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Indian Point 3

December 17, 2001
IPN-01-089

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Mail Stop O-P1-17
Washington, DC 20555-0001

SUBJECT: Indian Point 3 Nuclear Power Plant
Docket No. 50-286
Supplement to Proposed Change to Technical Specifications Regarding Post Accident Monitoring Instrumentation

REFERENCE: 1. Entergy letter IPN-01-065, "Proposed Change to Technical Specifications Regarding Post Accident Monitoring Instrumentation," M. Kansler to NRC, dated September 7, 2001.

Dear Sir:

Entergy Nuclear Operations, Inc submitted proposed changes to the Indian Point 3 Technical Specifications (Section 3.3.3) in Reference 1. This supplement addresses comments discussed with NRC staff reviewers during a telephone conference call on November 8, 2001. Attachment I provides Entergy's responses to the NRC comments and Attachment II contains the proposed new Technical Specification pages, which replace in entirety, the pages transmitted by Reference 1.

The comments provide an alternate means of formatting the Specification based on a method previously approved for another licensee. The Safety Evaluation has been revised (Attachment III) to reflect the alternate formatting method. Since the technical requirements are not being changed, this supplement does not affect the conclusions of the No Significant Hazards Evaluation previously provided in Reference 1. Attachment IV is a new markup of the existing Technical Specification pages, for information only, including proposed changes to affected pages of the Technical Specification Bases.

A001

There are no new commitments made by this letter. If you have any questions regarding this submittal, please contact Mr. John Donