs, unless otherwise stated in the SR." Therefore, under the ITS, the Surveillances must be met prior to the initiation of movement of irradiated fuel within containment. This changes the CTS by eliminating the stipulation that the Surveillances be met within 100 hours prior to entering the MODE of Applicability.

The purpose of CTS 4.9.9 is to verify the Containment Purge and Exhaust Isolation System is OPERABLE. This change is acceptable because the periodic Surveillance Frequencies have been evaluated to ensure that they provide an acceptable level of equipment reliability. For CTS 4.9.9, the periodic Surveillance Frequencies for verifying Containment Purge and Exhaust Isolation Instrumentation OPERABILITY are acceptable during the MODE of Applicability, and are also acceptable during the period prior to entering the MODE of Applicability. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

L.9 *(Category 7 – Relaxation Of Surveillance Frequency, Non-24 Month Type Change)* CTS 4.9.9 states that the Containment Purge and Exhaust Isolation System shall be demonstrated OPERABLE, in part, once per 7 days during the specified conditions. ITS SR 3.3.6.4 requires, for the Containment Radiation Functions of the Containment Purge Supply and Exhaust System isolation instrumentation, the performance of a CHANNEL OPERATIONAL TEST once per 92 days. This changes the CTS by extending the Frequency of the Surveillance from 7 days (i.e., a maximum of 8.75 days accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 92 days (i.e., a maximum of 115 days accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2). The change from a CHANNEL FUNCTIONAL TEST to CHANNEL OPERATIONAL TEST is addressed in DOC A.4.

The purpose of CTS 4.9.9 is to verify the Containment Purge and Exhaust Isolation System is OPERABLE. The Containment Purge and Exhaust Isolation System includes the instrumentation that provides a containment high radiation isolation signal to the containment purge supply and exhaust isolation valves. During MODES 1, 2, 3, 4, and during MODE 6, CTS Tables 4.3-2 and 4.3-3 require the performance of a CHANNEL FUNCTIONAL TEST for this containment radiation instrumentation once per 92 days. This change is acceptable because the periodic Surveillance Frequency for MODES 1, 2, 3, 4 and 6 has been evaluated to ensure that it provides an acceptable level of equipment reliability. For CTS 4.9.9, the same periodic Surveillance Frequency (once per 92 days) for verifying Containment Purge and Exhaust Isolation System OPERABILITY is acceptable during the MODE of Applicability, and is also acceptable during the period prior to entering the MODE of Applicability. This change is designated as less restrictive because a Surveillance will be performed less frequently under the ITS than under the CTS.

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L.10 CTS Table 3.3-3, Functional Units 9.b and 9.c (Manual Containment Purge and Exhaust Isolation) require a total of 2 channels per train to be OPERABLE (1 channel per train for Functional Unit 9.b and 1 channel per train for Functional Unit 9.c). ITS Table 3.3.6-1, Function 1 (Manual Initiation) requires only one channel per train to be OPERABLE. This changes the CTS be decreasing the number of manual channels required OPERABLE from two per train to one per train.

The purpose of the Containment Purge Supply and Exhaust Manual Initiation Function is to ensure the capability exists to manually isolate the Containment Purge Supply and Exhaust System isolation valves. The Containment Purge Supply and Exhaust System Manual Initiation Function at CNP is provided by four switches, two per train. Each switch will actuate all Containment Purge Supply and Exhaust System isolation valves in its associated train (i.e., the two train A switches are fully redundant to each other and the two train B switches are fully redundant to each other). The differences between the two switches within a train are their location within the control room, and one of the two switches also actuates Containment Isolation Phase A while the other switch also actuates the Containment Spray subsystem and Containment Isolation Phase B. There is no manual switch that only initiates a Containment Purge Supply and Exhaust System isolation at CNP. One train A switch and one train B switch are located on the Containment Spray System panel, while one train A switch and one train B switch are located on the Ventilation System panel. The CTS requires both channels per train OPERABLE because the CTS groups the Containment Purge Supply and Exhaust manual initiation function by switch function. Therefore, it is listed twice in CTS Table 3.3-3, Functional Unit 9: once for the Containment Spray subsystem and Containment Isolation Phase B switch (Functional Unit 9.b) and once for the Containment Isolation Phase A switch (Functional Unit 9.c). NUREG-1431 only requires two Manual Initiation channels to be OPERABLE, since a typical Westinghouse plant only has two channels installed. This change is acceptable since each channel within a train is fully redundant to the other channel in that train for the Containment Purge Supply and Exhaust System Manual Initiation Function, and the fact that it is consistent with the NUREG-1431 requirements. In addition, if the single required manual initiation switch does not function, then the associated Containment Purge Supply and Exhaust System valves can still be closed using individual valve control switches that exist in the control room. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

L.11 CTS Table 4.3-3 footnote * requires performance of a SOURCE CHECK as part of the shiftly CHANNEL CHECK requirements for Containment Radiation instrumentation (Instruments 2.A.i, 2.A.ii, 2.A.iii, 2.B.i, 2.B.ii, and 2.B.iii). ITS 3.3.6 does not include this requirement. This changes the CTS by deleting the shiftly SOURCE CHECK requirement on the Containment Radiation instrumentation.

A SOURCE CHECK is a qualitative assessment of channel response when the channel sensor is exposed to a radioactive source. The purpose for performing

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the SOURCE CHECK on these instruments is to ensure on-scale reading of the instruments. However, the background radiation levels in the vicinity of these instruments is sufficiently high enough to provide an on-scale reading for the instruments. Thus, the required routine (every 12 hours) CHANNEL CHECK (ITS SR 3.3.6.1) will ensure the on-scale reading of the instruments (i.e., the instruments are not "pegged-low"). In addition, the Containment Radiation instruments have a low failure alarm to alert the operators of a failed-low radiation detector. Therefore, the deletion of this specific requirement is acceptable. This change is designated as less restrictive because a Surveillance Requirement is being deleted.

L.12 *(Category 1 – Relaxation of LCO Requirements)* When a Containment Purge Supply and Exhaust System isolation channel is inoperable, CTS Table 3.3-3 ACTIONS 17 and 18, CTS Table 3.3-6 ACTION 22, and CTS 3.9.9 Action essentially require the associated valves to be closed. ITS 3.3.6 ACTIONS Note 2 states "The containment pressure relief penetration flow path may be unisolated intermittently under administrative controls to maintain containment pressure within the required limits of LCO 3.6.4, "Containment Pressure." This changes the CTS by allowing the containment pressure relief penetration flow path (which is one of the Containment Purge Supply and Exhaust System penetration flow paths) to be unisolated on an intermittent basis under administrative control when a Containment Purge Supply and Exhaust System Isolation channel is inoperable.

The purpose of the CTS Containment Purge Supply and Exhaust System instrumentation requirements is to ensure the instrumentation can perform their required functions when required. This change is acceptable because the LCO requirements continue to ensure that the instrumentation is maintained consistent with the safety analyses and licensing basis. This change allows only the containment pressure relief penetration flow path to be opened on an intermittent basis under administrative control. The administrative controls used provide the same level of protection as the instrumentation, since a dedicated operator will be at the controls of the associated valves and in communications with the control room to close the open valves when required. In addition, CTS 3.6.3.1 states, in part, that containment purge valves may be opened on an intermittent basis under administrative control. Thus, the CTS already allows the associated valves to be opened in the applicable Containment Isolation Valve Specification. This change will allow the instrumentation, which is a support system to the associated valves, to have the same allowance. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.3 INSTRUMENTATION

3.3.6 Containment Purge and Exhaust Isolation Instrumentation

LCO 3.3.2.1, LCO 3.3.3.1, LCO 3.9.8

LCO 3.3.6 The Containment Purge and Exhaust Isolation instrumentation for each Function in Table 3.3.6-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.6-1.

ACTIONS

- NOTE -

DOC A3 1. Separate Condition entry is allowed for each Function. INSERT 1A

INSERT 1B

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One radiation monitoring channel inoperable. INSERT 1C	A.1	Restore the affected channel to OPERABLE status.	4 hours
B. **- NOTE -** Only applicable in MODE 1, 2, 3, or 4. One or more Functions with one or more manual or automatic actuation trains inoperable. OR Two or more radiation monitoring channels inoperable. OR Required Action and associated Completion Time of Condition A not met.	B.1	Enter applicable Conditions and Required Actions of LCO 3.6.3, "Containment Isolation Valves," for containment purge and exhaust isolation valves made inoperable by isolation instrumentation. INSERT 1	Immediately 48 hours

3.3.3.1 Action a; 3.3.2.1 Actions a and b, Table 3.3-3 Action 18

CTS 3.3.6

(4) **INSERT 1**

Restore required channel(s) to OPERABLE status.

(10) **INSERT 1A**

DOC M.5

2. The containment pressure relief penetration flow path may be unisolated intermittently under administrative controls to maintain containment pressure within the required limits of LCO 3.6.4, "Containment Pressure."

(10) **INSERT 1B**

DOC M.5

A. One radiation monitoring channel inoperable in MODE 1, 2, 3, or 4 when any Containment Purge Supply and Exhaust System penetration flow path is open.	A.1 - NOTE - LCO 3.0.4.c is applicable. Restore channel to OPERABLE status.	Prior to entering MODE 4 from MODE 5 following refueling

(10) **INSERT 1C**

during movement of irradiated fuel assemblies within containment

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Containment Purge and Exhaust Isolation Instrumentation
3.3.6

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
D 10 C. -NOTE- Only applicable during movement of [recently] irradiated fuel assemblies within containment.	C.1 D.1 Place and maintain containment purge and exhaust valves in closed position. INSERT 1D	Immediately
DOC M.2 One or more Functions with one or more manual or automatic actuation trains inoperable. (or SI Input from ESFAS)	OR	
OR (Logic and Actuation Relays)	C.2 Enter applicable Conditions and Required Actions of LCO 3.9.4, "Containment Penetrations," for containment purge and exhaust isolation valves made inoperable by isolation instrumentation.	Immediately
3.3.2.1 Actions a and b, Table 3.3-3 Action 18, 3.3.3.1 Action b, 3.9.9 Action — Two or more required radiation monitoring channels inoperable. (2)		
OR		
Table 3.3-3 Actions 17 and 18, 3.3.3.1 Action a — Required Action and associated Completion Time of Condition A, B, or C not met. (12)		

5

1

SURVEILLANCE REQUIREMENTS

4.3.2.1.1, 4.3.3.1

-NOTE-

Refer to Table 3.3.6-1 to determine which SRs apply for each Containment Purge (Supply) and Exhaust (System) Isolation Instrumentation Function.

1

SURVEILLANCE		FREQUENCY
Table 4.3-2 Function 3.c.2), Table 4.3-3 Functions 3A and 2B — SR 3.3.6.1	Perform CHANNEL CHECK.	12 hours
DOC M.2 — SR 3.3.6.2	Perform ACTUATION LOGIC TEST.	~~31 days~~ 92 days on a STAGGERED TEST BASIS (6)

5 **INSERT 1D**

Isolate the affected penetration flow paths by use of at least one closed automatic valve.

Supply System (1)

CTS

SURVEILLANCE REQUIREMENTS (continued)

CTS	SURVEILLANCE		FREQUENCY
DOC M.2	SR 3.3.6.3	Perform MASTER RELAY TEST.	~~31 days~~ 92 days on a STAGGERED TEST BASIS (6)
Table 4.3-2 Function 3.c.2), Table 4.3-3 Functions 2A and 2B	SR 3.3.6.4	Perform COT.	92 days
DOC M.2	SR 3.3.6.5	Perform SLAVE RELAY TEST.	~~[92] days~~ 24 months (8)
Table 4.3-2 Functions 9.b and 9.c, 4.9.9	SR 3.3.6.6	- NOTE - Verification of setpoint is not required. Perform TADOT.	(10) ~~18~~ 24 months (8)
Table 4.3-2 Function 3.c.2) Table 4.3-3 Functions 2A and 2B	SR 3.3.6.7	Perform CHANNEL CALIBRATION.	(10) ~~18~~ 24 months (8)

INSERT 2

Not Used

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Supply System ①

CTS

Table 3.3.6-1 (page 1 of 1)
Containment Purge and Exhaust Isolation Instrumentation

Supply System ①

	FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT (Allowable Value) ⑬
See [1] below	1. Manual Initiation	1,2,3,4, (a)	① 2 ⑩ per train	SR 3.3.6.6	NA
Doc M.2	2. Automatic Actuation Logic and Actuation Relays	1,2,3,4, (a)	2 trains	SR 3.3.6.2 SR 3.3.6.3 SR 3.3.6.5	NA
⑩	3. [Containment Radiation				
	a. Gaseous	1,2,3,4, (a)	[1]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	≤ [2 x background]
INSERT 3	b. Particulate	1,2,3,4, (a)	[1]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	≤ [2 x background]
	c. Iodine	1,2,3,4, (a)	[1]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	≤ [2 x background]
	d. Area Radiation	1,2,3,4, (a)	[1]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	≤ [2 x background]]
⑩	4. Containment Isolation - Phase A (INSERT 4)	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 3.a, for all initiation functions and requirements. (INSERT 4A) ①			

See [1] below, Doc M.2, 3.9.9 Applicability (a) During movement of recently ⑧ irradiated fuel assemblies within containment.

INSERT 5 ②

INSERT 6 ⑩

[1] CTS Tables 3.3-3, 3.3-4, and 4.3-2 Functions 3.c.1), 9.b, and 9.c

CTS

(10) **INSERT 3**

See 2 below	3. Containment Radiation (per train)	1[(c)], 2[(c)], 3 [(c)], 4[(c)], (a)	3[(b)]	SR 3.3.6.1 SR 3.3.6.4 SR 3.3.6.7	
	a. Gaseous				≤ 4.4E-3 μCi/cc
	b. Particulate				≤ 2.52 μCi
	c. Area Radiation				≤ 54 mR/hr

INSERT 4 (10) **INSERT 4A**

DOC M.3	4. Safety Injection (SI) Input from Engineered Safety Features Actuation System (ESFAS)	1,2,3,4

(2) **INSERT 5**

See 3 below (b) Only 2 of the 3 Containment Radiation Function channels (Gaseous, Particulate, and Area Radiation) per train are required to be OPERABLE during movement of irradiated fuel assemblies with containment.

(10) **INSERT 6**

DOC M.1 (c) When any Containment Purge Supply and Exhaust System penetration flow path is open.

2 CTS Table 3.3-3 Functions 3.c.2) and 3.c.3)
CTS Table 3.3-4 Functions 3.c.2 and 3.c.3
CTS Table 4.3-2 Function 3.c.2)
CTS Table 3.3-6 Functions 2.A and 2.B
CTS Table 4.3-3 Functions 2.A and 2.B

3 CTS Table 3.3-6 Functions 2.A and 2.B

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

1. The title of ISTS 3.3.6, Containment Purge and Exhaust Isolation Instrumentation, has been revised in ITS 3.3.6 to reflect the plant specific nomenclature (i.e., Containment Purge Supply and Exhaust System Isolation Instrumentation). Corresponding changes have also been made to the ISTS 3.3.6 Header, LCO, Surveillance Requirements Note and Table 3.3.6-1.

2. The plant specific design of the containment radiation monitoring instrumentation that functions to isolate the containment purge supply and exhaust isolation valves includes three radiation monitoring channels in each of two trains. These radiation monitors are arranged such that any one of the three radiation monitor channels in a train will initiate a Containment Purge Supply and Exhaust System isolation of the associated train of containment isolation valves in the Containment Purge Supply and Exhaust System. Current licensing basis, reflected in the Technical Specifications, only requires two of the three radiation monitors in each train to be OPERABLE. This allowance, with respect to during movement of irradiated assemblies within containment, is reflected in ITS Table 3.3.6-1 Footnote (b), which states "Only 2 of the 3 Containment Radiation Function channels (Gaseous, Particulate, and Area Radiation) per train are required to be OPERABLE during movement of irradiated fuel assemblies within containment." As a result, the word "required" is added to ISTS 3.3.6 Conditions A and C and Required Action A.1 (ITS 3.3.6 Conditions B and D and Required Action B.1) to reflect that not all of the radiation monitors are required to be OPERABLE to meet the LCO.

3. ISTS 3.3.6 Required Action A.1 states, "Restore the affected channel to OPERABLE status." ITS 3.3.6 Required Action B.1 does not include the words "affected channel." This changes ISTS 3.3.6 Required Action A.1 to be consistent with other Required Actions in ISTS Section 3.3.

4. ISTS 3.3.6 ACTION B is revised to be consistent with CNP Units 1 and 2 CTS requirements for the manual initiation channels for the Containment Purge Supply and Exhaust System isolation. When one or more of the required manual initiation channels are inoperable, the CTS allows 48 hours to restore the channels to OPERABLE status (ITS 3.3.6 ACTION C). ISTS 3.3.6 ACTION B requirements related to inoperable automatic actuation trains, multiple inoperable radiation monitoring channels, and default actions when ISTS 3.3.6 ACTION A requirements are not met are addressed in ITS 3.3.6 ACTION D. Due to these revised actions and those described in JFD 10, the Note to ISTS 3.3.6 Condition B, which states "Only applicable in MODES 1, 2, 3, and 4," is unnecessary and is deleted.

5. ISTS 3.3.6 ACTION C (ITS 3.3.6 ACTION D) is revised to be consistent with CNP Units 1 and 2 CTS requirements for the instrumentation channels for the Containment Purge Supply and Exhaust System isolation. When multiple required radiation channels are inoperable, the CTS require the containment purge supply and exhaust isolation valves to be placed in the closed position. This action accomplishes the safety function of the inoperable channels. However, to be consistent with similar terminology in ITS 3.6.3, the Required Action has been revised to state "Isolate the affected penetration flow paths by use of at least one closed automatic valve." This meets the intent of the CTS Action and ISTS Required Actions, as the only valves in the flow paths are the automatic Containment Purge Supply and Exhaust System valves. The function of each of the Containment Purge

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

Supply and Exhaust System Isolation Instrumentation Functions is to close or support closure of the containment purge supply and exhaust isolation valves. Therefore, ITS 3.3.6 Required Action D.1 has also been provided when one or more automatic actuation logic and actuation relay trains are inoperable, when one or more SI Input to ESFAS trains are inoperable, or when any Required Action and associated Completion Time of ITS 3.3.6 Condition A, B, or C is not met. Due to the changes to ISTS 3.3.6 ACTIONS B and C, the Note to ISTS 3.3.6 Condition C and ISTS 3.3.6 Required Action C.2 are unnecessary and are deleted.

6. The ISTS 3.3.6 Surveillance Requirements are revised to reflect the TSTF-411, Revision 1 allowances. ISTS SR 3.3.6.2 (ITS SR 3.3.6.2) requires the performance of an ACTUATION LOGIC TEST and ISTS SR 3.3.6.3 (ITS SR 3.3.6.3) requires performance of a MASTER RELAY TEST. The ISTS 3.3.6 Frequencies for these SRs are revised from "31 days on a STAGGERED TEST BASIS" to "92 days on a STAGGERED TEST BASIS" since these components are processed through the Solid State Protection System (SSPS).

7. Not used.

8. The brackets are removed and the proper plant specific information/value is provided.

9. Not used.

10. ISTS Table 3.3.6-1 is revised to reflect the plant specific nomenclature, design, and licensing basis for ITS Table 3.3.6-1 Function 1 (Manual Initiation) (as modified by a Discussion of Change), Function 3 (Containment Radiation (per train)) (as modified by a Discussion of Change), and Function 4 (Safety Injection Input from Engineered Safety Features Actuation System). In addition, the CTS only requires two Containment Radiation channels per train to be OPERABLE in MODES 1, 2, 3, and 4, thus the CTS Actions are only required when one of the two required channels in a train is inoperable; no Actions are required when one of the three total channels in a train is inoperable. ITS Table 3.3.6-1 Function 3 requires three channels per train to be OPERABLE in MODES 1, 2, 3, and 4 when any Containment Purge Supply and Exhaust System penetration flow path is open. Therefore, a new ACTION (ACTION A) has been added to provide Actions for when one of the three channels in a train is inoperable. ACTION A requires restoration of the inoperable channel prior to entering MODE 4 from MODE 5 following refueling. This allows continued operation and unlimited MODE changes during the cycle with an inoperable Function 3 channel, and only requires the inoperable channel to be restored before entering MODE 4 after a refueling outage. Due to this change, ISTS 3.3.6 ACTION A has been renumbered to ITS 3.3.6 ACTION B and the Condition has been modified to govern an inoperable Function 3 channel during movement of irradiated fuel assemblies within containment. ISTS 3.3.6 ACTIONS B and C have also been renumbered (ITS 3.3.6 ACTIONS C and D). Lastly, a new Note (NOTE 2) has been added to the ACTIONS to allow the containment pressure relief penetration flow path to be intermittently unisolated under administrative controls to maintain containment pressure within the required limits of LCO 3.6.4, "Containment Pressure." The CTS only requires the Containment Radiation channels to be OPERABLE in MODES 1, 2, 3, and 4 during PURGING operations. During

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

PURGING operations, both the supply and exhaust flow paths are open. The ITS requires the Containment Radiation channels to be OPERABLE in MODES 1, 2, 3, and 4 when any Containment Purge Supply and Exhaust System penetration flow path is open. Therefore, to maintain current allowances (necessary to meet the Containment Pressure limits of LCO 3.6.4 (i.e., the CTS allows one of the flow paths to be open with inoperable Containment Radiation channels), the Note has been added.

11. Not used.

12. Typographical error corrected.

13. ISTS Table 3.3.6-1 includes requirements for Trip Setpoints for the Containment Radiation Functions of the Containment Purge Supply and Exhaust System isolation instrumentation. The term "TRIP SETPOINT" is revised to "ALLOWABLE VALUE" in ITS Table 3.3.6-1 to reflect the OPERABILITY limit for the channels of the Containment Radiation Functions. This change achieves consistency with the OPERABILITY requirements for other actuation instrumentation channels in ISTS Section 3.3.

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Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

(1) All changes on this page

B 3.3 INSTRUMENTATION

B 3.3.6 Containment Purge and Exhaust Isolation Instrumentation

BASES

INSERT 1

BACKGROUND

Containment purge and exhaust isolation instrumentation closes the containment isolation valves in the Mini Purge System and the Shutdown Purge System. This action isolates the containment atmosphere from the environment to minimize releases of radioactivity in the event of an accident. The Mini Purge System may be in use during reactor operation and the Shutdown Purge System will be in use with the reactor shutdown.

INSERT 1A

Containment purge and exhaust isolation initiates on a automatic safety injection (SI) signal through the Containment Isolation - Phase A Function, or by manual actuation of Phase A Isolation. The Bases for LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation," discuss these modes of initiation.

INSERT 1B

Four radiation monitoring channels are also provided as input to the containment purge and exhaust isolation. The four channels measure containment radiation at two locations. One channel is a containment area gamma monitor, and the other three measure radiation in a sample of the containment purge exhaust. The three purge exhaust radiation detectors are of three different types: gaseous, particulate, and iodine monitors. All four detectors will respond to most events that release radiation to containment. However, analyses have not been conducted to demonstrate that all credible events will be detected by more than one monitor. Therefore, for the purposes of this LCO the four channels are not considered redundant. Instead, they are treated as four one-out-of-one Functions. Since the purge exhaust monitors constitute a sampling system, various components such as sample line valves, sample line heaters, sample pumps, and filter motors are required to support monitor OPERABILITY.

INSERT 1C

Each of the purge systems has inner and outer containment isolation valves in its supply and exhaust ducts. A high radiation signal from any one of the four channels initiates containment purge isolation, which closes both inner and outer containment isolation valves in the Mini Purge System and the Shutdown Purge System. These systems are described in the Bases for LCO 3.6.3, "Containment Isolation Valves."

(1) **INSERT 1**

purge supply and exhaust

(1) **INSERT 1A**

containment instrumentation room purge supply and exhaust valves, and containment pressure relief isolation valves

(1) **INSERT 1B**

, or manual actuation of Phase B isolation

(1) **INSERT 1C**

Three radiation monitoring channels in each of two trains are also provided as input to the Containment Purge Supply and Exhaust System isolation. The channels in each train measure containment radiation at two locations. One channel in each train is an upper containment area radiation monitor, and the other two channels in each train measure radiation in lower containment samples. The radiation detectors that measure radiation in the lower containment samples are of two different types: gaseous and particulate. For the purpose of this LCO, the three radiation monitors in each train are considered redundant even though they measure radiation in different locations of the containment. The radiation monitors are arranged such that any one of the three radiation monitor channels in a train will initiate a Containment Purge Supply and Exhaust System isolation of the associated train of containment isolation valves in the Containment Purge Supply and Exhaust System. Since the radiation monitors that measure the radiation in lower containment constitute a sampling system, various components such as sample line valves and sample pumps are required to support the OPERABILITY of these monitors.

Containment Purge Supply and Exhaust System has inner and outer containment isolation valves. A Train "A" Containment Purge Supply and Exhaust System Isolation signal closes the inner containment isolation valves in the Containment Purge Supply and Exhaust System. A Train "B" Containment Purge Supply and Exhaust System Isolation signal closes the outer containment isolation valves in the Containment Purge Supply and Exhaust System. The Containment Purge Supply and Exhaust System is described in UFSAR, Section 5.5.3 (Ref. 1).

BASES

APPLICABLE SAFETY ANALYSES

The safety analyses assume that the containment remains intact with penetrations unnecessary for core cooling isolated early in the event, within approximately 60 seconds. The isolation of the purge valves has not been analyzed mechanistically in the dose calculations, although its rapid isolation is assumed. The containment purge and exhaust isolation radiation monitors act as backup to the SI signal to ensure closing of the purge and exhaust valves. They are also the primary means for automatically isolating containment in the event of a fuel handling accident during shutdown. Containment isolation in turn ensures meeting the containment leakage rate assumptions of the safety analyses, and ensures that the calculated accidental offsite radiological doses are below 10 CFR 100 (Ref. 7) limits. Due to radioactive decay, containment is only required to isolate during fuel handling accidents involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [ ] days).

The containment purge and exhaust isolation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requirements ensure that the instrumentation necessary to initiate Containment Purge and Exhaust Isolation, listed in Table 3.3.6-1, is OPERABLE.

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate Containment Purge Isolation at any time by using either of two switches in the control room. Either switch actuates both trains. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one push button and the interconnecting wiring to the actuation logic cabinet.

2. Automatic Actuation Logic and Actuation Relays

The LCO requires two trains of Automatic Actuation Logic and Actuation Relays OPERABLE to ensure that no single random failure can prevent automatic actuation.

(1) **INSERT 1D**

isolated by this instrumentation

(1) **INSERT 2**

(manual Containment Isolation - Phase A actuation or manual Containment Spray, Containment Isolation - Phase B actuation) in either Train "A" or Train "B"

(1) **INSERT 2A**

These switches are common to ESFAS Containment Isolation, Phase A and B Manual Initiation switches.

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(1) All changes on this page except as noted

BASES

LCO (continued)

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b, SI, and ESFAS Function 3.a, Containment Phase A Isolation. The applicable MODES and specified conditions for the containment purge isolation portion of these Functions are different and less restrictive than those for their Phase A isolation and SI roles. If one or more of the SI or Phase A isolation Functions becomes inoperable in such a manner that only the Containment Purge Isolation Function is affected, the Conditions applicable to their SI and Phase A isolation Functions need not be entered. The less restrictive Actions specified for inoperability of the Containment Purge Isolation Functions specify sufficient compensatory measures for this case.

INSERT 3

3. Containment Radiation (per train)

The LCO specifies four required channels of radiation monitors to ensure that the radiation monitoring instrumentation necessary to initiate Containment Purge Isolation remains OPERABLE.

INSERT 3A (2) INSERT 3B

For sampling systems, channel OPERABILITY involves more than OPERABILITY of the channel electronics. OPERABILITY may also require correct valve lineups, sample pump operation, and filter motor operation, as well as detector OPERABILITY, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses.

4. Containment Isolation - Phase A

Refer to LCO 3.3.2, Function 3.a., for all initiating Functions and requirements.

INSERT 4 (2)

APPLICABILITY

The Manual Initiation, Automatic Actuation Logic and Actuation Relays, Containment Isolation - Phase A, and Containment Radiation Functions are required OPERABLE in MODES 1, 2, 3, and 4, and during movement of [recently] irradiated fuel assemblies [(i.e., fuel that has occupied part of a critical reactor core within the previous [ ] days)] within containment. Under these conditions, the potential exists for an accident that could release significant fission product radioactivity into containment. Therefore, the containment purge and exhaust isolation instrumentation must be OPERABLE in these MODES.

INSERT 5 (2) and other specified conditions

(1) **INSERT 3**

, and ESFAS Function 3.b, Containment Phase B Isolation

(2) **INSERT 3A**

during MODES 1, 2, 3, and 4 when any Containment Purge Supply and Exhaust System penetration flow path is open and two channels per train of radiation monitors during movement of irradiated fuel assemblies within containment

(2) **INSERT 3B**

Each train is treated separately and each train is considered a separate Function. Therefore, separate Condition entry is allowed for each train. This is acceptable since each train has either three or two required channels (with one out of the three necessary for a Containment Radiation signal), and the channels of one train are independent from the channels of the other train.

(2) (5) **INSERT 4**

Safety Injection (SI) Input from Engineered Safety Features Actuation System (ESFAS)

Containment Purge Supply and Exhaust System Isolation is also initiated by all Functions that initiate SI. The Containment Purge Supply and Exhaust System Isolation function requirements for these Functions are the same as the requirements for their SI function, with the exception of the Applicability. Therefore, the requirements are not repeated in Table 3.3.6-1. Instead Function 1, SI, is referenced for all initiating functions and requirements, with the exception of the Applicability.

(1) **INSERT 5**

The Containment Radiation (per train) Function is required to be OPERABLE in MODES 1, 2, 3, and 4 when any Containment Purge Supply and Exhaust System penetration flow path is open and during movement of irradiated fuel assemblies within containment. By only requiring the Function to be OPERABLE when any Containment Purge Supply Exhaust System penetration flow path is open, this allows the Containment Radiation trip signal to the Containment Purge Supply and Exhaust System valves to be manually bypassed in MODES 1, 2, 3, and 4 when all the penetration flow paths are isolated (by at least one closed automatic valve). The SI Input from ESFAS Function is required to be OPERABLE in MODES 1, 2, 3, and 4.

① All changes on this page, except as noted

BASES

APPLICABILITY (continued)

While in MODES 5 and 6 without fuel handling in progress, the containment purge and exhaust isolation instrumentation need not be OPERABLE since the potential for radioactive releases is minimized and operator action is sufficient to ensure post accident offsite doses are maintained within the limits of Reference 6.

The Applicability for the containment purge and exhaust isolation on the ESFAS Containment Isolation-Phase A Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Containment Isolation-Phase A Function Applicability. ②

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered. ②

Allowable Value — in Table 3.3.6-1

② (Note 1)

A Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.6-1. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

INSERT 5A

② B A.1

two required — required — per train

Condition A applies to the failure of one containment purge isolation radiation monitor channel. Since the two containment radiation monitors measure different parameters, failure of a single channel may result in loss of the radiation monitoring Function for certain events. Consequently, the failed channel must be restored to OPERABLE status. The 4 hours allowed to restore the affected channel is justified by the low likelihood of events occurring during this interval, and recognition that one or more of the remaining channels will respond to most events.

INSERT 5B

(2) **INSERT 5A**

Note 2 has also been added and states that the containment pressure relief penetration flow path may be unisolated intermittently under administrative controls to maintain containment pressure within the required limits of LCO 3.6.4, "Containment Pressure." These administrative controls consist of stationing a dedicated operator at the valve controls, who is in continuous communication with the control room. In this way, the penetration can be rapidly isolated when a need for Containment Purge Supply and Exhaust System isolation is indicated.

A.1

Condition A applies to the failure of one radiation monitor channel in MODE 1, 2, 3, or 4 when any Containment Purge Supply and Exhaust System penetration flow path is open. When one channel in a train is inoperable, the channel must be restored to OPERABLE status. However, since there are two remaining OPERABLE channels in the train, and either one can still cause a Containment Purge Supply and Exhaust System isolation, operation is allowed to continue until the next refueling outage. This is also the reason for allowing LCO 3.0.4.c to be applicable (Note to Required Action A.1). The inoperable channel is only required to be restored to OPERABLE status prior to entering MODE 4 from MODE 5 during the startup following a refueling outage. This allows operation to continue throughout the current fuel cycle and allows reactor startups to occur without restoring the inoperable channel, as long as a refueling outage has not occurred.

(2) **INSERT 5B**

during movement of irradiated fuel assemblies within containment

BASES

ACTIONS (continued)

C B.1

INSERT 6

Condition B applies to all Containment Purge and Exhaust Isolation Functions and addresses the train orientation of the Solid State Protection System (SSPS) and the master and slave relays for these Functions. It also addresses the failure of multiple radiation monitoring channels, or the inability to restore a single failed channel to OPERABLE status in the time allowed for Required Action A.1.

If a train is inoperable, multiple channels are inoperable, or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action for the applicable Conditions of LCO 3.6.3 is met for each valve made inoperable by failure of isolation instrumentation.

A Note is added stating that Condition B is only applicable in MODE 1, 2, 3, or 4.

D C.1 and C.2 (2)

Supply System

Condition C applies to all Containment Purge and Exhaust Isolation Functions and addresses the train orientation of the SSPS and the master and slave relays for these Functions. It also addresses the failure of multiple radiation monitoring channels, or the inability to restore a single failed channel to OPERABLE status in the time allowed for Required Action A.1. If a train is inoperable, multiple channels are inoperable, or the Required Action and associated Completion Time of Condition A are not met, operation may continue as long as the Required Action to place and maintain containment purge and exhaust isolation valves in their closed position is met or the applicable Conditions of LCO 3.9.4, "Containment Penetrations," are met for each valve made inoperable by failure of isolation instrumentation. The Completion Time for these Required Actions is Immediately.

INSERT 7

A Note states that Condition C is applicable during movement of [recently] irradiated fuel assemblies within containment.

SURVEILLANCE REQUIREMENTS	A Note has been added to the SR Table to clarify that Table 3.3.6-1 determines which SRs apply to which Containment Purge and Exhaust Isolation Functions.

Instrumentation Supply System

2 **INSERT 6**

Condition C applies to the manual initiation channels. If one or more required manual initiation channels are inoperable, 48 hours is allowed to restore the required channels to OPERABLE status. The specified Completion Time is reasonable considering that there are two automatic actuation trains OPERABLE for each Function, and the low probability of an event occurring during this interval.

2 **INSERT 7**

If one or more Automatic Actuation Logic and Actuation Relays trains are inoperable, one ore more SI Input from ESFAS trains are inoperable, two or more required radiation monitoring channels in a single train are inoperable, or the Required Action and associated Completion Time of Condition A, B, or C are not met, operation may continue provided the containment purge supply and exhaust isolation valves are placed in the closed position immediately. Placing the containment purge supply and exhaust isolation valves in the closed position accomplishes the safety function of the inoperable trains or channels.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

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

SR 3.3.6.2

SR 3.3.6.2 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils. This test is performed every 31 days on a STAGGERED TEST BASIS. The Surveillance interval is acceptable based on instrument reliability and industry operating experience.

SR 3.3.6.3

SR 3.3.6.3 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying contact operation and a low voltage continuity check of the slave relay

BASES

SURVEILLANCE REQUIREMENTS (continued)

coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every 31 days on a STAGGERED TEST BASIS. The Surveillance interval is acceptable based on instrument reliability and industry operating experience.

SR 3.3.6.4

A COT is performed every 92 days on each required channel to ensure the entire channel will perform the intended Function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The Frequency is based on the staff recommendation for increasing the availability of radiation monitors according to NUREG-1366 (Ref. 2). This test verifies the capability of the instrumentation to provide the containment purge and exhaust system isolation. The setpoint shall be left consistent with the current unit specific calibration procedure tolerance.

SR 3.3.6.5

SR 3.3.6.5 is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation mode is either allowed to function or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation mode is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay. This test is performed every 92 days. The Frequency is acceptable based on instrument reliability and industry operating experience.

SR 3.3.6.6

SR 3.3.6.6 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and is performed every 18 months. Each

BASES

SURVEILLANCE REQUIREMENTS (continued)

Manual Actuation Function is tested up to, and including, the master relay coils. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.).

The test also includes trip devices that provide actuation signals directly to the SSPS, bypassing the analog process control equipment. The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.

The Frequency is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience.

SR 3.3.6.7

A CHANNEL CALIBRATION is performed every 18 months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

The Frequency is based on operating experience and is consistent with the typical industry refueling cycle.

REFERENCES

1. 10 CFR 100.11.

2. NUREG-1366, [date].

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.6 BASES, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.

2. Changes are made to reflect changes made to the Specification.

3. Grammatical/typographical error corrected.

4. The brackets are removed and the proper plant specific information/value is provided.

5. Changes made to be consistent with similar words in other Bases (i.e., ITS 3.3.2).

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

10 CFR 50.92 EVALUATION
FOR
LESS RESTRICTIVE CHANGE L.10

CNP is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." The proposed change involves making the Current Technical Specifications (CTS) less restrictive. Below is the description of this less restrictive change and the determination of No Significant Hazards Considerations for conversion to NUREG-1431.

CTS Table 3.3-3, Functional Units 9.b and 9.c (Manual Containment Purge and Exhaust Isolation) require a total of 2 channels per train to be OPERABLE (1 channel per train for Functional Unit 9.b and 1 channel per train for Functional Unit 9.c). ITS Table 3.3.6-1, Function 1 (Manual Initiation) requires only one channel per train to be OPERABLE. This changes the CTS be decreasing the number of manual channels required OPERABLE from two per train to one per train.

The purpose of the Containment Purge Supply and Exhaust Manual Initiation Function is to ensure the capability exists to manually isolate the Containment Purge Supply and Exhaust System isolation valves. The Containment Purge Supply and Exhaust System Manual Initiation Function at CNP is provided by four switches, two per train. Each switch will actuate all Containment Purge Supply and Exhaust System isolation valves in its associated train (i.e., the two train A switches are fully redundant to each other and the two train B switches are fully redundant to each other). The differences between the two switches within a train are their location within the control room, and one of the two switches also actuates Containment Isolation Phase A while the other switch also actuates the Containment Spray subsystem and Containment Isolation Phase B. There is no manual switch that only initiates a Containment Purge Supply and Exhaust System isolation at CNP. One train A switch and one train B switch are located on the Containment Spray System panel, while one train A switch and one train B switch are located on the Ventilation System panel. The CTS requires both channels per train OPERABLE because the CTS groups the Containment Purge Supply and Exhaust manual initiation function by switch function. Therefore, it is listed twice in CTS Table 3.3-3, Functional Unit 9: once for the Containment Spray subsystem and Containment Isolation Phase B switch (Functional Unit 9.b) and once for the Containment Isolation Phase A switch (Functional Unit 9.c). NUREG-1431 only requires two Manual Initiation channel to be OPERABLE, since a typical Westinghouse plant only has two channels installed. This change is acceptable since each channel within a train is fully redundant to the other channel in that train for the Containment Purge Supply and Exhaust System Manual Initiation Function, and the fact that it is consistent with the NUREG-1431 requirements. In addition, if the single required manual initiation switch does not function, then the associated Containment Purge Supply and Exhaust System valves can still be closed using individual valve control switches that exist in the control room. This change is designated as less restrictive because less stringent LCO requirements are being applied in the ITS than were applied in the CTS.

Indiana Michigan Power Company (I&M) has evaluated whether or not a significant hazards consideration is involved with these proposed Technical Specification changes by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

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

   Response: No.

   The proposed change decreases the number of manual initiation channels required OPERABLE from two per train to one per train. This change will not affect the probability of an accident, since the manual initiation instrumentation is not considered as an initiator of an analyzed accident. The consequences of an analyzed accident are not affected by this change since manual initiation instrumentation is not assumed to mitigate the consequences of an accident previously evaluated. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

   Response: No.

   The proposed change decreases the number of manual initiation channels required OPERABLE from two per train to one per train. This change will not physically alter the plant (no new or different type of equipment will be installed). Both channels per train will remain installed in the plant and will normally be available to manually actuate the Containment Purge Supply and Exhaust System isolation valves. No new or revised operator actions are required as a result of this change. 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 change involve a significant reduction in a margin of safety?**

   Response: No.

   The proposed change decreases the number of manual initiation channels required OPERABLE from two per train to one per train. The margin of safety is not affected by this change because the safety analysis assumptions are not affected. In addition, if the single required manual initiation switch does not function, the associated Containment Purge Supply and Exhaust System valves can still be closed using individual valve control switches that exist in the control room. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, I&M 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.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

10 CFR 50.92 EVALUATION
FOR
LESS RESTRICTIVE CHANGE L.11

CNP is converting to the Improved Technical Specifications (ITS) as outlined in NUREG-1431, "Standard Technical Specifications, Westinghouse Plants." The proposed change involves making the Current Technical Specifications (CTS) less restrictive. Below is the description of this less restrictive change and the determination of No Significant Hazards Considerations for conversion to NUREG-1431.

CTS Table 4.3-3 footnote * requires performance of a SOURCE CHECK as part of the shiftly CHANNEL CHECK requirements for Containment Radiation instrumentation (Instruments 2.A.i, 2.A.ii, 2.A.iii, 2.B.i, 2.B.ii, and 2.B.iii). ITS 3.3.6 does not include this requirement. This changes the CTS by deleting the shiftly SOURCE CHECK requirement on the Containment Radiation instrumentation.

A SOURCE CHECK is a qualitative assessment of channel response when the channel sensor is exposed to a radioactive source. The purpose for performing the SOURCE CHECK on these instruments is to ensure on-scale reading of the instruments. However, the background radiation levels in the vicinity of these instruments is sufficiently high enough to provide an on-scale reading for the instruments. Thus, the required routine (every 12 hours) CHANNEL CHECK (ITS SR 3.3.6.1) will ensure the on-scale reading of the instruments (i.e., the instruments are not "pegged-low"). In addition, the Containment Radiation instruments have a low failure alarm to alert the operators of a failed-low radiation detector. Therefore, the deletion of this specific requirement is acceptable. This change is designated as less restrictive because a Surveillance Requirement is being deleted.

Indiana Michigan Power Company (I&M) has evaluated whether or not a significant hazards consideration is involved with these proposed Technical Specification changes by focusing on the three standards set forth in 10 CFR 50.92, "Issuance of amendment," as discussed below:

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

   Response: No.

   The proposed change deletes the requirement to perform a shiftly SOURCE CHECK of the Containment Radiation instrumentation. This change will not affect the probability of an accident, since the Containment Radiation instrumentation is not considered as an initiator of an analyzed accident. The consequences of an analyzed accident are not affected by this change since Containment Radiation instrumentation are assumed to be the backup signal to the SI Input from ESFAS signal for actuating Containment Purge Supply and Exhaust System isolation; it is not assumed to mitigate the consequences of an accident previously evaluated. Therefore, the proposed change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.6, CONTAINMENT PURGE SUPPLY AND EXHAUST SYSTEM ISOLATION INSTRUMENTATION

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

   Response: No.

   The proposed change deletes the requirement to perform a shiftly SOURCE CHECK of the Containment Radiation instrumentation. This change will not physically alter the plant (no new or different type of equipment will be installed). Two channels per train will remain required OPERABLE and will normally be available to actuate the Containment Purge Supply and Exhaust System isolation valves. No new or revised operator actions are required as a result of this change. 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 change involve a significant reduction in a margin of safety?**

   Response: No.

   The proposed change deletes the requirement to perform a shiftly SOURCE CHECK of the Containment Radiation instrumentation. The margin of safety is not affected by this change because the safety analyses assumptions are not affected. In addition, if the Containment Radiation instrumentation does not function, the associated Containment Purge Supply and Exhaust System valves can still be automatically closed using the SI Input from ESFAS signal. Therefore, the proposed change does not involve a significant reduction in a margin of safety.

Based on the above, I&M 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.

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ATTACHMENT 7

ITS 3.3.7, Control Room Emergency Ventilation (CREV) System Actuation Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

A.1

ITS 3.3.7

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.7 PLANT SYSTEMS

3/4.7.5 CONTROL ROOM VENTILATION SYSTEM

CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.3.7 3.7.5.1 The control room emergency ventilation system (CREVS) shall be OPERABLE with:

a. Two independent pressurization trains, and

b. One charcoal adsorber/HEPA filter unit.

NOTE
The control room envelope/pressure boundary may be opened intermittently under administrative control.

See ITS 3.7.10

APPLICABILITY: MODES 1, 2, 3, 4, and during the movement of irradiated fuel assemblies.

ACTION: Add proposed ACTIONS Note

MODES 1, 2, 3, and 4: place in pressurization/cleanup mode L.1

ACTION A
ACTION C

a. With one pressurization train inoperable, restore the inoperable train to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours. Add proposed ACTION B

b. With the filter unit inoperable, restore the filter unit to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With two CREVS pressurization trains inoperable due to an inoperable control room envelope/pressure boundary, restore the control room envelope/pressure boundary to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

During the movement of irradiated fuel assemblies:

d. With one pressurization train inoperable, restore the inoperable pressurization train to OPERABLE status within 7 days, or initiate and maintain operation of the remaining OPERABLE train in the pressurization/cleanup alignment.

e. With any of the following: (1) both pressurization trains inoperable; (2) the filter unit inoperable; or (3) the control room envelope/pressure boundary inoperable, immediately suspend all operations involving the movement of irradiated fuel assemblies.

See ITS 3.7.10

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A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.7 PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

e. At least once per 18 months by: — See ITS 3.7.10

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches Water Gauge while operating the ventilation system at a flow rate of 6000 cfm plus or minus 10%. — See ITS 5.5

Table 3.3.7-1 Functions 1 and 2, SR 3.3.7.1, SR 3.3.7.2, SR 3.3.7.3 — A.2

2. a. Verifying that on a Safety Injection Signal from Unit 1 the system automatically operates in the pressurization/cleanup mode. — See ITS 3.7.10

Table 3.3.7-1 Functions 3 and 4, SR 3.3.7.1, SR 3.3.7.2, SR 3.3.7.3 — A.2

b. Verifying that on a Safety Injection Signal from Unit 2 the system automatically operates in the pressurization/cleanup mode. — See ITS 3.7.10

3. Verifying that the system maintains the control room envelope/pressure boundary at a positive pressure of greater than or equal to 1/16 inch W. G. relative to the outside atmosphere at a system flow rate of 6000 cfm plus or minus 10%, with a makeup air flow rate of ≤ 1000 cfm. — See ITS 3.7.10

f. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 6000 cfm plus or minus 10%.

g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 6000 cfm plus or minus 10%. — See ITS 5.5

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ITS 3.3.7

(A.1)

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.7 PLANT SYSTEMS

3/4.7.5 CONTROL ROOM VENTILATION SYSTEM

CONTROL ROOM EMERGENCY VENTILATION SYSTEM

LIMITING CONDITION FOR OPERATION

LCO 3.3.7 3.7.5.1 The control room emergency ventilation system (CREVS) shall be OPERABLE with:

a. Two independent pressurization trains, and

b. One charcoal adsorber/HEPA filter unit.

---NOTE---
The control room envelope/pressure boundary may be opened intermittently under administrative control.

(See ITS 3.7.10)

APPLICABILITY: MODES 1, 2, 3, 4, and during the movement of irradiated fuel assemblies.

ACTION:

Add proposed ACTIONS Note

MODES 1, 2, 3, and 4:

place | in pressurization/cleanup mode

ACTION A — a. With one pressurization train inoperable, restore the inoperable train to OPERABLE status within 7 days or be in at least HOT STANDBY within the next 6 hours and in

ACTION C — COLD SHUTDOWN within the following 30 hours. ← Add proposed ACTION B

(L.1)

b. With the filter unit inoperable, restore the filter unit to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

c. With two CREVS pressurization trains inoperable due to an inoperable control room envelope/pressure boundary, restore the control room envelope/pressure boundary to OPERABLE status within 24 hours or be in at least HOT STANDBY within the next 6 hours and in COLD SHUTDOWN within the following 30 hours.

During the movement of irradiated fuel assemblies:

d. With one pressurization train inoperable, restore the inoperable pressurization train to OPERABLE status within 7 days, or initiate and maintain operation of the remaining OPERABLE train in the pressurization/cleanup alignment.

e. With any of the following: (1) both pressurization trains inoperable; (2) the filter unit inoperable; or (3) the control room envelope/pressure boundary inoperable, immediately suspend all operations involving the movement of irradiated fuel assemblies.

(See ITS 3.7.10)

ITS 3.3.7

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.7 PLANT SYSTEMS

SURVEILLANCE REQUIREMENTS (Continued)

e. At least once per 18 months by: — See ITS 3.7.10

1. Verifying that the pressure drop across the combined HEPA filters and charcoal adsorber banks is less than 6 inches Water Gauge while operating the ventilation system at a flow rate of 6000 cfm plus or minus 10%. — See ITS 5.5

Table 3.3.7-1 Functions 3 and 4, SR 3.3.7.1, SR 3.3.7.2, SR 3.3.7.3

2. a. Verifying that on a Safety Injection Signal from Unit 1, the system automatically operates in the pressurization/cleanup mode. — A.2 — See ITS 3.7.10

Table 3.3.7-1 Functions 1 and 2, SR 3.3.7.1, SR 3.3.7.2, SR 3.3.7.3

b. Verifying that on a Safety Injection Signal from Unit 2, the system automatically operates in the pressurization/cleanup mode. — A.2 — See ITS 3.7.10

3. Verifying that the system maintains the control room envelope/pressure boundary at a positive pressure of greater than or equal to 1/16 inch W. G. relative to the outside atmosphere at a system flow rate of 6000 cfm plus or minus 10% with a makeup air flow rate of ≤ 1000 cfm. — See ITS 3.7.10

f. After each complete or partial replacement of a HEPA filter bank by verifying that the HEPA filter banks remove greater than or equal to 99% of the DOP when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 6000 cfm plus or minus 10%.

g. After each complete or partial replacement of a charcoal adsorber bank by verifying that the charcoal adsorbers remove greater than or equal to 99% of a halogenated hydrocarbon refrigerant test gas when they are tested in-place in accordance with ANSI N510-1975 while operating the ventilation system at a flow rate of 6000 cfm plus or minus 10%. — See ITS 5.5

DISCUSSION OF CHANGES
ITS 3.3.7, CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM
ACTUATION INSTRUMENTATION

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 4.7.5.1.e.2 requires the verification that on a Safety Injection Signal from other unit, the CREV System automatically operates. ITS Table 3.3.7-1 provides the requirements for Functions 1 and 3, the Automatic Actuation Logic and Actuation Relays for both units, and for Functions 2 and 4, the SI Signal from ESFAS for both units. In addition, SRs 3.3.7.1, 3.3.7.2, and 3.3.7.3 require the performance of an ACTUATION LOGIC TEST, a MASTER RELAY TEST, and a SLAVE RELAY TEST. This change the CTS by explicitly stating the specific Functions that provide the actuation signal for the CREV System, and stating the actual instrumentation Surveillance that verify OPERABILITY of the Functions.

The purpose of CTS 4.7.5.1.e.2 is to ensure the CREV System can be properly actuated by the SI signals from either unit. This change is acceptable since the specific requirements for just the instrumentation are now stated, and the appropriate instrumentation Surveillances, which demonstrate that the instrumentation portion of the CREV System is OPERABLE, are provided. The two specified Functions for each unit (Functions 1 and 3, Automatic Actuation Logic and Actuation Relays and Functions 2 and 4, SI Input from ESFAS) are the actual portions of the CREV System actuation instrumentation associated with the SI signal. SRs 3.3.7.1, SR 3.3.7.2, and SR 3.3.7.3 are the appropriate Surveillances that ensure the instrumentation is OPERABLE, and they are consistent with current practice. Therefore, this change is designated as administrative since it does not result in a technical change.

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

None

DISCUSSION OF CHANGES
ITS 3.3.7, CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM ACTUATION INSTRUMENTATION

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* CTS 3.7.5.1 Action a requires, with one train of the Automatic Actuation Logic and Actuation Relays instrumentation inoperable (i.e., the associated CREV pressurization train is inoperable), to either restore the pressurization train to OPERABLE status (i.e., by restoring the Automatic Actuation Logic and Actuation Relays instrumentation train to OPERABLE status) within 7 days or the unit must be placed in MODE 3 in the next 6 hours and in MODE 5 within the following 30 hours. In addition, the CTS does not provide any Actions when both trains of the Automatic Actuation Logic and Actuation Relays instrumentation are inoperable (i.e., both CREV trains are inoperable) in MODES 1, 2, 3, and 4. Thus a CTS 3.0.3 entry is required, which requires action to be initiated within 1 hour to place the unit in MODE 3 within 7 hours, MODE 4 within 13 hours, and MODE 5 within 37 hours. ITS 3.3.7 ACTION A allows 7 days to place the associated CREV train in the pressurization/cleanup mode when one Automatic Actuation Logic and Actuation Relays instrumentation train is inoperable. When both Automatic Actuation Logic and Actuation Relays instrumentation trains are inoperable, ITS 3.3.7 ACTION B allows either immediately placing one CREV train in the pressurization/cleanup mode and declaring the other CREV train inoperable (and taking the actions of the ITS 3.7.10 for an inoperable CREV train) or immediately placing both CREV trains in the pressurization/cleanup mode. Alternately, if the CREV trains are not placed in the pressurization/cleanup mode, ITS 3.3.7 ACTION C requires shutting down the unit to MODE 3 within 6 hours and MODE 5 within 36 hours. In addition, since there are two Automatic Actuation Logic and Actuation Relays Functions required (one from each unit), and each of them affect both CREV trains, a Note is included that allows separate Condition entry for each Function. This changes the CTS by allowing the associated CREV System trains to be placed in the pressurization/cleanup mode, in lieu of requiring a unit shutdown. In addition, separate Condition entry is allowed for each of the two Automatic Actuation Logic and Actuation Relays Functions.

The purpose of the requirements for the Automatic Actuation Logic and Actuation Relays Functions is to ensure the associated CREV trains are capable of being automatically placed in the pressurization/cleanup mode. The proposed ACTIONS ensure that the function of each inoperable Automatic Actuation Logic and Actuation Relays instrumentation train is satisfied by requiring the associated CREV train to be placed in the pressurization/cleanup mode, since this places the associated CREV train in the post accident operating condition. The ACTIONS are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation. This change is acceptable because the ACTIONS are consistent with safe operation under the specified Condition, considering the status of the associated CREV System train(s) (i.e., the associated train(s) are in the post accident operating condition), and the low probability of a DBA occurring during the time period. If the associated train(s) are not placed in the pressurization/cleanup mode, the ITS ACTIONS will require the unit to be shut down, consistent with current requirements. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

DISCUSSION OF CHANGES
ITS 3.3.7, CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM
ACTUATION INSTRUMENTATION

L.2 Not used.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

CTS

3.3 INSTRUMENTATION

3.3.7 Control Room Emergency Filtration System (CREFS) Actuation Instrumentation 1

(Ventilation) (V)

(V System)

3.7.5.1 LCO 3.3.7 The CREFS actuation instrumentation for each Function in Table 3.3.7-1 shall be OPERABLE. 1

APPLICABILITY: According to Table 3.3.7-1.

ACTIONS

- NOTE -

Doc L.1 Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION		COMPLETION TIME
A. One or more (required) Functions with one channel or train inoperable.	A.1	- NOTE - [Place in toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.]	
		(associated) Place one CREFS (V) train in emergency [radiation protection] (pressurization / cleanup) mode.	7 days
B. One or more (required) Functions with two channels or two trains inoperable.		- NOTE - [Place in the toxic gas protection mode if automatic transfer to toxic gas protection mode is inoperable.]	
	B.1.1	Place one CREFS (V) train in emergency [radiation protection] (pressurization / cleanup) mode.	Immediately
		AND	

Action a — Condition A; Doc L.1 — Condition B. Right margin notes: 2, 3, 2 1, 4, 2, 3, 1, 4

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V System

CTS

CREFS Actuation Instrumentation
3.3.7

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
	B.1.2	Enter applicable Conditions and Required Actions for one CREFS V train made inoperable by inoperable CREFS V actuation instrumentation.	Immediately
	OR		
	B.2	Place both CREV trains in emergency [radiation protection] pressurization/cleanup mode.	Immediately
C. Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	C.1	Be in MODE 3.	6 hours
	AND		
	C.2	Be in MODE 5.	36 hours
D. Required Action and associated Completion Time for Condition A or B not met during movement of [recently] irradiated fuel assemblies.	D.1	Suspend movement of [recently] irradiated fuel assemblies.	Immediately
E. [Required Action and associated Completion Time for Condition A or B not met in MODE 5 or 6.	E.1	Initiate action to restore one CREFS train to OPERABLE status.	Immediately]

Doc L.1

Action a

(1) (1) (1) (4) (5) (5)

(V System) ①

CTS

SURVEILLANCE REQUIREMENTS

- NOTE -
Refer to Table 3.3.7-1 to determine which SRs apply for each CREFS (V System) Actuation Function. ①

CTS	SURVEILLANCE		FREQUENCY
	SR 3.3.7.1	Perform CHANNEL CHECK.	12 hours ⑦
	SR 3.3.7.2	Perform COT.	92 days ⑦
4.7.5.1.e.2	SR 3.3.7.3 → ①	Perform ACTUATION LOGIC TEST.	31 → 92 days on a STAGGERED TEST BASIS ⑦
4.7.5.1.e.2	SR 3.3.7.4 → ②	Perform MASTER RELAY TEST.	31 → 92 days on a STAGGERED TEST BASIS ⑦
4.7.5.1.e.2	SR 3.3.7.5 → ③	Perform SLAVE RELAY TEST.	[92] days → 24 months ⑦ ③
	SR 3.3.7.6	- NOTE - Verification of setpoint is not required. Perform TADOT.	[18] months ⑦
	SR 3.3.7.7	Perform CHANNEL CALIBRATION.	[18] months ⑦

CTS

3.7.5.1

Table 3.3.7-1 (page 1 of 1)
CREFS Actuation Instrumentation (V System) ①

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS ⑦	TRIP SETPOINT (ALLOWABLE VALUE) ⑨
1. Manual Initiation ⑥	1, 2, 3, 4, [5, 6], (a)	2 trains	SR 3.3.7.6	NA
⑥ ① 2. Automatic Actuation Logic and Actuation Relays	1, 2, 3, 4, [5, 6], (a) ⑥	2 trains	SR 3.3.7.6 ① SR 3.3.7.7 ② SR 3.3.7.8 ③	NA
3. Control Room Radiation ⑥				
a. Control Room Atmosphere	1, 2, 3, 4 [5, 6], (a)	[2]	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.7	≤ [2] mR/hr
b. Control Room Air Intakes	1, 2, 3, 4, [5, 6], (a)	[2]	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.7	≤ [2] mR/hr
⑥ ② 4. Safety Injection (1, 2, 3, 4) ⑥	Refer to LCO 3.3.2, "ESFAS Instrumentation," Function 1, for all initiation functions and requirements. ⑥ INSERT 1			

(a) During movement of [recently] irradiated fuel assemblies. ⑥ INSERT 2

(a) Input from Engineered Safety Features Actuation System (ESFAS) ⑥

(6)

INSERT 1
(Unit 1 only)

3. Unit 2 Automatic Actuation Logic and Actuation Relays	(a)	2 trains	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.3	NA
4. Unit 2 SI Input from ESFAS	(a)	Refer to Unit 2 LCO 3.3.2, Function 1, for all initiation functions and requirements.		

(6)

INSERT 1
(Unit 2 only)

3. Unit 1 Automatic Actuation Logic and Actuation Relays	(a)	2 trains	SR 3.3.7.1 SR 3.3.7.2 SR 3.3.7.3	NA
4. Unit 1 SI Input from ESFAS	(a)	Refer to Unit 1 LCO 3.3.2, Function 1, for all initiation functions and requirements.		

(6)

INSERT 2
(Unit 1 only)

(a) When Unit 2 is in MODE 1, 2, 3, or 4 and Unit 1 is in MODE 1, 2, 3, or 4.

(6)

INSERT 2
(Unit 2 only)

(a) When Unit 1 is in MODE 1, 2, 3, or 4 and Unit 2 is in MODE 1, 2, 3, or 4.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.7, CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM ACTUATION INSTRUMENTATION

1. The title of ISTS 3.3.7, Control Room Emergency Filtration System (CREFS) Actuation Instrumentation, has been revised in ITS 3.3.7 to reflect the plant specific nomenclature (i.e., Control Room Emergency Ventilation (CREV) System Actuation Instrumentation). Corresponding changes have also been made to the ISTS 3.3.7 Header, LCO, Required Actions, Surveillance Requirements Note and Table 3.3.7-1.

2. The plant specific design of the CREV System actuation instrumentation includes two trains of Automatic Actuation Logic and Actuation Relays Function and two trains of Automatic Actuation Logic and Actuation Relays Function from the opposite unit. These Functions are arranged such that any one of the four trains will initiate actuation of an associated CREV train. However, the opposite unit Automatic Actuation Logic and Actuation Relays Function is only required to be OPERABLE when the opposite unit is in MODE 1, 2, 3, or 4. Therefore, the opposite unit Automatic Actuation Logic and Actuation Relays Function will not always be required to be OPERABLE. As a result, the word "required" is added to ISTS 3.3.7 Conditions A and B to reflect that each of the Functions may not always be required to be OPERABLE to meet the LCO and ISTS 3.3.7 Required Action A.1 is revised to reflect placing the "associated" CREV train in pressurization/cleanup mode of operation. In addition, the references to "channels" in ISTS 3.3.7 Conditions A and B are deleted since the requirements for each of the Functions are presented on a "train" basis, not a "channel" basis.

3. The brackets are removed and the proper plant specific information/value is provided.

4. The references to the "emergency [radiation protection] mode" in ISTS 3.3.7 ACTIONS A and B are revised to "pressurization/cleanup mode" in ITS 3.3.7 ACTIONS A and B. This change reflects the CNP Units 1 and 2 specific nomenclature.

5. ISTS 3.3.7 ACTIONS D and E provide requirements that are applicable during movement of [recently] irradiated fuel assemblies and in MODE 5 or 6, respectively. These ACTIONS are not included in ITS 3.3.7, consistent with CNP Unit 1 and Unit 2 specific design, analysis, and licensing basis for CREV System actuation. During movement of irradiated fuel assemblies, the fuel handling accident analysis assumes manual actuation of the CREV trains. Individual component controls are used for manually isolating the normal fresh-air intake and manually starting the emergency pressurization/cleanup filter unit of the CREV System. During other times in MODE 5 or 6, the CREV System is not required OPERABLE; thus, the Functions are not required. Therefore, ITS 3.3.7 does not include requirements that are applicable during these MODES or specified conditions. As a result of the deletion of ISTS 3.3.7 ACTIONS D and E (which reference MODES or conditions other than MODES 1, 2, 3, and 4), the reference to "MODE 1, 2, 3, or 4" in ISTS 3.3.7 Condition C is unnecessary and is deleted.

6. ISTS Table 3.3.7-1 is revised to reflect the plant specific nomenclature, design, analysis, and licensing basis for Functions in ITS Table 3.3.7-1, CREV System Actuation Instrumentation. This includes the deletion of ISTS Table 3.3.7-1 Functions 1 (Manual Initiation) and 3 (Control Room Radiation). ISTS Table 3.3.7-1 Function 2 (ITS Table 3.3.7-1 Functions 1 and 3) and ISTS Table 3.3.7-1 Function 4

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.7, CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM
ACTUATION INSTRUMENTATION

(ITS Table 3.3.7-1 Functions 2 and 4) are revised to reflect that the Automatic Actuation Logic and Actuation Relays and SI Input from ESFAS Functions from both units provide the CREV System actuation. In addition, ISTS Table 3.3.7-1 Footnote (a) is revised to reflect the plant specific design and analysis basis for the opposite unit Automatic Actuation Logic and Actuation Relays and SI Input from ESFAS Functions.

7. The ISTS 3.3.7 Surveillance Requirements are revised to reflect the CNP Units 1 and 2 current licensing basis and testing practices for the CREV System Actuation Instrumentation Functions. The Functions in ITS Table 3.3.7-1 that have specific Surveillances listed in ITS Table 3.3.7-1 are the Automatic Actuation Logic and Actuation Relays Functions (ITS Table 3.3.7-1 Functions 1 and 3). For these Functions, the applicable Surveillance Requirements are the performance of an ACTUATION LOGIC TEST (ISTS SR 3.3.7.3), MASTER RELAY TEST (ISTS SR 3.3.7.4), and SLAVE RELAY TEST (ISTS SR 3.3.7.5). The other ISTS 3.3.7 Surveillance Requirements (ISTS SRs 3.3.7.1, 3.3.7.2, 3.3.7.6, and 3.3.7.7) are not applicable to the Automatic Actuation Logic and Actuation Relays Functions and are deleted. In addition, ISTS SR 3.3.7.3, SR 3.3.7.4, and SR 3.3.7.5 are renumbered as ITS SR 3.3.7.1, SR 3.3.7.2, and SR 3.3.7.3, respectively. Furthermore, the Frequencies of ISTS SR 3.3.7.3 and SR 3.3.7.4 have been revised to reflect the TSTF-411, Revision 1 allowances, since these components are processed through the Solid State Protection System.

8. Not Used.

9. ISTS Table 3.3.7-1 includes requirements for Trip Setpoints for the CREV System actuation instrumentation. The term "TRIP SETPOINT" is revised to "ALLOWABLE VALUE" in ITS Table 3.3.7-1 to reflect OPERABILITY limits for the channels of the CREV System Actuation Instrumentation Functions. This change achieves consistency with the OPERABILITY requirements for other actuation instrumentation channels in ISTS Section 3.3.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

B 3.3 INSTRUMENTATION

B 3.3.7 Control Room Emergency Filtration System (CREFS) Actuation Instrumentation

BASES

BACKGROUND

The CREFS provides an enclosed control room environment from which the unit can be operated following an uncontrolled release of radioactivity. During normal operation, the Auxiliary Building Ventilation System provides control room ventilation. Upon receipt of an actuation signal, the CREFS initiates filtered ventilation and pressurization of the control room. This system is described in the Bases for LCO 3.7.10, "Control Room Emergency Filtration System."

The actuation instrumentation consists of redundant radiation monitors in the air intakes and control room area. A high radiation signal from any of these detectors will initiate both trains of the CREFS. The control room operator can also initiate CREFS trains by manual switches in the control room. The CREFS is also actuated by a safety injection (SI) signal. The SI Function is discussed in LCO 3.3.2, "Engineered Safety Feature Actuation System (ESFAS) Instrumentation."

APPLICABLE SAFETY ANALYSES

The control room must be kept habitable for the operators stationed there during accident recovery and post accident operations.

The CREFS acts to terminate the supply of unfiltered outside air to the control room, initiate filtration, and pressurize the control room. These actions are necessary to ensure the control room is kept habitable for the operators stationed there during accident recovery and post accident operations by minimizing the radiation exposure of control room personnel.

In MODES 1, 2, 3, and 4, the radiation monitor actuation of the CREFS is a backup for the SI signal actuation. This ensures initiation of the CREFS during a loss of coolant accident or steam generator tube rupture.

The radiation monitor actuation of the CREFS in MODES 5 and 6, and during movement of [recently] irradiated fuel assemblies are the primary means to ensure control room habitability in the event of a fuel handling or waste gas decay tank rupture accident.

The CREFS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

(1) **INSERT 1**

the Control Room Air Conditioning (CRAC) System portion of the Control Room Ventilation System is operated in the air conditioning mode, which is further described in the Bases of LCO 3.7.11, "Control Room Air Conditioning (CRAC) System."

(V System) (1)

BASES (1)

LCO

The LCO (V System) requirements ensure that instrumentation necessary to initiate the CREFS is OPERABLE.

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate the CREFS at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one push button and the interconnecting wiring to the actuation logic cabinet. (2)

(1 and 3) 2. Automatic Actuation Logic and Actuation Relays

The LCO requires two trains of (Automatic) Actuation Logic and (Actuation) Relays (from each unit to be) OPERABLE to ensure that no single random failure can prevent automatic actuation.

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b, SI, in LCO 3.3.2. The applicable MODES and specified conditions for the CREFS (V System) portion of these functions are different and less restrictive than those specified for their SI roles. If one or more of the SI functions becomes inoperable in such a manner that only the CREFS (V System) function is affected, the Conditions applicable to their SI function need not be entered. The less restrictive Actions specified for inoperability of the CREFS Functions specify sufficient compensatory measures for this case. (2)

3. Control Room Radiation

The LCO specifies two required Control Room Atmosphere Radiation Monitors and two required Control Room Air Intake Radiation Monitors to ensure that the radiation monitoring instrumentation necessary to initiate the CREFS remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY may also require correct valve lineups, sample pump operation, and filter (2)

(V System) (1)

BASES

LCO (continued)

motor operation, as well as detector OPERABILITY, if these supporting features are necessary for trip to occur under the conditions assumed by the safety analyses. (2)

(2. and) 4. Safety Injection (Input from ESFAS)

Refer to LCO 3.3.2, Function 1, for all initiating Functions and requirements. (INSERT 2) (2) (4)

APPLICABILITY

The CREFS Functions must be OPERABLE in MODES 1, 2, 3, 4, and movement of [recently] irradiated fuel assemblies. The Functions must also be OPERABLE in MODES [5 and 6] when required for a waste gas decay tank rupture accident, to ensure a habitable environment for the control room operators. (INSERT 3) (2) (or) (3) (INSERT 4) (1) (2)

(1) (V System Actuation Instrumentation)

The Applicability for the CREFS actuation on the ESFAS Safety Injection Functions are specified in LCO 3.3.2. Refer to the Bases for LCO 3.3.2 for discussion of the Safety Injection Function Applicability. (1)

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by the unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered. (2)

A Note has been added to the ACTIONS indicating that separate Condition entry is allowed for each Function. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.7-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function. (2)

A.1

(4) (2) **INSERT 2**

CREV System Actuation is also initiated by all Functions that initiate SI. The CREV System Actuation function requirements for these Functions are the same as the requirements for their SI function, with the exception of the Applicability. Therefore, the requirements are not repeated in Table 3.3.7-1. Instead Function 1, SI, is referenced for all initiating functions and requirements, with the exception of the Applicability.

(2) **INSERT 3**

and when Unit 2 (Unit 1) and Unit 1 (Unit 2) is in MODE 1, 2, 3, or 4

(1) (2) **INSERT 4**

The CREV System Actuation Instrumentation is not required in MODES 5 and 6 since the CREV System is not required OPERABLE in these MODES. During movement of irradiated fuel assemblies, CREV System Actuation Instrumentation Functions are not required to be OPERABLE since the fuel handling accident analysis assumes manual actuation of the CREV trains.

BASES

ACTIONS (continued)

Condition A applies to the actuation logic train Function of the CREFS, the radiation monitor channel Functions, and the manual channel Functions.

If one train is inoperable, or one radiation monitor channel is inoperable in one or more Functions, 7 days are permitted to restore it to OPERABLE status. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this Completion Time is the same as provided in LCO 3.7.10. If the channel/train cannot be restored to OPERABLE status, one CREFS train must be placed in the emergency radiation protection mode of operation. This accomplishes the actuation instrumentation Function and places the unit in a conservative mode of operation.

The Required Action for Condition A is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.

B.1.1, B.1.2, and B.2

Condition B applies to the failure of two CREFS actuation trains, two radiation monitor channels, or two manual channels. The first Required Action is to place one CREFS train in the emergency radiation protection mode of operation immediately. This accomplishes the actuation instrumentation Function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.10 must also be entered for the CREFS train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed upon train inoperability as discussed in the Bases for LCO 3.7.10.

Alternatively, both trains may be placed in the emergency [radiation protection] mode. This ensures the CREFS function is performed even in the presence of a single failure.

The Required Action for Condition B is modified by a Note that requires placing one CREFS train in the toxic gas protection mode instead of the [radiation protection] mode of operation if the automatic transfer to toxic gas protection mode is inoperable. This ensures the CREFS train is placed in the most conservative mode of operation relative to the OPERABILITY of the associated actuation instrumentation.

V System ①

BASES

ACTIONS (continued)

C.1 and C.2

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems. ②

D.1

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met when [recently] irradiated fuel assemblies are being moved. Movement of [recently] irradiated fuel assemblies must be suspended immediately to reduce the risk of accidents that would require CREFS actuation. ②

E.1

Condition E applies when the Required Action and associated Completion Time for Condition A or B have not been met in MODE 5 or 6. Actions must be initiated to restore the inoperable train(s) to OPERABLE status immediately to ensure adequate isolation capability in the event of a waste gas decay tank rupture.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that Table 3.3.7-1 determines which SRs apply to which CREFS Actuation Functions.

V System ① Instrumentation ③

SR 3.3.7.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION. ②

BASES

SURVEILLANCE REQUIREMENTS (continued)

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

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

SR 3.3.7.2

A COT is performed once every 92 days on each required channel to ensure the entire channel will perform the intended function. This test verifies the capability of the instrumentation to provide the CREFS actuation. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The setpoints shall be left consistent with the unit specific calibration procedure tolerance. The Frequency is based on the known reliability of the monitoring equipment and has been shown to be acceptable through operating experience.

SR 3.3.7.3

SR 3.3.7.3 is the performance of an ACTUATION LOGIC TEST. The train being tested is placed in the bypass condition, thus preventing inadvertent actuation. Through the semiautomatic tester, all possible logic combinations, with and without applicable permissives, are tested for each protection function. In addition, the master relay coil is pulse tested for continuity. This verifies that the logic modules are OPERABLE and there is an intact voltage signal path to the master relay coils. This test is performed every 31 days on a STAGGERED TEST BASIS. The Frequency is justified in WCAP-10271-P-A, Supplement 2, Rev.1.

SR 3.3.7.4

SR 3.3.7.4 is the performance of a MASTER RELAY TEST. The MASTER RELAY TEST is the energizing of the master relay, verifying

① (V. System)

BASES

SURVEILLANCE REQUIREMENTS (continued)

contact operation and a low voltage continuity check of the slave relay coil. Upon master relay contact operation, a low voltage is injected to the slave relay coil. This voltage is insufficient to pick up the slave relay, but large enough to demonstrate signal path continuity. This test is performed every [31] days on a STAGGERED TEST BASIS. The Frequency is acceptable based on instrument reliability and industry operating experience. (92) ② (Surveillance interval is justified in Reference 1) TSTF-411

SR 3.3.7.5 ③ ②

SR 3.3.7.5 is the performance of a SLAVE RELAY TEST. The SLAVE RELAY TEST is the energizing of the slave relays. Contact operation is verified in one of two ways. Actuation equipment that may be operated in the design mitigation MODE is either allowed to function or is placed in a condition where the relay contact operation can be verified without operation of the equipment. Actuation equipment that may not be operated in the design mitigation MODE is prevented from operation by the SLAVE RELAY TEST circuit. For this latter case, contact operation is verified by a continuity check of the circuit containing the slave relay. This test is performed every [92] days. The Frequency is acceptable based on instrument reliability and industry operating experience. ② (24 months) ①

SR 3.3.7.6

SR 3.3.7.6 is the performance of a TADOT. This test is a check of the Manual Actuation Functions and is performed every [18] months. Each Manual Actuation Function is tested up to, and including, the master relay coils. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. In some instances, the test includes actuation of the end device (i.e., pump starts, valve cycles, etc.). ②

The test also includes trip devices that provide actuation signals directly to the Solid State Protection System, bypassing the analog process control equipment. The Frequency is based on the known reliability of the Function and the redundancy available, and has been shown to be acceptable through operating experience. The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.

(1)

V System

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.7.7

A CHANNEL CALIBRATION is performed every [18] months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy.

(2)

The Frequency is based on operating experience and is consistent with the typical industry refueling cycle.

REFERENCES None.

1. WCAP-15376, Rev. 0, October 2000.

TSTF-411

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.7 BASES, CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM ACTUATION INSTRUMENTATION

1. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.
2. Changes are made to reflect changes made to the Specification.
3. Changes are made to reflect the Specification.
4. Changes made to be consistent with similar wording in other Bases (i.e., ITS 3.2.2).

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.7, CONTROL ROOM EMERGENCY VENTILATION (CREV) SYSTEM ACTUATION INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 8

ITS 3.3.8, Boron Dilution Monitoring Instrumentation (BDMI)

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

ITS 3.3.8

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION (A.2)

LIMITING CONDITION FOR OPERATION

LCO 3.3.8 3.3.1.1 As a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE. (A.2) (See ITS 3.3.1)

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1, SR 3.3.8.2 4.3.1.1.1 Each reactor trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations for the MODES and at the frequencies shown in Table 4.3-1. (A.3)

4.3.1.1.2 The logic for the interlocks shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. (See ITS 3.3.1)

4.3.1.1.3 ~~The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.*~~ (A.4)

~~* Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel.~~ (A.4)

ITS

TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

	FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1.	Manual Reactor Trip	2	1	2	1, 2 and *	12
2.	Power Range, Neutron Flux	4	2	3	1, 2 and *	2
3.	Power Range, Neutron Flux, High Positive Rate	4	2	3	1, 2	2
4.	Power Range, Neutron Flux, High Negative Rate	4	2	3	1, 2	2
5.	Intermediate Range, Neutron Flux	2	1	2	1, 2 and *	3
6.	Source Range, Neutron Flux					
	A. Startup	2	1	2	2## and *	4
	B. Shutdown	2	0	1 [2]	3, 4 and 5	5
7.	Overtemperature ΔT Four Loop Operation	4	2	3	1, 2	6
8.	Overpower ΔT Four Loop Operation	4	2	3	1, 2	6

LA.1

See ITS 3.3.1

See ITS 3.3.1

A.1

M.1

LA.1

See ITS 3.3.1

LCO 3.3.8, Applicability, and ACTION B

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ITS 3.3.8

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-1 (Continued)

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above P-6 but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER.

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

See ITS 3.3.1

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above P-6, operation may continue.

M.1 Add proposed ACTION A and proposed Required Action B.2.1

ACTION B

ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement:

L.1 Add proposed Note 1 to Required Action B.1

a. Immediately suspend operations involving positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than [L.2 or equal to] the minimum required by Specification 3.1.2.8.b.2 (MODES 3 or 4) or 3.1.2.7.b.2 (MODE 5), [A.5 2400 ppm] and

b. Verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, [A.1 SR 3.1.1.1] within 1 hour and at least once per 12 hours thereafter, and

c. Close the isolation valves for unborated water sources to the chemical and volume control system [LA.3] within 1 hour. In MODE 5, if the RWST boron concentration is less than the reactor coolant system boron concentration and less than the boron concentration required by Specification 3.1.2.7.b.2, [LA.3] [A.5 of 2400 ppm] isolate the RWST from the reactor coolant system [LA.3] within 1 hour.

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 1 hour.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable channel may be bypassed for up to 2 hours for surveillance testing of the other channels per Specification 4.3.1.1.1.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

See ITS 3.3.1

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A.3

ITS	FUNCTIONAL UNIT	SR 3.3.8.1 CHANNEL CHECK	SR 3.3.8.2 CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODE IN WHICH SURVEILLANCE REQUIRED	
	1. Manual Reactor Trip					
	A. Shunt Trip Function	N.A.	N.A.	S/U(1)(10)	1, 2, 3*, 4*, 5*	See ITS 3.3.1
	B. Undervoltage Trip Function	N.A.	N.A.	S/U(1)(10)	1, 2, 3*, 4*, 5*	
	2. Power Range, Neutron Flux	S	D(2,8), M(3,8), and Q(6,8)	Q and S/U(1)	1, 2 and *	
	3. Power Range, Neutron Flux, High Positive Rate	N.A.	R(6)	Q	1, 2	
	4. Power Range, Neutron Flux, High Negative Rate	N.A.	R(6)	Q	1, 2	
	5. Intermediate Range, Neutron Flux	S	R(6,8)	S/U(17)	1, 2, and *	See ITS 3.3.1
SR 3.3.8.1, SR 3.3.8.2, Applicability	6. Source Range, Neutron Flux	S -1	2- R(6, 14)	M(14) and S/U(1)	2(7), 3(7), 4 and 5	24 months L.3
	7. Overtemperature delta T	S	R(9)	SA	1, 2	See ITS 3.3.1
	8. Overpower delta T	S	R(9)	SA	1, 2	
	9. Pressurizer Pressure -- Low	S	R	SA	1, 2	
	10. Pressurizer Pressure -- High	S	R	SA	1, 2	
	11. Pressurizer Water Level -- High	S	R	SA	1, 2	
	12. Loss of Flow-Single Loop	S	R(8)	SA	1	

ITS 3.3.8

A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-1 (Continued)

NOTATION

	*	-	With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
	(1)	-	If not performed in previous 7 days.
	(2)	-	Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference greater than 2 percent.
	(3)	-	Compare incore to excore axial imbalance above 15% of RATED THERMAL POWER. Recalibrate if absolute difference greater than or equal to 3 percent.
	(4)	-	Manual ESF functional input check every 18 months.
	(5)	-	Each train tested at least every other 62 days.
Note to SR 3.3.8.2	(6)	-	Neutron detectors may be excluded from CHANNEL CALIBRATION.
	(7)	-	Below P-6 (BLOCK OF SOURCE RANGE REACTOR TRIP) setpoint.
	(8)	-	The provisions of Specification 4.0.4 are not applicable.
	(9)	-	The provisions of Specification 4.0.4 are not applicable for f_1 (delta I) and f_2 (delta I) penalties, or for measurement of delta T. (See also Table 2.2-1).
	(10)	-	The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the Manual Reactor Trip Function. The test shall also verify the OPERABILITY of the Bypass Breaker trip circuit(s).
	(11)	-	The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers.
	(12)	-	Local manual shunt trip prior to placing breaker in service.
	(13)	-	Automatic Undervoltage Trip.
	(14)	-	The provisions of Specification 4.0.4 are not applicable when leaving MODE 1. In such an event, the calibration and/or functional test shall be performed within 24 hours after leaving MODE 1.
	(15)	-	Each train tested at least every other 92 days.
	(16)	-	Not Used.
	(17)	-	If not performed in previous 184 days.

{ See ITS 3.3.1 } (notes * through (5))

{ See ITS 3.3.1 } (notes (7) through (17))

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A.1

ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.1 REACTOR TRIP SYSTEM INSTRUMENTATION — A.2

LIMITING CONDITION FOR OPERATION

LCO 3.3.8 3.3.1.1 As a minimum, the reactor trip system instrumentation channels and interlocks of Table 3.3-1 shall be OPERABLE. — A.2; See ITS 3.3.1

APPLICABILITY: As shown in Table 3.3-1.

ACTION:

As shown in Table 3.3-1.

SURVEILLANCE REQUIREMENTS

SR 3.3.8.1, SR 3.3.8.2 4.3.1.1.1 Each reactor trip system instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the MODES and at the frequencies shown in Table 4.3-1. — A.3

4.3.1.1.2 The logic for the interlocks shall be demonstrated OPERABLE prior to each reactor startup unless performed during the preceding 92 days. The total interlock function shall be demonstrated OPERABLE at least once per 18 months during CHANNEL CALIBRATION testing of each channel affected by interlock operation. — See ITS 3.3.1

4.3.1.1.3 The REACTOR TRIP SYSTEM RESPONSE TIME of each reactor trip function shall be demonstrated to be within its limit at least once per 18 months. Each test shall include at least one logic train such that both logic trains are tested at least once per 36 months and one channel per function such that all channels are tested at least once every N times 18 months where N is the total number of redundant channels in a specific reactor trip function as shown in the "Total No. of Channels" column of Table 3.3-1.* — A.4

* Neutron detectors are exempt from response time testing. Response time of the neutron flux signal portion of the channel shall be measured from detector output or input of first electronic component in channel. — A.4

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ITS

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION

LA.1

FUNCTIONAL UNIT	TOTAL NO. OF CHANNELS	CHANNELS TO TRIP	MINIMUM CHANNELS OPERABLE	APPLICABLE MODES	ACTION
1. Manual Reactor Trip	2	1	2	1, 2 and *	12
2. Power Range, Neutron Flux	4	2	3	1, 2 and *	2
3. Power Range, Neutron Flux High Positive Rate	4	2	3	1, 2	2
4. Power Range, Neutron Flux High Negative Rate	4	2	3	1, 2	2
5. Intermediate Range, Neutron Flux	2	1	2	1, 2 and *	3
6. Source Range, Neutron Flux					
A. Startup	2	1	2	2## and *	4
B Shutdown	2	0	1	3, 4 and 5 [2]	5
7. Overtemperature ΔT Four Loop Operation	4	2	3	1, 2	6
8. Overpower ΔT Four Loop Operation	4	2	3	1, 2	6

See ITS 3.3.1 (items 1–5)

LCO 3.3.8, Applicability, and ACTION B

See ITS 3.3.1 (item 6.A)

M.1

LA.1

See ITS 3.3.1 (items 7–8)

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-1 (Continued)

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above P-6 but below 5% of RATED THERMAL POWER, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above 5% of RATED THERMAL POWER

c. Above 5% of RATED THERMAL POWER, POWER OPERATION may continue.

ACTION 4 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement and with the THERMAL POWER level:

a. Below P-6, restore the inoperable channel to OPERABLE status prior to increasing THERMAL POWER above the P-6 Setpoint.

b. Above P-6, operation may continue.

(See ITS 3.3.1)

(Add proposed ACTION A and proposed Required Action B.2.1 — M.1)

ACTION B — ACTION 5 - With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement: (Add proposed Note 1 to Required Action B.1 — L.1)

a. Immediately suspend operations involving positive reactivity changes except addition of water from the RWST, provided the boron concentration in the RWST is greater than (or equal to — L.2) the minimum required by Specification 3.1.2.8.b.2 (MODES 3 or 4) or 3.1.2.7.b.2 (MODE 5), (2400 ppm — A.5) and

b. Verify compliance with the SHUTDOWN MARGIN requirements of Specification 3.1.1.1 or 3.1.1.2, as applicable, (SR 3.1.1.1 — A.1) within 1 hour and at least once per 12 hours thereafter, and

c. Close the isolation valves for unborated water sources to the chemical and volume control system (LA.3) within 1 hour. In MODE 5, if the RWST boron concentration is less than the reactor coolant system boron concentration and less than the boron concentration required by Specification 3.1.2.7.b.2, (of 2400 ppm — A.5) isolate the RWST from the reactor coolant system (LA.3) within 1 hour.

ACTION 6 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed provided the following conditions are satisfied:

a. The inoperable channel is placed in the tripped condition within 1 hour.

b. The Minimum Channels OPERABLE requirement is met; however, the inoperable CHANNEL may be bypassed for up to 2 hours for surveillance testing of the other channels per Specification 4.3.1.1.1.

ACTION 7 - With the number of OPERABLE channels one less than the Total Number of Channels, STARTUP and/or POWER OPERATION may proceed until performance of the next required CHANNEL FUNCTIONAL TEST provided the inoperable channel is placed in the tripped condition within 1 hour.

(See ITS 3.3.1)

COOK NUCLEAR PLANT-UNIT 2

TABLE 4.3-1

REACTOR TRIP SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

A.3

FUNCTIONAL UNIT	SR 3.3.8.1 CHANNEL CHECK	SR 3.3.8.2 CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	MODES IN WHICH SURVEILLANCE REQUIRED
1. Manual Reactor Trip				
A. Shunt Trip Function	N.A.	N.A.	S/U(1)(10)	1, 2, 3*, 4*, 5*
B. Undervoltage Trip Function	N.A.	N.A.	S/U(1)(10)	1, 2, 3*, 4*, 5*
2. Power Range, Neutron Flux	S	D(2,8), M(3,8), and Q(6,8)	Q and S/U(1)	1, 2 and *
3. Power Range, Neutron Flux, High Positive Rate	N.A.	R(6)	Q	1, 2
4. Power Range, Neutron Flux, High Negative Rate	N.A.	R(6)	Q	1, 2
5. Intermediate Range, Neutron Flux	S	R(6,8)	S/U(17)	1, 2, and *
6. Source Range, Neutron Flux	S -1	2- R(6,14)	M(14) and S/U(1)	2(7) 3(7) 4 and 5
7. Overtemperature ΔT	S	R(9)	SA	1, 2
8. Overpower ΔT	S	R(9)	SA	1, 2
9. Pressurizer Pressure -- Low	S	R	SA	1, 2
10. Pressurizer Pressure -- High	S	R	SA	1, 2
11. Pressurizer Water Level -- High	S	R	SA	1, 2
12. Loss of Flow-Single Loop	S	R(8)	SA	1

SR 3.3.8.1, SR 3.3.8.2, Applicability

See ITS 3.3.1

See ITS 3.3.1

24 months

A.1

L.3

See ITS 3.3.1

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ITS 3.3.8

ITS

A.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 4.3-1 (Continued)

NOTATION

*	-	With the reactor trip system breakers closed and the control rod drive system capable of rod withdrawal.
(1)	-	If not performed in previous 7 days.
(2)	-	Heat balance only, above 15% of RATED THERMAL POWER. Adjust channel if absolute difference greater than 2 percent.
(3)	-	Compare incore to excore axial offset above 15% of RATED THERMAL POWER. Recalibrate if absolute difference greater than or equal to 3 percent.
(4)	-	Manual ESF functional input check every 18 months.
(5)	-	Each train tested at least every other 62 days.

See ITS 3.3.1

Note to SR 3.3.8.2

(6) - Neutron detectors may be excluded from CHANNEL CALIBRATION.

(7)	-	Below P-6 (BLOCK OF SOURCE RANGE REACTOR TRIP) setpoint.
(8)	-	The provisions of Specification 4.0.4 are not applicable.
(9)	-	The provisions of Specification 4.0.4 are not applicable for f_1 (delta I) and f_2 (delta I) penalties, or for measurement of delta T. (See also Table 2.2-1).
(10)	-	The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip circuits for the Manual Reactor Trip Function. The test shall also verify the OPERABILITY of the Bypass Breaker trip circuit(s).
(11)	-	The CHANNEL FUNCTIONAL TEST shall independently verify the OPERABILITY of the undervoltage and shunt trip attachments of the Reactor Trip Breakers.
(12)	-	Local manual shunt trip prior to placing breaker in service.
(13)	-	Automatic Undervoltage Trip.
(14)	-	The provisions of Specification 4.0.4 are not applicable when leaving MODE 1. In such an event, the calibration and/or functional test shall be performed within 24 hours after leaving MODE 1.
(15)	-	Each train tested at least every other 92 days.
(16)	-	Not Used.
(17)	-	If not performed in previous 184 days.

See ITS 3.3.1

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DISCUSSION OF CHANGES
ITS 3.3.8, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

ADMINISTRATIVE CHANGES

A.1 In the conversion of the CNP Current Technical Specifications (CTS) to the plant specific Improved Technical Specifications (ITS), certain changes (wording preferences, editorial changes, reformatting, revised numbering, etc.) are made to obtain consistency with NUREG-1431, Rev. 2, "Standard Technical Specifications-Westinghouse Plants" (ISTS).

These changes are designated as administrative changes and are acceptable because they do not result in technical changes to the CTS.

A.2 CTS 3.3.1, "Reactor Trip System Instrumentation," requires the Reactor Trip System instrumentation channels and interlocks shown in Table 3.3-1 to be OPERABLE. ITS 3.3.8, "Boron Dilution Monitoring Instrumentation (BDMI)," requires one source range neutron flux monitoring channel to be OPERABLE. This changes the CTS by having a separate Specification for the Boron Dilution Monitoring Instrumentation, in lieu of including it with the Reactor Trip System Instrumentation Specification.

This change is acceptable because the technical requirements for the source range neutron flux monitoring channel of the Boron Dilution Monitoring Instrumentation are maintained with the change in format. The Boron Dilution Monitoring Instrumentation Specification continues to require the OPERABILITY of the source range neutron flux monitoring channel of the Boron Dilution Monitoring Instrumentation. This change is designated as administrative because it does not result in a technical change to the CTS.

A.3 CTS 4.3.1.1.1 and Table 4.3-1 require that the source range neutron flux monitoring channel be demonstrated OPERABLE by performance of a CHANNEL FUNCTIONAL TEST once per 31 days and each unit startup, if not performed in the previous 7 days. ITS 3.3.8 does not include this Surveillance Requirement. This changes the CTS by deleting the CHANNEL FUNCTIONAL TEST requirement for the source range neutron flux monitoring channel of the Boron Dilution Monitoring Instrumentation.

The CTS requirement to perform a CHANNEL FUNCTIONAL TEST only applies to the Reactor Trip System function of the source range neutron flux monitor channels. For the Boron Dilution Monitoring Instrumentation requirements, the source range neutron flux channel only provides indication; there is no trip or alarm feature assumed. Thus, to meet the Boron Dilution Monitoring Instrumentation requirements, a CHANNEL FUNCTIONAL TEST is not required. This is also consistent with the MODE 6 source range neutron flux monitoring requirements in ITS 3.9.2. ITS 3.9.2 does not require a CHANNEL FUNCTIONAL TEST, since the source range neutron flux monitors safety function requirements in MODE 6 do not require any trip or alarm features. This change is designated as administrative because it does not result in technical changes to the CTS.

A.4 CTS 4.3.1.1.3 and the * footnote require REACTOR TRIP SYSTEM RESPONSE TIME testing of "each" reactor trip function. ITS 3.3.8 does not include response time testing for the source range neutron flux monitoring channel of the Boron

DISCUSSION OF CHANGES
ITS 3.3.8, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

Dilution Monitoring Instrumentation. This changes the CTS by clearly identifying that the REACTOR TRIP SYSTEM RESPONSE TIME testing does not apply to the source range neutron flux monitoring channel of the Boron Dilution Monitoring Instrumentation.

The purpose of the CTS 4.3.1.1.3 requirements is to ensure that the actuation response times are less than or equal to the maximum values assumed in the accident analysis. UFSAR Table 7.2-6, which was previously in CTS 3.3.1 as Table 3.3-2, only specifies response times for those Reactor Trip System Functions assumed in the CNP safety analysis. CTS Table 3.3-2 did not include response times for any of the CTS 3.3.1 Source Range Neutron Flux Functions. Therefore, this change is acceptable since REACTOR TRIP SYSTEM RESPONSE TIME testing of the Source Range Neutron Flux Functions was not required. These response times were removed from CTS 3.3.1 and placed under CNP control as documented in the NRC Safety Evaluation for License Amendments 202 (Unit 1) and 187 (Unit 2). In addition, UFSAR Table 7.2-6 currently does not require response time testing of any of the CTS 3.3.1 Source Range Neutron Flux Functions. This change is designated as administrative because it does not result in technical changes to the CTS.

A.5 CTS Table 3.3-1 Action 5.a provides the allowance to continue to add water from the Refueling Water Storage Tank (RWST) provided the RWST boron concentration is greater than the minimum required by other Technical Specifications. CTS Table 3.3-1 Action 5.c provides the allowance to not isolate the RWST in MODE 5 provided RWST boron concentration is greater than or equal to Reactor Coolant System (RCS) boron concentration or greater than or equal to the minimum required by another Technical Specification. Note 2 to ITS 3.3.8 Required Action B.1 and the Note to ITS 3.3.8 Required Action B.2.2.1 provide these same allowances, but require that RWST boron concentration be ≥ 2400 ppm. This changes the CTS by stating the applicable limit from the other Technical Specifications in this Technical Specification.

The purpose of the reference to the other Technical Specifications is to ensure the proper RWST boron concentration limit is met. However, the other Technical Specifications referenced CTS 3.1.2.8.b.2 and 3.1.2.7.b.2, both require a minimum RWST boron concentration limit of 2400 ppm. Therefore, stating the actual limit in this Technical Specification in lieu of referencing the other Technical Specification is acceptable. This change is designated as administrative because it does not result in technical changes to the CTS.

MORE RESTRICTIVE CHANGES

M.1 CTS Table 3.3-1 "MINIMUM CHANNELS OPERABLE" column only requires one Source Range Neutron Flux monitoring channel to be OPERABLE in MODES 3, 4, and 5. Furthermore, CTS Table 3.3-1 ACTION 5, which is the ACTION referenced in Table 3.3-1 for the Source Range, Neutron Flux Functional Unit in MODES 3, 4, and 5, is only applicable when the number of channels OPERABLE is one less than required by the Minimum Channels OPERABLE requirement. Thus, while the CTS Table 3.3-1 states that the Source Range Neutron Flux Functional Unit includes "2" in the Total Number Of Channels column, only 1

DISCUSSION OF CHANGES
ITS 3.3.8, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

channel is required to be OPERABLE by CTS 3.3-1. ITS LCO 3.3.8 requires two source range neutron flux monitoring channels to be OPERABLE in MODES 3, 4, and 5. In addition, ITS 3.3.8 ACTION A provides the requirements when one of the two channels are inoperable, and requires the inoperable channel to be restored to OPERABLE status in 7 days. If the inoperable channel is not restored, then the requirements of ITS 3.3.8 ACTION B are required. These requirements are similar to those required by the CTS when two channels are inoperable, except ITS 3.3.8 Required Action B.2.1 provides an allowance that if only one channel is inoperable, then the ITS 3.3.8 Required Actions B.2.2.1 and B.2.2.2 (which are consistent with CTS Table 3.3-1 Actions 5.b and 5.c) are not required. This changes the CTS by requiring an additional source range neutron flux monitoring channel to be OPERABLE in MODES 3, 4, and 5, and provides appropriate Actions when the additional channel is inoperable.

The purpose of the additional channel requirement of ITS LCO 3.3.8 is to provide single failure protection. The change is acceptable since an additional source range neutron flux monitoring channel will be required to assist the operator in recognizing a boron dilution event. This change is designated as more restrictive because more source range neutron flux monitoring channels are required in the ITS than in the CTS.

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 1 – Removing Details of System Design and System Description, Including Design Limits)* CTS Table 3.3-1 for Reactor Trip System instrumentation has three columns stating various requirements for the Source Range Neutron Flux Functions. These columns are labeled, "TOTAL NO. OF CHANNELS," "CHANNELS TO TRIP," and "MINIMUM CHANNELS OPERABLE." For CTS Table 3.3-1 Function 6.b, the "CHANNELS TO TRIP" column entry is "0" (i.e., the Function is required to provide an indication only function and is not required to have a trip function). ITS 3.3.8 does not retain the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns. This changes the CTS by moving the information of the "TOTAL NO. OF CHANNELS" and "CHANNELS TO TRIP" columns to the Bases. The "CHANNELS TO TRIP" information is presented in the form of a description of the indication requirements for the source range neutron flux channel of the Boron Dilution Monitoring Instrumentation.

The removal of these details, which are related to system design, from the Technical Specifications, is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirement for the number of required channels and the appropriate Condition to enter if a required channel becomes inoperable. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases

DISCUSSION OF CHANGES
ITS 3.3.8, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because information relating to system design is being removed from the Technical Specifications.

LA.2 Not used.

LA.3 *(Type 3 – Removing Procedural Details for Meeting TS Requirements or Reporting Requirements)* CTS Table 3.3-1 Action 5.c requires closure of the isolation valves for unborated sources "to the Chemical and Volume Control System." CTS Table 3.3-1 Action 5.c also requires the RWST to be isolated "from the Reactor Coolant System" if RWST boron concentration is not within the required limit in MODE 5. ITS 3.3.8 Required Action B.2.2.1 requires the unborated water source valves to be closed including the RWST in MODE 5 with RWST boron concentration < 2400 ppm and less than the boron concentration in the Reactor Coolant System. This changes the CTS by moving the details of which unborated water source isolation valves and RWST valves to close from the Technical Specifications to the Bases.

The removal of these details for performing actions from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. The ITS still retains the requirements for closure of the unborated water source isolation valves and isolation of the RWST. Also, this change is acceptable because the removed information will be adequately controlled in the ITS Bases. Changes to the Bases are controlled by the Technical Specification Bases Control Program in Chapter 5. This program provides for the evaluation of changes to ensure the Bases are properly controlled. This change is designated as a less restrictive removal of detail change because procedural details for meeting Technical Specification requirements are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

L.1 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 Action 5.a specifies the compensatory action for an inoperable required source range neutron flux monitoring channel of the Boron Dilution Monitoring Instrumentation. One of the compensatory actions is the immediate suspension of positive reactivity changes. ITS 3.3.8 Required Action B.1 requires the immediate suspension of operations involving positive reactivity additions. ITS 3.3.8 Required Action B.1 is modified by Note 1, which states that unit temperature changes are allowed provided the temperature change is accounted for in the calculated SHUTDOWN MARGIN (SDM). This changes the CTS compensatory actions by allowing a positive reactivity change due to unit temperature changes, as long as SDM limitations are met.

The purpose of this CTS Table 3.3-1 Action 5.a is to suspend any positive reactivity additions that could affect the SDM of the reactor core. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to

DISCUSSION OF CHANGES
ITS 3.3.8, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition. Note 1 to ITS 3.3.8 Required Action B.1 will allow positive reactivity changes that are associated with temperature changes, provided the change is accounted for in the SDM calculation. The applicable requirements for SDM are specified in ITS LCO 3.1.1, "SHUTDOWN MARGIN (SDM)." The current and proposed actions may result in an overall reduction in SDM, but continue to ensure the required SDM is maintained and provides acceptable margin to maintaining subcritical operation. Therefore, these limitations are considered acceptable. The ITS Bases also indicate that introduction of temperature changes including temperature increases when operating with a positive moderator temperature coefficient must also be evaluated to ensure they do not result in a loss of required SDM. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.2 *(Category 4 – Relaxation of Required Action)* CTS Table 3.3-1 Action 5.a provides the allowance to add water from the Refueling Water Storage Tank (RWST) provided the RWST boron concentration is "greater than" the minimum required by other Technical Specifications. Note 2 to ITS 3.3.8 Required Action B.1 allows water to be added from the RWST provided the RWST boron concentration is "≥ 2400 ppm." This changes the CTS by allowing water to be added from the RWST provided the RWST boron concentration is "greater than or equal to" the required limit, instead of "greater than" the required limit.

The purpose of this CTS Table 3.3-1 Action 5.a is to suspend any positive reactivity additions that could affect the SDM of the reactor core. This change is acceptable because the Required Actions are used to establish remedial measures that must be taken in response to the degraded conditions in order to minimize risk associated with continued operation while providing time to repair inoperable features. The Required Actions are consistent with safe operation under the specified Condition. Note 2 to ITS 3.3.8 Required Action B.1 will allow water to be added from the RWST provided the RWST boron concentration is greater than or equal to the required limit. These required RWST boron concentration limits are established to ensure that SDM is maintained. This change is acceptable since the addition of water from the RWST, with RWST concentration equal to the required limit, ensures the required SDM is maintained and provides acceptable margin to maintaining subcritical operation. This change is designated as less restrictive because less stringent Required Actions are being applied in the ITS than were applied in the CTS.

L.3 *(Category 11 – 18 to 24 Month Surveillance Frequency Change, Channel Calibration Type)* CTS Table 4.3-1 requires a CHANNEL CALIBRATION of the Source Range Neutron Flux instrumentation every 18 months. ITS SR 3.3.8.2 requires the performance of a CHANNEL CALIBRATION for the required source range neutron flux monitoring channel every 24 months. This changes the CTS by extending the Frequency of the Surveillance from 18 months (i.e., a maximum of 22.5 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2) to 24 months (i.e., a maximum of 30 months accounting for the allowable grace period specified in CTS 4.0.2 and ITS SR 3.0.2).

DISCUSSION OF CHANGES
ITS 3.3.8, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

The purpose of the CHANNEL CALIBRATION requirement of CTS Table 4.3-1 is to ensure the required source range neutron flux monitoring channel of the Boron Dilution Monitoring Instrumentation will function as designed during an analyzed event. Extending the SR Frequency is acceptable because the source range neutron flux monitoring channel of the Boron Dilution Monitoring Instrumentation is designed to be highly reliable. Furthermore, a CHANNEL CHECK for the required source range neutron flux monitoring channel of the Boron Dilution Monitoring Instrumentation is performed on a more frequent basis (ITS SR 3.3.8.1). The CHANNEL CHECK provides a qualitative demonstration of the OPERABILITY of the instrument.

This change was evaluated in accordance with the guidance provided in NRC Generic Letter No. 91-04, "Changes in Technical Specification Surveillance Intervals to Accommodate a 24-Month Fuel Cycle," dated April 2, 1991. The impacted source range neutron flux monitoring instrumentation was evaluated through a failure analysis and a qualitative drift analysis:

CTS Table 4.3-1, Functional Unit 6, Source Range, Neutron Flux

This function is performed by SRM Neutron Flux Detectors (Westinghouse Model WL-23706), SRM Neutron Flux Drawers (Westinghouse Model 6051D50G01), a Weschler HX-252 Indicator, and a Tracor Westronics Recorders (Model 4200 (Unit 1) and Model 4220 (Unit 2)). These system components were not evaluated for drift but were justified for extension based on engineering judgment. SRMs satisfy their design function if calibration is sufficient to ensure neutron level is observable when the reactor is shutdown. This is verified by CHANNEL CHECKS at least every 12 hours when the reactor is shutdown. The SRMs must be operational in MODE 2 below the P-6 interlock. SRM response to reactivity changes is distinctive and well known to plant operators, and SRM response is closely monitored during these reactivity changes. Additionally, since there is very little neutron activity during loading, refueling, shutdown, and approach to criticality, a neutron source is placed in the reactor during approach to criticality to provide a minimum observable SRM neutron count rate attributable to core neutrons of at least 2 counts per second. During plant shutdowns and startups, overlap between the IRM channels and the SRM channels is routinely verified to ensure performance of the SRM channels. There is also more frequent testing, including a COT every 184 days in MODES 1 and 2 and every 31 days in MODES 3, 4, and 5, to verify operation of the electronics for the source range trip. Therefore, any substantial degradation of the SRMs will be evident and long term drift has no impact on the accuracy of this circuit. The results of these analyses will support a 24 month Surveillance interval.

Based on the design of the instrumentation and the qualitative drift evaluations, it is concluded that the impact, if any, from this change on system availability is minimal. A review of the Surveillance test history was performed to validate the above conclusion. Those tests that were classified as failures were evaluated and primarily involved components found with out of tolerance calibration data. The other failures were reviewed and those failures did not invalidate the conclusion that the impact, if any, on system availability from this change is minimal. In addition, the proposed 24 month Surveillance Frequency, if performed at the maximum interval allowed by ITS SR 3.0.2 (30 months) does not invalidate any assumptions in the unit licensing basis. This change is designated as less restrictive because Surveillances will be performed less frequently under the ITS than under the CTS.

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Improved Standard Technical Specifications (ISTS) Markup and Justification for Deviations (JFDs)

BDPS
3.3.9

CTS

3.3 INSTRUMENTATION

3.3.9 Boron Dilution Protection System (BDPS)

LCO 3.3.9 Two trains of the BDPS shall be OPERABLE.

APPLICABILITY: MODES 2, 3, 4, and 5.

- NOTE -
The boron dilution flux doubling signal may be blocked in MODES 2 and 3 during reactor startup.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One train inoperable.	A.1 Restore train to OPERABLE status.	72 hours
B. Two trains inoperable. OR Required Action and associated Completion Time of Condition A not met.	- NOTE - Plant temperature changes are allowed provided the temperature change is accounted for in the calculated SDM. B.1 Suspend operations involving positive reactivity additions. AND B.2.1 Restore one train to OPERABLE status. OR	 Immediately 1 hour

CTS

(2) **INSERT 1**

LCO 3.3.1.1, Table 3.3-1 Function 6.B — Two source range neutron flux monitoring channels

(2) **INSERT 1A**

source range neutron flux monitoring channel

(2) **INSERT 1B**

source range neutron flux monitoring channels

(5) **INSERT 2**

Table 3.3-1 Action 5 — 2. Addition of water from the refueling water storage tank (RWST) is allowed provided RWST boron concentration is $\geq$ 2400 ppm.

BDMS
3.3.9

CTS

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
	B.2.2.1 Close unborated water source isolation valves.	1 hour
	AND	
	B.2.2.2 Perform SR 3.1.1.1.	1 hour AND Once per 12 hours thereafter

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.3.9.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.9.2	Perform COT.	[92] days
SR 3.3.9.3	- NOTE - Neutron detectors are excluded from CHANNEL CALIBRATION. Perform CHANNEL CALIBRATION.	[18] months

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CTS

(7) INSERT 3

Table 3.3-1 Action 5

- NOTE -
The RWST is considered to be an unborated water source in MODE 5 if the RWST boron concentration is < 2400 ppm and less than the Reactor Coolant System boron concentration.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.3.8, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

1. The numbering of ISTS 3.3.9, Boron Dilution Protection System (BDPS), has been revised to reflect the plant specific numbering (i.e., ITS 3.3.8). Corresponding changes have also been made to the ISTS 3.3.9 Header, LCO, Surveillance Requirements and page numbers. Also, the title of the Specification has been changed since an actual "Protection System" does not exist at CNP.

2. ISTS LCO 3.3.9 requires two trains of the BDPS to be OPERABLE. At CNP Units 1 and 2, mitigation of boron dilution accidents is provided by operator action in response to source range neutron flux monitor indication. Therefore, to achieve consistency with the CNP Units 1 and 2 design, analysis, and licensing basis, and to include an additional channel for single failure protection, the ISTS 3.3.9 requirements are revised, in ITS LCO 3.3.8, to require two source range neutron flux monitoring channels to be OPERABLE. In addition, the plant specific title of the channels has been used in lieu of the generic term "train," where applicable. Furthermore, since the source range neutron flux monitor provides indication only, ISTS SR 3.3.9.2, the COT, has been deleted and the subsequent SR has been renumbered.

3. The brackets are removed and the proper plant specific information/value is provided.

4. The ISTS 3.3.9 Applicability Note allows the boron dilution flux doubling signal to be blocked in MODES 2 and 3 during reactor startup. This Note is not included in ITS 3.3.8 since the CNP Units 1 and 2 design does not include a boron dilution flux doubling signal.

5. A second Note is added to ISTS 3.3.9 Required Action B.1 to allow the addition of water from the Refueling Water Storage Tank (RWST) provided RWST boron concentration is ≥ 2400 ppm. This change is made to reflect the allowances of the CNP Units 1 and 2 CTS. As a result of this addition, the existing ISTS 3.3.9 Required Action A.1 Note is renumbered as Note 1.

6. Not used.

7. ITS 3.3.8 Required Actions B.2.2.1 Note has been added, consistent with current licensing basis. The Note requires addition of water from the RWST to be considered an unborated water source in MODE 5 if RWST boron concentration is < 2400 ppm and less than the Reactor Coolant System (RCS) boron concentration. If RWST boron concentration is < 2400 ppm and less than the RCS boron concentration, the RWST is considered an unborated source and is required to be isolated in accordance with ITS 3.3.8 Required Action B.2.2.1. A previous Technical Specification Change Request (dated May 21, 1999) stated that the requirement to isolate the RWST was not included for MODES 3 and 4 since, with RWST boron concentration not within limits, the Actions for CTS 3/4.1.2.8 (which are included in the ACTIONS of ITS LCO 3.5.4) would require a shutdown to MODE 5 if RWST boron concentration was not restored to within limits in the required allowed outage time. After the shutdown is complete, the MODE 5 requirement to isolate the RWST from the RCS would apply. These allowances provided in this Technical Specification Change Request were approved in License Amendments 230 (Unit 1) and 213 (Unit 2), dated October 21, 1999.

JUSTIFICATION FOR DEVIATIONS
ITS 3.3.8, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

8. This format correction has been made consistent with the Writer's Guide for the Improved Standard Technical Specifications, NEI 01-03.

9. The reference to "Plant" in the Note to ISTS 3.3.9 Required Action B.1 is changed to "Unit" to reflect CNP Units 1 and 2 specific nomenclature.

Improved Standard Technical Specifications (ISTS) Bases Markup and Justification for Deviations (JFDs)

BDPS
B 3.3.9

B 3.3 INSTRUMENTATION

B 3.3.9 Boron Dilution Protection System (BDPS)

BASES

BACKGROUND

The primary purpose of the BDPS is to mitigate the consequences of the inadvertent addition of unborated primary grade water into the Reactor Coolant System (RCS) when the reactor is in a shutdown condition (i.e., MODES 2, 3, 4, and 5).

The BDPS utilizes two channels of source range instrumentation. Each source range channel provides a signal to both trains of the BDPS. A unit computer is used to continuously record the counts per minute provided by these signals. At the end of each minute, an algorithm compares the counts per minute value (flux rate) of that 1 minute interval with the counts per minute value for the previous nine, 1 minute intervals. If the flux rate during a 1 minute interval is greater than or equal to twice the flux rate during any of the prior nine 1 minute intervals, the BDPS provides a signal to initiate mitigating actions.

Upon detection of a flux doubling by either source range instrumentation train, an alarm is sounded to alert the operator and valve movement is automatically initiated to terminate the dilution and start boration. Valves that isolate the refueling water storage tank (RWST) are opened to supply 2000 ppm borated water to the suction of the charging pumps, and valves which isolate the Chemical and Volume Control System (CVCS) are closed to terminate the dilution.

APPLICABLE SAFETY ANALYSES

The BDPS senses abnormal increases in source range counts per minute (flux rate) and actuates CVCS and RWST valves to mitigate the consequences of an inadvertent boron dilution event as described in FSAR, Chapter 15 (Ref. 1). The accident analyses rely on automatic BDPS actuation to mitigate the consequences of inadvertent boron dilution events.

The BDPS satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

LCO 3.3.9 provides the requirements for OPERABILITY of the instrumentation and controls that mitigate the consequences of a boron dilution event. Two redundant trains are required to be OPERABLE to provide protection against single failure.

Because the BDPS utilizes the source range instrumentation as its detection system, the OPERABILITY of the detection system, (i.e., the

(2) **INSERT 1**

provide indication of inadvertent positive reactivity changes when the reactor is in a shutdown condition (i.e., MODES 3, 4, and 5). Based on this indication, operator action can be taken to

(2) **INSERT 2**

The source range neutron flux monitors are used to monitor the core reactivity condition. The installed source range neutron flux monitors are part of the Nuclear Instrumentation System. These detectors are located external to the reactor vessel and detect neutrons leaking from the core.

The installed source range neutron flux monitors are BF3 detectors operating in the proportional region of the gas filled detector characteristic curve. The detectors monitor the neutron flux in counts per second. The instrument range covers six decades of neutron flux (1E+6 cps). The detectors also provide continuous visual indication in the control room and an audible count rate (selectable between the source range neutron flux monitor channels) to alert operators to a possible dilution accident.

(2) **INSERT 3**

The source range neutron flux monitor channels of the BDMI are credited in the boron dilution accident analysis in the UFSAR (Ref. 1) to alert the operators of an event that could lead to an inadvertent criticality.

(1) (2) **INSERT 4**

two source range neutron flux monitor channels to provide protection against single failure. To be considered OPERABLE, each source range neutron flux monitor channel must provide visual neutron flux indication in the control room.

BASES

LCO (continued)

flux doubling algorithm, the alarms, and signals to the various valves) for one SRM is also required for each train in the system to be considered OPERABLE. Therefore, with both SRMs inoperable for supporting the BDPS, both trains are inoperable.

APPLICABILITY

The BDPS must be OPERABLE in MODES 2, 3, 4, and 5 because the safety analysis identifies this system as the primary means to mitigate an inadvertent boron dilution of the RCS.

The BDPS OPERABILITY requirements are not applicable in MODES 1 and 2 because an inadvertent boron dilution would be terminated by a source range trip, a trip on the Power Range Neutron Flux - High (low setpoint nominally 25% RTP), or Overtemperature ΔT. These RTS Functions are discussed in LCO 3.3.1, "RTS Instrumentation."

In MODE 6, a dilution event is precluded by locked valves that isolate the RCS from the potential source of unborated water (according to LCO 3.9.2, "Unborated Water Source Isolation Valves").

The Applicability is modified by a Note that allows the boron dilution flux doubling signal to be blocked during reactor startup in MODES 2 and 3. Blocking the flux doubling signal is acceptable during startup while in MODE 3 provided the reactor trip breakers are closed with the intent to withdraw rods for startup.

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by the unit specific calibration procedure. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination of setpoint drift is generally made during the performance of a COT when the process instrumentation is set up for adjustment to bring it to within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

A.1

With one train of the BDPS OPERABLE, Required Action A.1 requires that the inoperable train must be restored to OPERABLE status within 72 hours. In this Condition, the remaining the BDPS train is adequate to provide protection. The 72 hour Completion Time is based on the BDPS

(2) **INSERT 5**

to indicate the need for operator action

(1) **INSERT 6**

the requirements of LCO 3.9.2, "Nuclear Instrumentation," ensure that adequate instrumentation is available to indicate the need for operator action to mitigate an inadvertent dilution of the RCS.

(1) **INSERT 6A**

source range neutron flux monitoring channel inoperable

(1) **INSERT 6B**

source range neutron flux monitoring channel

(1) **INSERT 6C**

acceptable due to the low probability of a boron dilution accident and that one source range neutron flux monitoring channel remains OPERABLE.

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BDPS
B 3.3.9

BASES

ACTIONS (continued)

Function and is consistent with Engineered Safety Feature Actuation System Completion Times for loss of one redundant train. Also, the remaining OPERABLE train provides continuous indication of core power status to the operator, has an alarm function, and sends a signal to both trains of the BDPS to assure system actuation.

B.1, B.2.1, B.2.2.1, and B.2.2.2

With two trains inoperable, or the Required Action and associated Completion Time of Condition A not met, the initial action (Required Action B.1) is to suspend all operations involving positive reactivity additions immediately. This includes withdrawal of control or shutdown rods and intentional boron dilution. A Completion Time of 1 hour is provided to restore one train to OPERABLE status.

As an alternate to restoring one train to OPERABLE status (Required Action B.2.1), Required Action B.2.2.1 requires valves listed in LCO 3.9.2 (Required Action A.2) to be secured to prevent the flow of unborated water into the RCS. Once it is recognized that two trains of the BDPS are inoperable, the operators will be aware of the possibility of a boron dilution, and the 1 hour Completion Time is adequate to complete the requirements of LCO 3.9.2.

Required Action B.2.2.2 accompanies Required Action B.2.2.1 to verify the SDM according to SR 3.1.1.1 within 1 hour and once per 12 hours thereafter. This backup action is intended to confirm that no unintended boron dilution has occurred while the BDPS was inoperable, and that the required SDM has been maintained. The specified Completion Time takes into consideration sufficient time for the initial determination of SDM and other information available in the control room related to SDM.

Required Action (?) is modified by a note which permits plant temperature changes provided the temperature change is accounted for in the calculated SDM. Introduction of temperature changes, including temperature increases when a positive MTC exists, must be evaluated to ensure they do not result in a loss of required SDM.

SURVEILLANCE REQUIREMENTS

The BDPS trains are subject to a COT and a CHANNEL CALIBRATION.

SR 3.3.9.1

Performance of the CHANNEL CHECK once every 12 hours ensures that gross failure of instrumentation has not occurred. A CHANNEL CHECK

1 **INSERT 7**

With two source range neutron flux monitoring channels

2 **INSERT 8**

isolation valves for unborated water sources to the Chemical and Volume Control System

INSERT 8A

In addition, in MODE 5, if the RWST boron concentration is < 2400 ppm and less than the Reactor Coolant System (RCS) boron concentration, the RWST is considered an unborated water source and is required to be isolated from the RCS.

1 **INSERT 9**

two source range neutron flux monitoring channels

1 **INSERT 10**

Not Used

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(1) INSERT 11

Note 2 permits addition of water from the refueling water storage tank (RWST) provided the RWST boron concentration is ≥ 2400 ppm. This boron concentration limit is established to meet SDM requirements. Therefore, SDM is maintained when water is added to the RCS from the RWST provided RWST boron concentration is ≥ 2400 ppm.

Required Action B.2.2.1 is modified by a Note stating the RWST is considered to be an unborated water source only if the RWST boron concentraion is < 2400 ppm and less than the RCS boron concentration, in MODE 5. In MODES 3 and 4, these actions are not applicable since, with RWST boron concentration < 2400 ppm, the ACTIONS of LCO 3.5.4 would require a shutdown to MODE 5 if RWST boron concentration cannot be restored to within limits in 8 hours. After the shutdown to MODE 5 is complete, Required Actions B.3.1 and B.3.2 would apply.

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BASES

SURVEILLANCE REQUIREMENTS (continued)

is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying that the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the unit staff based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the senor or the signal processing equipment has drifted outside its limit.

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

SR 3.3.9.2

SR 3.3.9.2 requires the performance of a COT every [92] days, to ensure that each train of the BDPS and associated trip setpoint are fully operational. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This test shall include verification that the boron dilution alarm setpoint is equal to or less than an increase of twice the count rate within a 10 minute period. The Frequency of [92] days is consistent with the requirements for source range channels in WCAP-10271-P-A (Ref. 2).

SR 3.3.9.3

SR 3.3.9.3 is the performance of a CHANNEL CALIBRATION every [18] months. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor except the neutron detector of the SRM circuit. The test verifies that the channel responds to a measured

(I) (M) BDPS (1)
B 3.3.9 (8) (1)

BASES

SURVEILLANCE REQUIREMENTS (continued)

(4) INSERT 12

parameter within the necessary range and accuracy. For the BDPS, the CHANNEL CALIBRATION shall include verification that on a simulated or actual boron dilution flux doubling signal the centrifugal charging pump suction valves from the RWST open, and the normal CVCS volume control tank discharge valves close in the required closure time of ≤ 20 seconds. (1)

The Frequency is based on operating experience and consistency with the typical industry refueling cycle. (2)

REFERENCES

1. (4) FSAR, Chapter [15]. Section 14.1.5 (2)

2. WCAP-10271-P-A, Supplement 2, Revision 1, June 1990. (2)

TSTF-411 Rev. 1 changes not shown

(4) **INSERT 12**

The CHANNEL CALIBRATION also includes obtaining the detector plateau or preamp discriminator curves, evaluating those curves, and comparing the curves to the manufacturer's data. This SR is modified by a Note that states that neutron detectors are excluded from the CHANNEL CALIBRATION.

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JUSTIFICATION FOR DEVIATIONS
ITS 3.3.8 BASES, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

1. Changes are made to reflect changes made to the Specification.
2. Changes are made (additions, deletions, and/or changes) to the ISTS Bases, which reflect the plant specific nomenclature, number, reference, system description, analysis, or licensing basis description.
3. The brackets are removed and the proper plant specific information/value is provided.
4. Changes are made to reflect the Specification and for consistency with similar Bases for the source range monitors.
5. Grammatical/typographical error corrected.
6. The paragraph has been moved since it is discussing modifications to Required Action B.1.

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
ITS 3.3.8, BORON DILUTION MONITORING INSTRUMENTATION (BDMI)

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 9

Relocated/Deleted Current Technical Specifications (CTS)

CTS 3/4.3.3.1, Radiation Monitoring Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits.

APPLICABILITY: As shown in Table 3.3-6.

ACTION:

a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable. LA.1

b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6. LA.2

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-3.

CTS 3/4.3.3.1

TABLE 3.3-6
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION	
1. Modes 1, 2, 3 & 4					LA.1
A. Area Monitors					
i. Upper Containment* (VRS 1101/1201)	1	N/A	≤ 54 mR/hr	21	
ii. Containment High Range (VRA 1310/1410)	2	≤ 10R/hr	N/A	22A	See ITS 3.3.3
B. Process Monitors					See ITS 3.3.6 and ITS 3.4.15
i. Particulate Channel* (ERS 1301/1401)	1	N/A	≤ 2.52 μCi	20	
ii. Noble Gas Channel* (ERS 1305/1405)	1	N/A	≤ 4.4x10⁻³ μCi/cc	20	
C. Noble Gas Effluent Monitors					LA.1
i. Unit Vent Effluent Monitors					
a. Low Range (VRS 1505)	-------------(see the ODCM)-------------				LA.2
b. Mid Range (VRS 1507)	1	N/A	N/A	22B	LA.2
c. High Range (VRS 1509)	1	N/A	N/A	22B	
ii. Steam Generator PORV					LA.1
a. MRA 1601 (Loop 1)	1	N/A	N/A	22B	
b. MRA 1602 (Loop 4)	1	N/A	N/A	22B	
c. MRA 1701 (Loop 2)	1	N/A	N/A	22B	
d. MRA 1702 (Loop 3)	1	N/A	N/A	22B	
iii. Gland Steam Condenser Vent Monitor					LA.2
a. Low Range (SRA 1805)	-------------(see the ODCM)-------------				
iv. Steam Jet Air Ejector Vent Monitors					LA.1
a. Low Range (SRA 1905)	-------------(see the ODCM)-------------				LA.2
b. Mid Range (SRA 1907)	1	N/A	N/A	22B	LA.2
c. High Range (SRA 1909)	1	N/A	N/A	22B	LA.1

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3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-6 (Continued)
RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION
2. Mode 6				
A. Train A	any 2/3 channels			22
i. Containment Area* Radiation Channel (VRS-1101)		N/A	≤ 54 mR/hr	
ii. Particulate Channel* (ERS-1301)		N/A	≤ 2.52 μCi	
iii. Noble Gas Channel* (ERS-1305)		N/A	≤ 4.4×10^{-3} μCi/cc	
B. Train B	any 2/3 channels			22
i. Containment Area* Radiation Channel (VRS-1201)		N/A	≤ 54 mR/hr	
ii. Particulate Channel* (ERS-1401)		N/A	≤ 2.52 μCi	
iii. Noble Gas Channel* (ERS-1405)		N/A	≤ 4.4×10^{-3} μCi/cc	
3. Mode***				
A. Spent Fuel Storage (RRC-330)	1	≤ 15 mR/hr	≤ 15 mR/hr	21

LA.1

See ITS 3.3.6

LA.1

* This specification only applies during PURGE
*** With fuel in storage pool or building

LA.1

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 20 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.4.6.1. — See ITS 3.4.15

ACTION 21 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per day. — LA.1

ACTION 22 - With the number of channels OPERABLE less than required by the Minimum Channels Operable requirements, comply with the ACTION requirements of Specification 3.9.9. This ACTION is not required during the performance of containment integrated leak rate test. — See ITS 3.3.6

ACTION 22A- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements: — See ITS 3.3.3

1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status. — See ITS 5.6

3. Technical Specification Section 3.0.3 is Not Applicable. — See ITS 3.3.3

ACTION 22B- With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements. — LA.1

1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or

2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.

3. In the event of an accident involving radiological releases initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours.

4. Technical Specification Section 3.0.3 is Not Applicable.

CTS 3/4.3.3.1

TABLE 4.3-3
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

OPERATION MODE/INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	APPLICABLE MODES
1. Modes 1, 2, 3 & 4				
A. Area Monitors				
i. Upper Containment (VRS 1101/1201)	S*	R	Q	1, 2, 3, 4
ii. Containment High Range (VRA 1310/1410)	S	R	Q	1, 2, 3, 4
B. Process Monitors				
i. Particulate Channel (ERS 1301/1401)	S*	R	Q	1, 2, 3, 4
C. Noble Gas Effluent Monitors				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 1505)	(see the ODCM)			
b. Mid Range (VRS 1507)	S	R	N/A	1, 2, 3, 4
c. High Range (VRS 1509)	S*	R	N/A	1, 2, 3, 4
ii. Steam Generator PORV				
a. MRA 1601 (Loop 1)	S*	R	Q	1, 2, 3, 4
b. MRA 1602 (Loop 4)	S*	R	Q	1, 2, 3, 4
c. MRA 1701 (Loop 2)	S*	R	Q	1, 2, 3, 4
d. MRA 1702 (Loop 3)	S*	R	Q	1, 2, 3, 4
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 1805)	(see the ODCM)			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 1905)	(see the ODCM)			
b. Mid Range (SRA 1907)	S	R	Q	1, 2, 3, 4
c. High Range (SRA 1909)	S*	R	N/A	1, 2, 3, 4

LA.2

See ITS 3.3.3

See ITS 3.4.15

LA.1

LA.2

LA.2

LA.1

LA.2

LA.1

LA.2

LA.2

LA.1

CTS 3/4.3.3.1

TABLE 4.3-3 (Continued)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

OPERATION MODE/INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	APPLICABLE MODES
2. Mode 6				
A. Train A				6
i. Containment Area Radiation Channel (VRS 1101)	S*	R	Q	
ii. Particulate Channel (ERS 1301)	S*	R	Q	
iii. Noble Gas Channel (ERS 1305)	S*	R	Q	
B. Train B				6
i. Containment Area Radiation Channel (VRS 1201)	S*	R	Q	
ii. Particulate Channel (ERS 1401)	S*	R	Q	
iii. Noble Gas Channel (ERS 1405)	S*	R	Q	
3. Mode **				
A. Spent Fuel Storage (RRC-330)	S	R	Q	**

LA.1

See ITS 3.3.6

See ITS 3.3.6 and ITS 3.4.15

See ITS 3.3.6

See ITS 3.3.6 and ITS 3.4.15

LA.1

* To include SOURCE CHECK per T/S Section 1.27

** With fuel in storage pool or building

See ITS 3.3.6 and ITS 3.4.15

LA.1

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3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

3/4.3.3 MONITORING INSTRUMENTATION

RADIATION MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.1 The radiation monitoring instrumentation channels shown in Table 3.3-6 shall be OPERABLE with their alarm/trip setpoints within the specified limits.

APPLICABILITY: As shown in Table 3.3-6.

ACTION: LA.1

a. With a radiation monitoring channel alarm/trip setpoint exceeding the value shown in Table 3.3-6, adjust the setpoint to within the limit within 4 hours or declare the channel inoperable. LA.2

b. With one or more radiation monitoring channels inoperable, take the ACTION shown in Table 3.3-6.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.1 Each radiation monitoring instrumentation channel shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations during the modes and at the frequencies shown in Table 4.3-3.

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TABLE 3.3-6

RADIATION MONITORING INSTRUMENTATION

(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION
1. Modes 1, 2, 3 & 4				
A. Area Monitors				
i. Upper Containment* (VRS 2101/2201)	1	N/A	≤ 54 mR/hr	21
ii. Containment High Range (VRA 2310/2410)	2	≤ 10R/hr	N/A	22A
B. Process Monitors				
i. Particulate Channel* (ERS 2301/2401)	1	N/A	≤ 2.52 µCi	20
ii. Noble Gas Channel* (ERS 2305/2405)	1	N/A	≤ 4.4×10^{-3} µCi/cc	20
C. Noble Gas Effluent Monitors				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 2505)	-----------(see the ODCM)-----------			
b. Mid Range (VRS 2507)	1	N/A	N/A	22B
c. High Range (VRS 2509)	1	N/A	N/A	22B
ii. Steam Generator PORV				
a. MRA 2601 (Loop 1)	1	N/A	N/A	22B
b. MRA 2602 (Loop 4)	1	N/A	N/A	22B
c. MRA 2701 (Loop 2)	1	N/A	N/A	22B
d. MRA 2702 (Loop 3)	1	N/A	N/A	22B
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 2805)	-----------(see the ODCM)-----------			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 2905)	-----------(see the ODCM)-----------			
b. Mid Range (SRA 2907)	1	N/A	N/A	22B
c. High Range (SRA 2909)	1	N/A	N/A	22B

LA.1 LA.1 LA.2 LA.2 LA.1 LA.2 LA.1 LA.2 LA.2 LA.1

See ITS 3.3.3

See ITS 3.3.6 and ITS 3.4.15

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-6 (Continued)

RADIATION MONITORING INSTRUMENTATION
(OPERABILITY BASES DISCUSSED IN BASES SECTION 3/4 3.3.1)

OPERATION MODE/INSTRUMENT	MINIMUM CHANNELS OPERABLE	ALARM SETPOINT	TRIP SETPOINT	ACTION
2. Mode 6				
A. Train A	any 2/3 channels			22
i. Containment Area+ Radiation Channel (VRS 2101)		N/A	≤ 54 mR/hr	
ii. Particulate Channel+ (ERS 2301)		N/A	≤ 2.52 µCi	
iii. Noble Gas Channel+ (ERS 2305)		N/A	$\leq 4.4\times10^{-3}$ µCi/cc	
B. Train B	any 2/3 channels			22
i. Containment Area+ Radiation Channel (VRS 2201)		N/A	≤ 54 mR/hr	
ii. Particulate Channel+ (ERS 2401)		N/A	≤ 2.52 µCi	
iii. Noble Gas Channel+ (ERS 2405)		N/A	$\leq 4.4\times10^{-3}$ µCi/cc	
3. Mode ***				
A. Spent Fuel Storage (RRC 330)	1	≤ 15 mR/hr	≤ 15 mR/hr	21

LA.1

See ITS 3.3.6

LA.1

*** With fuel in storage pool or building
+ This specification only applies during PURGE

LA.1

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

TABLE 3.3-6 (Continued)

TABLE NOTATION

ACTION 20 -	With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.4.6.1.	See ITS 3.4.15
ACTION 21 -	With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, perform area surveys of the monitored area with portable monitoring instrumentation at least once per day.	LA.1
ACTION 22 -	With the number of channels OPERABLE less than required by the Minimum Channels Operable requirement, comply with the ACTION requirements of Specification 3.9.9. This ACTION is not required during the performance of containment integrated leak rate test.	See ITS 3.3.6
ACTION 22A-	With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements:	See ITS 3.3.3
	1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or	See ITS 3.3.3
	2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.	See ITS 5.6
	3. Technical Specification Section 3.0.3 Not Applicable.	See ITS 3.3.3
ACTION 22B-	With the number of OPERABLE Channels less than required by the Minimum Channels OPERABLE requirements.	LA.1
	1. either restore the inoperable Channel(s) to OPERABLE status within 7 days of the event, or	
	2. prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within 14 days following the event outlining the action taken, the cause of the inoperability and the plans and schedule for restoring the system to OPERABLE status.	
	3. In the event of an accident involving radiological releases initiate the preplanned alternate method of monitoring the appropriate parameter(s) within 72 hours.	
	4. Technical Specification Section 3.0.3 Not Applicable.	

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CTS 3/4.3.3.1

TABLE 4.3-3

RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

OPERATION MODE/INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	APPLICABLE MODES
1. Modes 1, 2, 3 & 4				
A. Area Monitors				
i. Upper Containment (VRS 2101/2201)	S*	R	Q	1, 2, 3, 4
ii. Containment High Range (VRA 2310/2410)	S	R	Q	1, 2, 3, 4
B. Process Monitors				
i. Particulate Channel (ERS 2301/2401)	S*	R	Q	1, 2, 3, 4
C. Noble Gas Effluent Monitors				
i. Unit Vent Effluent Monitors				
a. Low Range (VRS 2505)	--------------(see the ODCM)--------------			
b. Mid Range (VRS 2507)	S	R	N/A	1, 2, 3, 4
c. High Range (VRS 2509)	S*	R	N/A	1, 2, 3, 4
ii. Steam Generator PORV				
a. MRA 2601 (Loop 1)	S*	R	Q	1, 2, 3, 4
b. MRA 2602 (Loop 4)	S*	R	Q	1, 2, 3, 4
c. MRA 2701 (Loop 2)	S*	R	Q	1, 2, 3, 4
d. MRA 2702 (Loop 3)	S*	R	Q	1, 2, 3, 4
iii. Gland Steam Condenser Vent Monitor				
a. Low Range (SRA 2805)	--------------(see the ODCM)--------------			
iv. Steam Jet Air Ejector Vent Monitors				
a. Low Range (SRA 2905)	--------------(see the ODCM)--------------			
b. Mid Range (SRA 2907)	S	R	Q	1, 2, 3, 4
c. High Range (SRA 2909)	S*	R	N/A	1, 2, 3, 4

LA.1

See ITS 3.3.3

See ITS 3.4.15

LA.1

LA.2

LA.2

LA.1

LA.2

LA.1

LA.2

LA.2

LA.1

TABLE 4.3-3 (Continued)
RADIATION MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

OPERATION MODE/INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST	APPLICABLE MODES	
					LA.1
2. Mode 6					
A. Train A				6	See ITS 3.3.6
i. Containment Area Radiation Channel (VRS 2101)	S*	R	Q		
ii. Particulate Channel (ERS 2301)	S*	R	Q		See ITS 3.3.6 and ITS 3.4.15
iii. Noble Gas Channel (ERS 2305)	S*	R	Q		
B. Train B				6	See ITS 3.3.6
i. Containment Area Radiation Channel (VRS 2201)	S*	R	Q		
ii. Particulate Channel (ERS 2401)	S*	R	Q		See ITS 3.3.6 and ITS 3.4.15
iii. Noble Gas Channel (ERS 2405)	S*	R	Q		
3. Mode **					LA.1
A. Spent Fuel Storage (RRC-330)	S	R	Q	**	

* To include SOURCE CHECK per T/S Section 1.27 — See ITS 3.3.6 and ITS 3.4.15

** With fuel in storage pool or building — LA.1

DISCUSSION OF CHANGES
CTS 3/4.3.3.1, RADIATION MONITORING INSTRUMENTATION

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

None

REMOVED DETAIL CHANGES

LA.1 *(Type 4 – Removing Performance Requirements for Indication-Only Instrumentation and Alarms)* CTS 3/4.3.3.1 provides requirements for the radiation monitoring instrumentation in CTS Tables 3.3-6 and 4.3-3. CTS Table 3.3-6 and Table 4.3-3 provide requirements for the following radiation monitoring instruments: Upper Containment Area Monitor (Instrument 1.A.i); Noble Gas Effluent Monitors (Instruments 1.C.i.b, 1.C.i.c, 1C.ii.a, 1C.ii.b, 1C.ii.c, 1C.ii.d, 1.C.iv.b, and 1.C.iv.c); and Spent Fuel Storage Radiation Monitor (Instrument 3.A). The ITS does not include requirements for these radiation monitoring instruments. The Technical Specification function of these radiation monitoring instruments is only to provide indication and alarms. This changes the CTS by relocating the requirements for these radiation monitoring instruments to the Technical Requirements Manual (TRM).

The removal of requirements for indication-only instrumentation and alarms from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. These instruments and alarms are not required to be OPERABLE to support OPERABILITY of the Technical Specification systems or components. Therefore, the availability of this instrumentation and alarms is more appropriately specified in the plant procedures that are required by ITS 5.4.1. Also, this change is acceptable because the removed information will be adequately controlled in the TRM. The TRM is incorporated by reference into the UFSAR and any changes to the TRM are made under 10 CFR 50.59, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because performance requirements for indication-only instrumentation and alarms are being removed from the Technical Specifications.

LA.2 *(Type 6 - Removal of LCO, SR, or other TS requirement to the TRM, UFSAR, ODCM, QAPD, or IIP)* CTS 3/4.3.3.1 provides requirements for the radiation monitoring instrumentation in CTS Tables 3.3-6 and 4.3-3. CTS Table 3.3-6 and Table 4.3-3 provide requirements for the following radiation monitoring instruments: Noble Gas Effluent Monitors (Instruments 1.C.i.a, 1.C.iii.a, and 1.C.iv.a). These instruments ensure 10 CFR 20 limits are met. The ITS does not include requirements for these radiation monitoring instruments. This changes the CTS by moving the requirements for these radiation monitoring instrumentation to the Offsite Dose Calculation Manual (ODCM).

The purpose of the radiation monitoring channels is to ensure the 10 CFR 20 limits are met. The removal of these requirements for radiation monitoring instrumentation from the Technical Specifications is acceptable because this type of information is not necessary to be included in the Technical Specifications to provide adequate protection of public health and safety. This change is acceptable because these types of requirements will be adequately controlled in the ODCM. Changes to the ODCM are controlled by the ODCM change control process in ITS Section 5.5, which ensures changes are properly evaluated. This change is designated as a less restrictive removal of detail change because the requirements for a program are being removed from the Technical Specifications.

LESS RESTRICTIVE CHANGES

None

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.3.3.1, RADIATION MONITORING INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

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CTS 3/4.3.3.2, Movable Incore Detectors

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

3/4 LIMITING CONDITIONS FOR OPERATION AND SURVEILLANCE REQUIREMENTS
3/4.3 INSTRUMENTATION

MOVABLE INCORE DETECTORS

LIMITING CONDITION FOR OPERATION

3.3.3.2 The movable incore detection system shall be OPERABLE with:

a. At least 75% of the detector thimbles,

b. A minimum of 2 detector thimbles per core quadrant, and

c. Sufficient movable detectors, drive, and readout equipment to map these thimbles.

APPLICABILITY: When the movable incore detection system is used for:

a. Recalibration of the axial flux difference detection system,

b. Monitoring the QUADRANT POWER TILT RATIO, or

c. Measurement of $F^N_{\Delta H}$ and $F_Q(Z,\ell)$

ACTION:

With the movable incore detection system inoperable, do not use the system for the above applicable monitoring or calibration functions. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

R.1

4.3.3.2 The movable incore detection system shall be demonstrated OPERABLE by normalizing each detector output to be used during its use when required for:

a. Recalibration of the excore axial flux difference detection system, or

b. Monitoring the QUADRANT POWER TILT RATIO, or

c. Measurement of $F^N_{\Delta H}$ and $F_Q(Z,\ell)$.

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MOVABLE INCORE DETECTORS

LIMITING CONDITION FOR OPERATION

3.3.3.2 The movable incore detection system shall be OPERABLE with:

a. At least 75% of the detector thimbles,

b. A minimum of 2 detector thimbles per core quadrant, and

c. Sufficient movable detectors, drive, and readout equipment to map these thimbles.

APPLICABILITY: When the movable incore detection system is used for:

a. Recalibration of the excore neutron flux detection system,

b. Monitoring the QUADRANT POWER TILT RATIO, or

c. Measurement of $F^N_{\Delta H}$ and $F_Q(Z)$.

ACTION:

With the movable incore detection system inoperable, do not use the system for the above applicable monitoring or calibration functions. The provisions of Specification 3.0.3 are not applicable. R.1

SURVEILLANCE REQUIREMENTS

4.3.3.2 The movable incore detection system shall be demonstrated OPERABLE by normalizing each detector output when required for:

a. Recalibration of the excore neutron flux detection system, or

b. Monitoring the QUADRANT POWER TILT RATIO, or

c. Measurement of $F^N_{\Delta H}$ and $F_Q(Z)$.

DISCUSSION OF CHANGES
CTS 3/4.3.3.2, MOVABLE INCORE DETECTORS

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R.1 CTS 3/4.3.3.2 ensures the OPERABILITY of movable incore detector instrumentation when required to monitor the flux distribution within the core. The instrumentation is used for periodic Surveillance of the reactor core power distribution, and calibration of the excore neutron flux detectors, but is not assumed in any design basis accident (DBA) analysis and does not mitigate an accident. This Specification does not meet the criteria for retention in the Improved Technical Specifications (ITS); therefore, it will be retained in the Technical Requirements Manual (TRM).

This change is acceptable because CTS 3/4.3.3.2 does not meet the 10 CFR 50.36(c)(2)(ii) criteria for inclusion into the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. The movable incore detectors are not used for, nor capable of, detecting a significant abnormal degradation of the reactor coolant pressure boundary prior to a DBA. The Movable Incore Detectors Specification does not satisfy criterion 1.

2. The movable incore detectors are not used to indicate status of, or monitor a process variable, design feature, or operating restriction that is an initial condition of a DBA or transient. The Movable Incore Detectors Specification does not satisfy criterion 2.

3. The movable incore detectors are not part of a primary success path in the mitigation of a DBA or transient. The Movable Incore Detectors Specification does not satisfy criterion 3.

4. As discussed in Section 4.0 (Appendix A, page A-12) and summarized in Table 1 of WCAP-11618, the loss of movable incore detectors was found to be a non-significant risk contributor to core damage frequency and offsite releases. I&M has reviewed this evaluation, considers it applicable to CNP Units 1 and 2, and concurs with the assessment. The Movable Incore Detectors Specification does not satisfy criterion 4.

Since the 10 CFR 50.36(c)(2)(ii) criteria have not been met, the Movable Incore Detectors LCO and Surveillances may be relocated out of the Technical Specifications. The Movable Incore Detectors Specification will be relocated to the TRM. Changes to the TRM will be controlled by the provisions of

DISCUSSION OF CHANGES
CTS 3/4.3.3.2, MOVABLE INCORE DETECTORS

10 CFR 50.59. This change is designated as a relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and has been relocated to the TRM.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.3.3.2, MOVABLE INCORE DETECTORS

There are no specific NSHC discussions for this Specification.

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CTS 3/4.3.3.3, Seismic Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

SEISMIC INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.3 The seismic monitoring instrumentation shown in Table 3.3-7 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With the number of OPERABLE seismic monitoring instruments less than required by Table 3.3-7, restore the inoperable instrument(s) to OPERABLE status within 30 days.

b. With one or more seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.3.1 Each of the above seismic monitoring instruments shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-4.

4.3.3.3.2 Each of the above seismic monitoring instruments actuated during a seismic event shall be restored to OPERABLE status and a CHANNEL CALIBRATION performed within 24 hours following the seismic event. Data shall be retrieved from actuated instruments and analyzed to determine the magnitude of the vibratory ground motion. A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 10 days describing the magnitude, frequency spectrum and resultant effect upon facility features important to safety. R.1

TABLE 3.3-7

SEISMIC MONITORING INSTRUMENTATION

INSTRUMENTS AND SENSOR LOCATIONS	MEASUREMENT RANGE	MINIMUM INSTRUMENTS OPERABLE
1. STRONG MOTION TRIAXIAL ACCELEROGRAPHS		
a. Reactor Pit Floor	0-1 g	1
b. Top of Crane Wall	0-1 g	1
c. Free Field	0-1 g	1
2. PEAK RECORDING ACCELEROGRAPHS		
a. Containment Spring Line	0-2 g	1
b. Diesel Generator Room Floor	0-2 g	1
c. Spent Fuel Pool	0-2 g	1

R.1

CTS 3/4.3.3.3

TABLE 4.3-4

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT CHANNEL	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. STRONG MOTION TRIAXIAL ACCELEROGRAPHS			
a. Reactor Pit Floor			
1. Time History Recorder	M	R	M
2. Seismic Trigger	NA	R	NA
b. Top of Crane Wall			
1. Time History Recorder	M	R	M
c. Free Field			
1. Time History Recorder	M	R	M
2. Seismic Trigger	NA	R	NA
2. PEAK RECORDING ACCELEROGRAPHS			
a. Containment Spring Line	NA	R	NA
b. Diesel Generator Room Floor	NA	R	NA
c. Spent Fuel Pool	NA	R	NA

R.1

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SEISMIC INSTRUMENTATION*

LIMITING CONDITION FOR OPERATION

3.3.3.3 The seismic monitoring instrumentation shown in Table 3.3-7 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With the number of OPERABLE seismic monitoring instruments less than required by Table 3.3-7, restore the inoperable instrument(s) to OPERABLE status within 30 days.

b. With one or more seismic monitoring instruments inoperable for more than 30 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the instrument(s) to OPERABLE status.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.3.1 Each of the above seismic monitoring instruments shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK, CHANNEL CALIBRATION and CHANNEL FUNCTIONAL TEST operations at the frequencies shown in Table 4.3-4. R.1

4.3.3.3.2 Each of the above seismic monitoring instruments actuated during a seismic event shall be restored to OPERABLE status and a CHANNEL CALIBRATION performed within 24 hours following the seismic event. Data shall be retrieved from actuated instruments and analyzed to determine the magnitude of the vibratory ground motion. A Special Report shall be prepared and submitted to the Commission pursuant to Specification 6.9.2 within 10 days describing the magnitude, frequency spectrum and resultant effect upon facility features important to safety.

*Shared System with D.C. Cook Unit 1.

TABLE 3.3-7

SEISMIC MONITORING INSTRUMENTATION

INSTRUMENTS AND SENSOR LOCATIONS	MEASUREMENT RANGE	MINIMUM INSTRUMENTS OPERABLE
1. STRONG MOTION TRIAXIAL ACCELEROGRAPHS		
a. Reactor Pit Floor	0-1 g	1
b. Top of Crane Wall	0-1 g	1
c. Free Field	0-1 g	1
2. PEAK RECORDING ACCELEROGRAPHS		
a. Containment Spring Line	0-2 g	1
b. Diesel Generator Room Floor	0-2 g	1
c. Spent Fuel Pool	0-2 g	1

R.1

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TABLE 4.3-4

SEISMIC MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT CHANNEL	CHANNEL CHECK	CHANNEL CALIBRATION	CHANNEL FUNCTIONAL TEST
1. STRONG MOTION TRIAXIAL ACCELEROGRAPHS			
a. Reactor Pit Floor			
1. Time History Recorder	M	R	M
2. Seismic Trigger	NA	R	NA
b. Top of Crane Wall			
1. Time History Recorder	M	R	M
c. Free Field			
1. Time History Recorder	M	R	M
2. Seismic Trigger	NA	R	NA
2. PEAK RECORDING ACCELEROGRAPHS			
a. Containment Spring Line	NA	R	NA
b. Diesel Generator Room Floor	NA	R	NA
c. Spent Fuel Pool	NA	R	NA

R.1

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DISCUSSION OF CHANGES
CTS 3/4.3.3.3, SEISMIC INSTRUMENTATION

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R.1 CTS 3/4.3.3.3 provides requirements for seismic instrumentation. In the event of an earthquake, seismic instrumentation is required to permit comparison of the measured response to that used in the design basis of the facility to determine if plant shutdown is required pursuant to Appendix A of 10 CFR 100. Since this is determined after the event has occurred, it has no bearing on the mitigation of any design basis accident (DBA). This Specification does not meet the criteria for retention in the Improved Technical Specifications (ITS); therefore, it will be retained in the Technical Requirements Manual (TRM).

This change is acceptable because CTS 3/4.3.3.3 does not meet the 10 CFR 50.36(c)(2)(ii) criteria for inclusion into the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. Seismic instrumentation is not used for, nor capable of, detecting a significant abnormal degradation of the reactor coolant pressure boundary prior to a DBA. The Seismic Instrumentation Specification does not satisfy criterion 1.

2. Seismic instrumentation is not used to indicate status of, or monitor a process variable, design feature, or operating restriction that is an initial condition of a DBA or transient. The Seismic Instrumentation Specification does not satisfy criterion 2.

3. Seismic instrumentation is not part of a primary success path in the mitigation of a DBA or transient. The Seismic Instrumentation Specification does not satisfy criterion 3.

4. As discussed in Section 4.0 (Appendix A, page A-22), and summarized in Table 1 of WCAP-11618, the loss of seismic instrumentation was found to be a non-significant risk contributor to core damage frequency and offsite releases. I&M has reviewed this evaluation, considers it applicable to CNP Units 1 and 2, and concurs with the assessment. The Seismic Instrumentation Specification does not satisfy criterion 4.

Since the 10 CFR 50.36(c)(2)(ii) criteria have not been met, the Seismic Instrumentation LCO and Surveillances may be relocated out of the Technical Specifications. The Seismic Instrumentation Specification will be relocated to the TRM. Changes to the TRM will be controlled by the provisions of 10 CFR 50.59.

DISCUSSION OF CHANGES
CTS 3/4.3.3.3, SEISMIC INSTRUMENTATION

This change is designated as a relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and has been relocated to the TRM.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.3.3.3, SEISMIC INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

CTS 3/4.3.3.4, Meteorological Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

METEOROLOGICAL

LIMITING CONDITION FOR OPERATION

3.3.3.4 The meteorological monitoring instrumentation channels shown in Table 3.3-8 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With the number of OPERABLE meteorological monitoring channels less than required by Table 3.3-8, suspend all release of gaseous radioactive material from the radwaste gas decay tanks until the inoperable channel(s) is restored to OPERABLE status.

b. With one or more required meteorological monitoring channels inoperable for more than 7 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.

c. The provisions of Specification 3.0.3 are not applicable. R.1

SURVEILLANCE REQUIREMENTS

4.3.3.4 Each of the above meteorological monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-5.

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TABLE 3.3-8

METEOROLOGICAL MONITORING INSTRUMENTATION

INSTRUMENT	LOCATION	INSTRUMENT MINIMUM ACCURACY	MINIMUM OPERABLE
1. WIND SPEED			Any 1/3 channels
a.	Primary or Backup Meteorological Tower, Nominal Elev. 10 m	(1),(2)	
b.	Primary Meteorological Tower, Nominal Elev. 60 m	(1),(2)	
2. WIND DIRECTION			Any 1/3 channels
a.	Primary or Backup Meteorological Tower, Nominal Elev. 10 m	$\pm 5^{\circ}$	
b.	Primary Meteorological Tower, Nominal Elev. 60 m	$\pm 5^{\circ}$	
3. AIR TEMPERATURE (for 60 m to 10 m delta T)			NA(3)
a.	Primary Meteorological Tower, Nominal Elev. 10 m	$\pm 0.15^{\circ}C$	
b.	Primary Meteorological Tower, Nominal Elev. 60 m	$\pm 0.15^{\circ}C$	

R.1

(1) Starting speed of anemometer shall be $\leq$ 1 mph.
(2) $\pm$ 1% or 0.5 mph, whichever is greater.
(3) With delta T information unavailable, sigma theta (standard deviation of the horizontal wind direction as determined from emergency procedures) is to be used for the determination of stability class.

CTS 3/4.3.3.4

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1. WIND SPEED		
a. Nominal Elev. 10 m	D	SA
b. Nominal Elev. 60 m	D	SA
2. WIND DIRECTION		
a. Nominal Elev. 10 m	D	SA
b. Nominal Elev. 60 m	D	SA
3. AIR TEMPERATURE - DELTA T		
a. Nominal Elev. 10 m	D	SA
b. Nominal Elev. 60 m	D	SA

R.1

D. C. COOK - UNIT 1 3/4 3-45 Amendment No. 127

METEOROLOGICAL INSTRUMENTATION*

LIMITING CONDITION FOR OPERATION

3.3.3.4 The meteorological monitoring instrumentation channels shown in Table 3.3-8 shall be OPERABLE.

APPLICABILITY: At all times.

ACTION:

a. With the number of OPERABLE meteorological monitoring channels less than required by Table 3.3-8, suspend all release of gaseous radioactive material from the radwaste gas decay tanks until the inoperable channel(s) is restored to OPERABLE status.

b. With one or more required meteorological monitoring channels inoperable for more than 7 days, prepare and submit a Special Report to the Commission pursuant to Specification 6.9.2 within the next 10 days outlining the cause of the malfunction and the plans for restoring the channel(s) to OPERABLE status.

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.4 Each of the above meteorological monitoring instrumentation channels shall be demonstrated OPERABLE by the performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-5. R.1

*Shared System with D.C. Cook - UNIT 1.

TABLE 3.3-8

METEOROLOGICAL MONITORING INSTRUMENTATION

INSTRUMENT	LOCATION	INSTRUMENT MINIMUM ACCURACY	MINIMUM OPERABLE
1. WIND SPEED			Any 1/3 channels
a. Primary or Backup Meteorological Tower, Nominal Elev. 10 m		(1),(2)	
b. Primary Meteorological Tower, Nominal Elev. 60 m		(1),(2)	
2. WIND DIRECTION			Any 1/3 channels
a. Primary or Backup Meteorological Tower, Nominal Elev. 10 m		$\pm 5^{\circ}$	
b. Primary Meteorological Tower, Nominal Elev. 60 m		$\pm 5^{\circ}$	
3. AIR TEMPERATURE: (for 60 m to 10 m delta T)			NA(3)
a. Primary Meteorological Tower, Nominal Elev. 10 m		$\pm 0.15^{\circ}C$	
b. Primary Meteorological Tower, Nominal Elev. 60 m		$\pm 0.15^{\circ}C$	

R.1

(1) Starting speed of anemometer shall be $\leq$ 1 mph.
(2) $\pm$ 1% or 0.5 mph, whichever is greater.
(3) With delta T information unavailable, sigma theta (standard deviation of the horizontal wind direction as determined from emergency procedures) is to be used for the determination of stability class.

TABLE 4.3-5

METEOROLOGICAL MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

INSTRUMENT	CHANNEL CHECK	CHANNEL CALIBRATION
1. WIND SPEED		
a. Nominal Elev. 10 m	D	SA
b. Nominal Elev. 60 m	D	SA
2. WIND DIRECTION		
a. Nominal Elev. 10 m	D	SA
b. Nominal Elev. 60 m	D	SA
3. AIR TEMPERATURE - DELTA T		
a. Nominal Elev. 10 m	D	SA
b. Nominal Elev. 60 m	D	SA

R.1

D. C. COOK - UNIT 2 3/4 3-41 Amendment No. 85,113

DISCUSSION OF CHANGES
CTS 3/4.3.3.4, METEOROLOGICAL INSTRUMENTATION

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R.1 CTS 3/4.3.3.4 provides requirements for meteorological instrumentation. Meteorological instrumentation is used to measure environmental parameters that may affect distribution of fission products and gases following a design basis accident (DBA), but it is not an input assumption for any DBA analysis and does not mitigate the accident. Meteorological information is required to evaluate the need for initiating protective measures to protect the health and safety of the public. This Specification does not meet the criteria for retention in the Improved Technical Specifications (ITS); therefore, it will be retained in the Technical Requirements Manual (TRM).

This change is acceptable because CTS 3/4.3.3.4 does not meet the 10 CFR 50.36(c)(2)(ii) criteria for inclusion into the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. Meteorological instrumentation is not used for, nor capable of, detecting a significant abnormal degradation of the reactor coolant pressure boundary prior to a DBA. The Meteorological Instrumentation Specification does not satisfy criterion 1.

2. Meteorological instrumentation is not used to indicate status of, or monitor a process variable, design feature, or operating restriction that is an initial condition of a DBA or transient. The Meteorological Instrumentation Specification does not satisfy criterion 2.

3. Meteorological instrumentation is not part of a primary success path in the mitigation of a DBA or transient. The Meteorological Instrumentation Specification does not satisfy criterion 3.

4. As discussed in Section 4.0 (Appendix A, page A-23), and summarized in Table 1 of WCAP-11618, the loss of meteorological monitoring instrumentation was found to be a non-significant risk contributor to core damage frequency and offsite releases. I&M has reviewed this evaluation, considers it applicable to CNP Units 1 and 2, and concurs with the assessment. The Meteorological Instrumentation Specification does not satisfy criterion 4.

Since the 10 CFR 50.36(c)(2)(ii) criteria have not been met, Meteorological Instrumentation LCO and Surveillances may be relocated out of the Technical

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DISCUSSION OF CHANGES
CTS 3/4.3.3.4, METEOROLOGICAL INSTRUMENTATION

Specifications. The Meteorological Instrumentation Specification will be relocated to the TRM. Changes to the TRM will be controlled by the provisions of 10 CFR 50.59. This change is designated as a relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and has been relocated to the TRM.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

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Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.3.3.4, METEOROLOGICAL INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

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CTS 3/4.3.3.5.1, Appendix R Remote Shutdown Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

APPENDIX R REMOTE SHUTDOWN INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.5.1 The Appendix R remote shutdown instrumentation channels shown in Table 3.3-9A be OPERABLE with an opposite unit power supply available and with read out capability at the LSI panels.

APPLICABILITY: MODES 1, 2, and 3

ACTION:

a. With the number of OPERABLE Appendix R remote shutdown monitoring channels less than required by Table 3.3-9A, either restore the inoperable channel to OPERABLE status within 30 days, or be in HOT SHUTDOWN within the next 12 hours.

b. With the opposite unit power supply not available, restore the power supply to available status within 7 days, or provide fire watches in the affected areas and restore the inoperable channel to OPERABLE status within the next 60 days, or be in HOT STANDBY within the next 12 hours and HOT SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.3.3.5.1 Each Appendix R remote shutdown monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-6A. R.1

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TABLE 3.3-9A

APPENDIX R REMOTE SHUTDOWN MONITORING INSTRUMENTATION

INSTRUMENT	READOUT LOCATION	MEASUREMENT RANGE	MINIMUM CHANNELS OPERABLE
1. Steam Generators 1 and 4 Level	LSI Cabinet 1 and LSI Cabinet 4	0-100% wide range instrument span	one on each LSI cabinet for each steam generator
2. Steam Generators 2 and 3 Level	LSI Cabinet 2 and LSI Cabinet 4	0-100% wide range instrument span	one on each LSI cabinet for each steam generator
3. Steam Generators 1 and 4 Pressure	LSI Cabinet 4 and LSI Cabinet 5	0-1500 psig	one on each LSI cabinet for each steam generator
4. Steam Generators 2 and 3 Pressure	LSI Cabinet 4 and LSI Cabinet 6	0-1500 psig	one on each LSI cabinet for each steam generator
5. Reactor Coolant Loop 4 Temperature (Cold)	LSI Cabinet 4 and LSI Cabinet 5	0-700°F	one on each LSI cabinet
6. Reactor Coolant Loop 4 Temperature (Hot)	LSI Cabinet 4 and LSI Cabinet 5	0-700°F	one on each LSI cabinet
7. Reactor Coolant Loop 2 Temperature (Cold)	LSI Cabinet 4 and LSI Cabinet 6	0-700°F	one on each LSI cabinet
8. Reactor Coolant Loop 2 Temperature (Hot)	LSI Cabinet 4 and LSI Cabinet 6	0-700°F	one on each LSI cabinet

R.1

TABLE 3.3-9A (cont.)

APENDIX R REMOTE SHUTDOWN MONITORING INSTRUMENTATION

INSTRUMENT	READOUT LOCATION	MEASUREMENT RANGE	MINIMUM CHANNELS OPERABLE
9. Presurizer Level	LSI Cabinet 3	0-100% of instrument span	1
10. Reactor Coolant System Pressure	LSI Cabinet 3	0-3000 psig	1
11. Charging Cross-Flow Between Units	Corridor Elev. 587'	0-150 gpm	1
12. Source Range Neutron Detector (N-23)	LSI Cabinet 4	1-1 X 10^6 cps	1

R.1

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TABLE 4.3-6A

APPENDIX R REMOTE SHUTDOWN MONITORING INSTRUMENTATION SURVEILLANCE REQUIREMENTS

INSTRUMENT	LOCATION	CHANNEL CHECK	CHANNEL CALIBRATION
1. Steam Generators 1 and 4 Level	LSI Cabinet 1 and LSI Cabinet 4	M	R
2. Steam Generators 2 and 3 Level	LSI Cabinet 2 and LSI Cabinet 4	M	R
3. Steam Generators 1 and 4 Pressure	LSI Cabinet 4 and LSI Cabinet 5	M	R
4. Steam Generators 2 and 3 Pressure	LSI Cabinet 4 and LSI Cabinet 6	M	R
5. Reactor Coolant Loop 4 Temperature (Cold)	LSI Cabinet 4 and LSI Cabinet 5	M	R
6. Reactor Coolant Loop 4 Temperature (Hot)	LSI Cabinet 4 and LSI Cabinet 5	M	R
7. Reactor Coolant Loop 2 Temperature (Cold)	LSI Cabinet 4 and LSI Cabinet 6	M	R
8. Reactor Coolant Loop 2 Temperature (Hot)	LSI Cabinet 4 and LSI Cabinet 6	M	R
9. Pressurizer Level	LSI Cabinet 3	M	R
10. Reactor Coolant System Pressure	LSI Cabinet 3	M	R
11. Charging Cross-Flow Between Units	Corridor Elev. 587'	N/A	R*
12. Source Range Neutron Detector (N-23)	LSI Cabinet 4	N/A	R

* Charging Cross-Flow between Units is an instrument common to both Unit 1 and 2. This surveillance will only be conducted on an interval consistent with Unit 1 refueling.

R.1

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CTS 3/4.3.3.5.1

APPENDIX R REMOTE SHUTDOWN INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.5.1 The Appendix R remote shutdown instrumentation channels shown in Table 3.3-9A shall be OPERABLE with an opposite unit power supply available and with read out capability at the LSI panels.

APPLICABILITY: MODES 1, 2, and 3

ACTION:

a. With the number of OPERABLE Appendix R remote shutdown monitoring channels less than required by Table 3.3-9A, either restore the inoperable channel to OPERABLE status within 30 days, or be in HOT SHUTDOWN within the next 12 hours.

b. With the opposite unit power supply not available, restore the power supply to available status within 7 days, or provide fire watches in the affected areas and restore the inoperable channel to OPERABLE status within the next 60 days, or be in HOT STANDBY within the next 12 hours and HOT SHUTDOWN within the following 24 hours.

SURVEILLANCE REQUIREMENTS

4.3.3.5.1 Each Appendix R remote shutdown monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK and CHANNEL CALIBRATION operations at the frequencies shown in Table 4.3-6A. R.1

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COOK NUCLEAR PLANT - UNIT 2

TABLE 3.3-9A

APPENDIX R REMOTE SHUTDOWN MONITORING INSTRUMENTATION

INSTRUMENT	READOUT LOCATION	MEASUREMENT RANGE	MINIMUM CHANNELS OPERABLE
1. Steam Generators 1 and 4 Level	LSI Cabinet 1 and LSI Cabinet 4	0-100% wide range instrument span	one on each LSI cabinet for each steam generator
2. Steam Generators 2 and 3 Level	LSI Cabinet 2 and LSI Cabinet 4	0-100% wide range instrument span	one on each LSI cabinet for each steam generator
3. Steam Generators 1 and 4 Pressure	LSI Cabinet 4 and LSI Cabinet 5	0-1500 psig	one on each LSI cabinet for each steam generator
4. Steam Generators 2 and 3 Pressure	LSI Cabinet 4 and LSI Cabinet 6	0-1500 psig	one on each LSI cabinet for each steam generator
5. Reactor Coolant Loop 4 Temperature (Cold)	LSI Cabinet 4 and LSI Cabinet 5	0-700°F	one on each LSI cabinet
6. Reactor Coolant Loop 4 Temperature (Hot)	LSI Cabinet 4 and LSI Cabinet 5	0-700°F	one on each LSI cabinet
7. Reactor Coolant Loop 2 Temperature (Cold)	LSI Cabinet 4 and LSI Cabinet 6	0-700°F	one on each LSI cabinet
8. Reactor Coolant Loop 2 Temperature (Hot)	LSI Cabinet 4 and LSI Cabinet 6	0-700°F	one on each LSI cabinet

3/4 3-44b

AMENDMENT NO. 116

R.1

TABLE 3.3-9A (cont.)

APPENDIX R REMOTE SHUTDOWN MONITORING INSTRUMENTATION

INSTRUMENT	READOUT LOCATION	MEASUREMENT RANGE	MINIMUM CHANNELS OPERABLE
9. Pressurizer Level	LSI Cabinet 3	0-100% of instrument span	1
10. Reactor Coolant System Pressure	LSI Cabinet 3	0-3000 psig	1
11. Charging Cross-Flow Between Units	Corridor Elev. 587'	0-150 gpm	1
12. Source Range Neutron Detector (N-23)	LSI Cabinet 4	1-1 X 10^6 cps	1

R1

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TABLE 4.3-6A

APPENDIX R REMOTE SHUTDOWN MONITORING INSTRUMENTATION
SURVEILLANCE REQUIREMENTS

	INSTRUMENT	LOCATION	CHANNEL CHECK	CHANNEL CALIBRATION
1.	Steam Generators 1 and 4 Level	LSI Cabinet 1 and LSI Cabinet 4	M	R
2.	Steam Generators 2 and 3 Level	LSI Cabinet 2 and LSI Cabinet 4	M	R
3.	Steam Generators 1 and 4 Pressure	LSI Cabinet 4 and LSI Cabinet 5	M	R
4.	Steam Generators 2 and 3 Pressure	LSI Cabinet 4 and LSI Cabinet 6	M	R
5.	Reactor Coolant Loop 4 Temperature (Cold)	LSI Cabinet 4 and LSI Cabinet 5	M	R
6.	Reactor Coolant Loop 4 Temperature (Hot)	LSI Cabinet 4 and LSI Cabinet 5	M	R
7.	Reactor Coolant Loop 2 Temperature (Cold)	LSI Cabinet 4 and LSI Cabinet 6	M	R
8.	Reactor Coolant Loop 2 Temperature (Hot)	LSI Cabinet 4 and LSI Cabinet 6	M	R
9.	Pressurizer Level	LSI Cabinet 3	M	R
10.	Reactor Coolant System Pressure	LSI Cabinet 3	M	R
11.	Charging Cross-Flow Between Units	Corridor Elev 587'	N/A	R*
12.	Source Range Neutron Detector (N-23)	LSI Cabinet 4	N/A	R

R.1

* Charging Cross-Flow between Units is an instrument common to both Unit 1 and 2. This surveillance will only be conducted on an interval consistent with Unit 1 refueling.

DISCUSSION OF CHANGES
CTS 3/4.3.3.5.1, APPENDIX R REMOTE SHUTDOWN INSTRUMENTATION

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R.1 CTS 3/4.3.3.5.1 provides requirements for Appendix R remote shutdown instrumentation. The Appendix R remote shutdown instrumentation is used to ensure that a fire will not preclude achieving safe shutdown. This instrumentation is independent of areas where a fire could damage systems normally used to shutdown the reactor. However, the instrumentation is not used to detect a degradation of the reactor coolant pressure boundary, and is not assumed to mitigate a design basis accident (DBA) or transient event. The Appendix R remote shutdown instrumentation capability is consistent with the requirements of 10 CFR 50, Appendix R. The acceptability of the relocation of the Appendix R Technical Specification requirements from the plant Technical Specifications has already been endorsed by the NRC as indicated in Generic Letter 86-10. This Specification does not meet the criteria for retention in the Improved Technical Specifications (ITS); therefore, it will be retained in the Technical Requirements Manual (TRM).

This change is acceptable because CTS 3/4.3.3.5.1 does not meet the 10 CFR 50.36(c)(2)(ii) criteria for inclusion into the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. Appendix R remote shutdown instrumentation is not used for, nor capable of, detecting a significant abnormal degradation of the reactor coolant pressure boundary prior to a DBA. The Appendix R Remote Shutdown Instrumentation Specification does not satisfy criterion 1.

2. Appendix R remote shutdown instrumentation is not used to indicate status of, or monitor a process variable, design feature, or operating restriction that is an initial condition of a DBA or transient. The Appendix R Remote Shutdown Instrumentation Specification does not satisfy criterion 2.

3. Appendix R remote shutdown instrumentation is not part of a primary success path in the mitigation of a DBA or transient. The Appendix R Remote Shutdown Instrumentation Specification does not satisfy criterion 3.

4. Although the Appendix R remote shutdown instrumentation has not been specifically evaluated for risk significance either generically or on a plant specific basis, insight based on a review of CNP Units 1 and 2 licensing

DISCUSSION OF CHANGES
CTS 3/4.3.3.5.1, APPENDIX R REMOTE SHUTDOWN INSTRUMENTATION

basis documentation (including the CNP Probabilistic Risk Assessment Final Report) indicates that the instrumentation is not risk dominant with regards to core damage frequency or off-site health effects. The Appendix R Remote Shutdown Instrumentation Specification does not satisfy criterion 4.

Since the 10 CFR 50.36(c)(2)(ii) criteria have not been met, Appendix R Remote Shutdown Instrumentation LCO and Surveillances may be relocated out of the Technical Specifications. The Appendix R Remote Shutdown Instrumentation Specification will be relocated to the TRM. Changes to the TRM will be controlled by the provisions of 10 CFR 50.59. This change is designated as a relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and has been relocated to the TRM.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.3.3.5.1, APPENDIX R REMOTE SHUTDOWN INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

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CTS 3/4.3.3.9, Explosive Gas Monitoring Instrumentation

Current Technical Specification (CTS) Markup and Discussion of Changes (DOCs)

EXPLOSIVE GAS MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.9 The explosive gas monitoring instrumentation channels shown in Table 3.3-12 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specification 3.11.2.1 are not exceeded.

APPLICABILITY: As shown in Table 3.3-12.

ACTION:

a. With an explosive gas monitoring instrumentation channel alarm/trip setpoint less conservative than the above specification, declare the channel inoperable and take the ACTION shown in Table 3.3-12.

b. With less than the minimum number of explosive gas monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-12. Restore the inoperable instrumentation to OPERABLE status within 30 days. If unsuccessful, prepare and submit a SPECIAL REPORT to the Commission pursuant to Specification 6.9.2 to explain why this inoperability was not corrected in a timely manner. R.1

c. The provisions of Specification 3.0.3 are not applicable.

SURVEILLANCE REQUIREMENTS

4.3.3.9 Each explosive gas monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, CHANNEL CALIBRATION, and analog CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-8.

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CTS 3/4.3.3.9

TABLE 3.3-12

Explosive Gas Monitoring Instrumentation

Instrument (Instrument #)	Minimum Channels OPERABLE	Applicability	ACTION
1. Waste Gas Holdup System Explosive Gas Monitoring System[1]			
a. Hydrogen Monitor (QC-1400)	1	**	23
b. Oxygen Monitor (QC-1400, QC-370)	2	**	24

ACTION Statements

Action 23 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 14 days, provided grab samples are taken and analyzed every 12 hours.

Action 24 With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 30 days. With 2 channels inoperable, operation of this system may continue for up to 30 days, provided grab samples are taken and analyzed every 12 hours.

** During waste gas holdup system operation.

1 The waste gas holdup system explosive gas monitoring system may be inoperable for up to 160 days on a one-time basis for the purpose of replacing one oxygen monitor. During this time, grab samples for oxygen are to be taken and analyzed every 12 hours.

R.1

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TABLE 4.3-8

Explosive Gas Monitoring Instrumentation Surveillance Requirements

Instrument (Instrument #)	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	Applicability
1. Waste Gas Holdup System Explosive Gas Monitoring System				
a. Hydrogen Monitor (QC-1400)	D	M	Q(1)	**
b. Oxygen Monitor (QC-1400, QC-370*)	D	M	Q(2)	**

Table Notation

(1) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

a. One volume percent hydrogen, balance nitrogen, and

b. Four volume percent hydrogen, balance nitrogen.

(2) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

a. One volume percent oxygen, balance nitrogen, and

b. Four volume percent oxygen, balance nitrogen.

** During waste gas holdup system operation.

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* These surveillances are not required during the 160-day period in which this monitor is being replaced.

COOK NUCLEAR PLANT - UNIT 1 3/4 3-59 AMENDMENT NO. ~~94~~, ~~120~~, ~~170~~, 189

R.1

CTS 3/4.3.3.9

EXPLOSIVE GAS MONITORING INSTRUMENTATION

LIMITING CONDITION FOR OPERATION

3.3.3.9 The explosive gas monitoring instrumentation channels shown in Table 3.3-12 shall be OPERABLE with their alarm/trip setpoints set to ensure that the limits of Specifications 3.11.2.1 are not exceeded.

APPLICABILITY: As shown in Table 3.3-12.

ACTION:

a. With an explosive gas monitoring instrumentation channel alarm/trip setpoint less conservative than the above specification, declare the channel inoperable and take the ACTION shown in Table 3.3-12.

b. With less than the minimum number of explosive gas monitoring instrumentation channels OPERABLE, take the ACTION shown in Table 3.3-12. Restore the inoperable instrumentation to OPERABLE status within 30 days. If unsuccessful, prepare and submit a SPECIAL REPORT to the Commission pursuant to Specification 6.9.2 to explain why this inoperability was not corrected in a timely manner.

c. The provisions of Specification 3.0.3 are not applicable. R.1

SURVEILLANCE REQUIREMENTS

4.3.3.9.1 Each explosive gas monitoring instrumentation channel shall be demonstrated OPERABLE by performance of the CHANNEL CHECK, CHANNEL CALIBRATION, and analog CHANNEL FUNCTIONAL TEST at the frequencies shown in Table 4.3-8.

TABLE 3.3-12

Explosive Gas Monitoring Instrumentation

Instrument (Instrument #)	Minimum Channels OPERABLE	Applicability	ACTION
1. Waste Gas Holdup System Explosive Gas Monitoring System[1]			
a. Hydrogen Monitor (QC-1400)	1	**	23
b. Oxygen Monitor (QC-1400, QC-370)	2	**	24

R.1

ACTION STATEMENTS

Action 23 With the number of channels OPERABLE less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 14 days, provided grab samples are taken and analyzed every 12 hours.

Action 24 With the number of channels OPERABLE one less than required by the Minimum Channels OPERABLE requirement, operation of this system may continue for up to 30 days. With 2 channels inoperable, operation of this system may continue for up to 30 days, provided grab samples are taken and analyzed every 12 hours.

** During waste gas holdup system operation.

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1 The waste gas holdup system explosive gas monitoring system may be inoperable for up to 160 days on a one-time basis for the purpose of replacing one oxygen monitor. During this time, grab samples for oxygen are to be taken and analyzed every 12 hours.

COOK NUCLEAR PLANT - UNIT 2 3/4 3-54 AMENDMENT NO. ~~80~~, ~~114~~, ~~163~~, 175

TABLE 4.3-8

Explosive Gas Monitoring Instrumentation Surveillance Requirements

Instrument (Instrument #)	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION	Applicability
1. Waste Gas Holdup System Explosive Gas Monitoring System				
a. Hydrogen Monitor (QC-1400)	D	M	Q(1)	**
b. Oxygen Monitor (QC-1400, QC-370*)	D	M	Q(2)	**

R.1

Table Notation

(1) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

a. One volume percent hydrogen, balance nitrogen, and

b. Four volume percent hydrogen, balance nitrogen.

(2) The CHANNEL CALIBRATION shall include the use of standard gas samples containing a nominal:

a. One volume percent oxygen, balance nitrogen, and

b. Four volume percent oxygen, balance nitrogen.

** During waste gas holdup system operation.

* These surveillances are not required during the 160-day period in which this monitor is being replaced.

DISCUSSION OF CHANGES
CTS 3/4.3.3.9, EXPLOSIVE GAS MONITORING INSTRUMENTATION

ADMINISTRATIVE CHANGES

None

MORE RESTRICTIVE CHANGES

None

RELOCATED SPECIFICATIONS

R.1 CTS 3/4.3.3.9 provides requirements for explosive gas monitoring instrumentation. The Explosive Gas Monitoring Instrumentation Specification is provided to ensure that the concentration of potentially explosive gas mixtures contained in the gaseous waste processing system is adequately monitored, which will help ensure that the concentration is maintained below the flammability limit. However, the system is designed to contain detonations, and detonations would not affect the function of any safety related equipment. The concentration of oxygen in the gaseous Waste Processing System is not an initial assumption of any design basis accident (DBA) or transient analysis. This Specification does not meet the criteria for retention in the Improved Technical Specifications (ITS); therefore, it will be retained in the Technical Requirements Manual (TRM).

This change is acceptable because CTS 3/4.3.3.9 does not meet the 10 CFR 50.36(c)(2)(ii) criteria for inclusion into the ITS.

10 CFR 50.36(c)(2)(ii) Criteria Evaluation:

1. Explosive gas monitoring instrumentation is not used for, nor capable of, detecting a significant abnormal degradation of the reactor coolant pressure boundary prior to a DBA. The Explosive Gas Monitoring Instrumentation Specification does not satisfy criterion 1.

2. Explosive gas monitoring instrumentation is not used to indicate status of, or monitor a process variable, design feature, or operating restriction that is an initial condition of a DBA or transient. In addition, excessive system oxygen is not an indication of a DBA or transient. The Explosive Gas Monitoring Instrumentation Specification does not satisfy criterion 2.

3. Explosive gas monitoring instrumentation is not part of a primary success path in the mitigation of a DBA or transient. In addition, excessive oxygen discharge is not part of a primary success path in mitigating a DBA or transient. The Explosive Gas Monitoring Instrumentation Specification does not satisfy criterion 3.

4. As discussed in Section 4.0 (Appendix A, page A-69) and summarized in Table 1 of WCAP-11618, the loss of the explosive gas monitoring instrumentation was found to be a non-significant risk contributor to core damage frequency and offsite releases. I&M has reviewed this evaluation, considers it applicable to CNP Units 1 and 2, and concurs with

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DISCUSSION OF CHANGES
CTS 3/4.3.3.9, EXPLOSIVE GAS MONITORING INSTRUMENTATION

the assessment. The Explosive Gas Monitoring Instrumentation Specification does not satisfy criterion 4.

Since the 10 CFR 50.36(c)(2)(ii) criteria have not been met, Explosive Gas Monitoring Instrumentation LCO and Surveillances may be relocated out of the Technical Specifications. The Explosive Gas Monitoring Instrumentation Specification will be relocated to the TRM. Changes to the TRM will be controlled by the provisions of 10 CFR 50.59. This change is designated as a relocation because the Specification did not meet the criteria in 10 CFR 50.36(c)(2)(ii) and has been relocated to the TRM.

REMOVED DETAIL CHANGES

None

LESS RESTRICTIVE CHANGES

None

Specific No Significant Hazards Considerations (NSHCs)

DETERMINATION OF NO SIGNIFICANT HAZARDS CONSIDERATIONS
CTS 3/4.3.3.9, EXPLOSIVE GAS MONITORING INSTRUMENTATION

There are no specific NSHC discussions for this Specification.

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ATTACHMENT 10

Improved Standard Technical Specifications (ISTS) not adopted in the CNP ITS

ISTS 3.3.8, Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation

ISTS 3.3.8 Markup and Justification for Deviations (JFDs)

(1)

3.3 INSTRUMENTATION

3.3.8 Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation

LCO 3.3.8 The FBACS actuation instrumentation for each Function in Table 3.3.8-1 shall be OPERABLE.

APPLICABILITY: According to Table 3.3.8-1.

ACTIONS

- NOTES -

1. LCO 3.0.3 is not applicable.
2. Separate Condition entry is allowed for each Function.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more Functions with one channel or train inoperable.	A.1 Place one FBACS train in operation.	7 days
B. One or more Functions with two channels or two trains inoperable.	B.1.1 Place one FBACS train in operation. AND B.1.2 Enter applicable Conditions and Required Actions of LCO 3.7.13, "Fuel Building Air Cleanup System (FBACS)," for one train made inoperable by inoperable actuation instrumentation. OR B.2 Place both trains in emergency [radiation protection] mode.	Immediately Immediately Immediately

(1)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
C. Required Action and associated Completion Time for Condition A or B not met during movement of [recently] irradiated fuel assemblies in the fuel building.	C.1	Suspend movement of [recently] irradiated fuel assemblies in the fuel building.	Immediately
D. [Required Action and associated Completion Time for Condition A or B not met in MODE 1, 2, 3, or 4.	D.1 AND D.2	Be in MODE 3. Be in MODE 5.	6 hours 36 hours]

SURVEILLANCE REQUIREMENTS

- NOTE -
Refer to Table 3.3.8-1 to determine which SRs apply for each FBACS Actuation Function.

SURVEILLANCE		FREQUENCY
SR 3.3.8.1	Perform CHANNEL CHECK.	12 hours
SR 3.3.8.2	Perform COT.	92 days
SR 3.3.8.3	[Perform ACTUATION LOGIC TEST.	31 days on a STAGGERED TEST BASIS]
SR 3.3.8.4	- NOTE - Verification of setpoint is not required. Perform TADOT.	[18] months

(1)

SURVEILLANCE REQUIREMENTS (continued)

SURVEILLANCE		FREQUENCY
SR 3.3.8.5	Perform CHANNEL CALIBRATION.	[18] months

1

Table 3.3.8-1 (page 1 of 1)
FBACS Actuation Instrumentation

FUNCTION	APPLICABLE MODES OR SPECIFIED CONDITIONS	REQUIRED CHANNELS	SURVEILLANCE REQUIREMENTS	TRIP SETPOINT
1. Manual Initiation	[1,2,3,4], (a)	2	SR 3.3.8.4	NA
2. [Automatic Actuation Logic and Actuation Relays	1,2,3,4, (a)	2 trains	SR 3.3.8.3	NA]
3. Fuel Building Radiation				
a. Gaseous	[1,2,3,4], (a)	[2]	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.5	≤ [2] mR/hr
b. Particulate	[1,2,3,4], (a)	[2]	SR 3.3.8.1 SR 3.3.8.2 SR 3.3.8.5	≤ [2] mR/hr

(a) During movement of [recently] irradiated fuel assemblies in the fuel building.

JUSTIFICATION FOR DEVIATIONS
ISTS 3.3.8, FUEL BUILDING AIR CLEANUP SYSTEM (FBACS) ACTUATION INSTRUMENTATION

1. ISTS 3.3.8, "FBACS Actuation Instrumentation," is not being adopted at CNP Units 1 and 2 because it does not meet any of the 10 CFR 50.36(c)(2)(ii) criteria for retention in the ITS. ITS 3.7.13, "Fuel Handling Area Exhaust Ventilation (FHAEV) System," requires the FHAEV System to be in operation during movement of irradiated fuel assemblies in the auxiliary building, and no automatic actuation is required. The CNP Units 1 and 2 safety analyses assume that the FHAEV System is operating when a Fuel Handling Accident occurs. For this reason, FBACS Actuation Instrumentation is not required for accident mitigation, and does not meet Criterion 3 of 10 CFR 50.36(c)(2)(ii) for inclusion in the Technical Specifications.

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ISTS 3.3.8 Bases Markup and Justification for Deviations (JFDs)

(1)

B 3.3 INSTRUMENTATION

B 3.3.8 Fuel Building Air Cleanup System (FBACS) Actuation Instrumentation

BASES

BACKGROUND

The FBACS ensures that radioactive materials in the fuel building atmosphere following a fuel handling accident [involving handling recently irradiated fuel] or a loss of coolant accident (LOCA) are filtered and adsorbed prior to exhausting to the environment. The system is described in the Bases for LCO 3.7.13, "Fuel Building Air Cleanup System." The system initiates filtered ventilation of the fuel building automatically following receipt of a high radiation signal (gaseous or particulate) or a safety injection (SI) signal. Initiation may also be performed manually as needed from the main control room.

High gaseous and particulate radiation, each monitored by either of two monitors, provides FBACS initiation. Each FBACS train is initiated by high radiation detected by a channel dedicated to that train. There are a total of two channels, one for each train. Each channel contains a gaseous and particulate monitor. High radiation detected by any monitor or an SI signal from the Engineered Safety Features Actuation System (ESFAS) initiates fuel building isolation and starts the FBACS. These actions function to prevent exfiltration of contaminated air by initiating filtered ventilation, which imposes a negative pressure on the fuel building. Since the radiation monitors include an air sampling system, various components such as sample line valves, sample line heaters, sample pumps, and filter motors are required to support monitor OPERABILITY.

APPLICABLE SAFETY ANALYSES

The FBACS ensures that radioactive materials in the fuel building atmosphere following a fuel handling accident [involving handling recently irradiated fuel] or a LOCA are filtered and adsorbed prior to being exhausted to the environment. This action reduces the radioactive content in the fuel building exhaust following a LOCA or fuel handling accident so that offsite doses remain within the limits specified in 10 CFR 100 (Ref. 1).

The FBACS actuation instrumentation satisfies Criterion 3 of 10 CFR 50.36(c)(2)(ii).

LCO

The LCO requirements ensure that instrumentation necessary to initiate the FBACS is OPERABLE.

(1)

BASES

LCO (continued)

1. Manual Initiation

The LCO requires two channels OPERABLE. The operator can initiate the FBACS at any time by using either of two switches in the control room. This action will cause actuation of all components in the same manner as any of the automatic actuation signals.

The LCO for Manual Initiation ensures the proper amount of redundancy is maintained in the manual actuation circuitry to ensure the operator has manual initiation capability.

Each channel consists of one push button and the interconnecting wiring to the actuation logic cabinet.

2. Automatic Actuation Logic and Actuation Relays

The LCO requires two trains of Actuation Logic and Relays OPERABLE to ensure that no single random failure can prevent automatic actuation.

Automatic Actuation Logic and Actuation Relays consist of the same features and operate in the same manner as described for ESFAS Function 1.b., SI, in LCO 3.3.2. The applicable MODES and specified conditions for the FBACS portion of these functions are different and less restrictive than those specified for their SI roles. If one or more of the SI functions becomes inoperable in such a manner that only the FBACS function is affected, the Conditions applicable to their SI function need not be entered. The less restrictive Actions specified for inoperability of the FBACS functions specify sufficient compensatory measures for this case.

3. Fuel Building Radiation

The LCO specifies two required Gaseous Radiation Monitor channels and two required Particulate Radiation Monitor channels to ensure that the radiation monitoring instrumentation necessary to initiate the FBACS remains OPERABLE.

For sampling systems, channel OPERABILITY involves more than OPERABILITY of channel electronics. OPERABILITY may also require correct valve lineups, sample pump operation, filter motor operation, detector OPERABILITY, if these supporting features are

1

BASES

LCO (continued)

necessary for actuation to occur under the conditions assumed by the safety analyses.

Only the Trip Setpoint is specified for each FBACS Function in the LCO. The Trip Setpoint limits account for instrument uncertainties, which are defined in the Unit Specific Setpoint Calibration Procedure (Ref. 2).

APPLICABILITY

The manual FBACS initiation must be OPERABLE in MODES [1, 2, 3, and 4] and when moving [recently] irradiated fuel assemblies in the fuel building, to ensure the FBACS operates to remove fission products associated with leakage after a LOCA or a fuel handling accident [involving handling recently irradiated fuel]. The automatic FBACS actuation instrumentation is also required in MODES [1, 2, 3, and 4] to remove fission products caused by post LOCA Emergency Core Cooling Systems leakage.

High radiation initiation of the FBACS must be OPERABLE in any MODE during movement of [recently] irradiated fuel assemblies in the fuel building to ensure automatic initiation of the FBACS when the potential for the limiting fuel handling accident exists. [Due to radioactive decay, the FBACS instrumentation is only required to be OPERABLE during fuel handling involving handling recently irradiated fuel (i.e., fuel that has occupied part of a critical reactor core within the previous [ ] days).]

While in MODES 5 and 6 without fuel handling [involving handling *recently irradiated fuel] in progress, the FBACS instrumentation need not* be OPERABLE since a fuel handling accident [involving handling recently irradiated fuel] cannot occur.

ACTIONS

The most common cause of channel inoperability is outright failure or drift of the bistable or process module sufficient to exceed the tolerance allowed by unit specific calibration procedures. Typically, the drift is found to be small and results in a delay of actuation rather than a total loss of function. This determination is generally made during the performance of a COT, when the process instrumentation is set up for adjustment to bring it within specification. If the Trip Setpoint is less conservative than the tolerance specified by the calibration procedure, the channel must be declared inoperable immediately and the appropriate Condition entered.

LCO 3.0.3 is not applicable while in MODE 5 or 6. However, since irradiated fuel assembly movement can occur in MODE 1, 2, 3, or 4, the

(1)

BASES

ACTIONS (continued)

ACTIONS have been modified by a Note stating that LCO 3.0.3 is not applicable. If moving irradiated fuel assemblies while in MODE 5 or 6, LCO 3.0.3 would not specify any action. If moving irradiated fuel assemblies while in MODE 1, 2, 3, or 4, the fuel movement is independent of reactor operations. Entering LCO 3.0.3, while in MODE 1, 2, 3, or 4 would require the unit to be shutdown unnecessarily.

A second Note has been added to the ACTIONS to clarify the application of Completion Time rules. The Conditions of this Specification may be entered independently for each Function listed in Table 3.3.8-1 in the accompanying LCO. The Completion Time(s) of the inoperable channel(s)/train(s) of a Function will be tracked separately for each Function starting from the time the Condition was entered for that Function.

A.1

Condition A applies to the actuation logic train function of the Solid State Protection System (SSPS), the radiation monitor functions, and the manual function. Condition A applies to the failure of a single actuation logic train, radiation monitor channel, or manual channel. If one channel or train is inoperable, a period of 7 days is allowed to restore it to OPERABLE status. If the train cannot be restored to OPERABLE status, one FBACS train must be placed in operation. This accomplishes the actuation instrumentation function and places the unit in a conservative mode of operation. The 7 day Completion Time is the same as is allowed if one train of the mechanical portion of the system is inoperable. The basis for this time is the same as that provided in LCO 3.7.13.

B.1.1, B.1.2, B.2

Condition B applies to the failure of two FBACS actuation logic trains, two radiation monitors, or two manual channels. The Required Action is to place one FBACS train in operation immediately. This accomplishes the actuation instrumentation function that may have been lost and places the unit in a conservative mode of operation. The applicable Conditions and Required Actions of LCO 3.7.13 must also be entered for the FBACS train made inoperable by the inoperable actuation instrumentation. This ensures appropriate limits are placed on train inoperability as discussed in the Bases for LCO 3.7.13.

(1)

BASES

ACTIONS (continued)

Alternatively, both trains may be placed in the emergency [radiation protection] mode. This ensures the FBACS Function is performed even in the presence of a single failure.

C.1

Condition C applies when the Required Action and associated Completion Time for Condition A or B have not been met and [recently] irradiated fuel assemblies are being moved in the fuel building. Movement of [recently] irradiated fuel assemblies in the fuel building must be suspended immediately to eliminate the potential for events that could require FBACS actuation.

D.1 and D.2

Condition D applies when the Required Action and associated Completion Time for Condition A or B have not been met and the unit is in MODE 1, 2, 3, or 4. The unit must be brought to a MODE in which the LCO requirements are not applicable. To achieve this status, the unit must be brought to MODE 3 within 6 hours and MODE 5 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the required unit conditions from full power conditions in an orderly manner and without challenging unit systems.

SURVEILLANCE REQUIREMENTS

A Note has been added to the SR Table to clarify that table 3.3.8-1 determines which SRs apply to which FBACS Actuation Functions.

SR 3.3.8.1

Performance of the CHANNEL CHECK once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the two instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

(1)

BASES

SURVEILLANCE REQUIREMENTS (continued)

Agreement criteria are determined by the unit staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the sensor or the signal processing equipment has drifted outside its limit.

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

SR 3.3.8.2

A COT is performed once every 92 days on each required channel to ensure the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL OPERATIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. This test verifies the capability of the instrumentation to provide the FBACS actuation. The setpoints shall be left consistent with the unit specific calibration procedure tolerance. The Frequency of 92 days is based on the known reliability of the monitoring equipment and has been shown to be acceptable through operating experience.

SR 3.3.8.3

[SR 3.3.8.3 is the performance of an ACTUATION LOGIC TEST. The actuation logic is tested every 31 days on a STAGGERED TEST BASIS. All possible logic combinations, with and without applicable permissives, are tested for each protection function. The Frequency is based on the known reliability of the relays and controls and the multichannel redundancy available, and has been shown to be acceptable through operating experience.]

SR 3.3.8.4

SR 3.3.8.4 is the performance of a TADOT. This test is a check of the manual actuation functions and is performed every [18] months. Each manual actuation function is tested up to, and including, the master relay

BASES

SURVEILLANCE REQUIREMENTS (continued)

coils. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable TADOT of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. In some instances, the test includes actuation of the end device (e.g., pump starts, valve cycles, etc.). The Frequency is based on operating experience and is consistent with the typical industry refueling cycle. The SR is modified by a Note that excludes verification of setpoints during the TADOT. The Functions tested have no setpoints associated with them.

SR 3.3.8.5

A CHANNEL CALIBRATION is performed every [18] months, or approximately at every refueling. CHANNEL CALIBRATION is a complete check of the instrument loop, including the sensor. The test verifies that the channel responds to a measured parameter within the necessary range and accuracy. The Frequency is based on operating experience and is consistent with the typical industry refueling cycle.

REFERENCES

1. 10 CFR 100.11.

2. Unit Specific Setpoint Calibration Procedure.

JUSTIFICATION FOR DEVIATIONS
ISTS 3.3.8 BASES, FUEL BUILDING AIR CLEANUP SYSTEM (FBACS) ACTUATION INSTRUMENTATION

1. Changes are made to be consistent with changes made to the Specification.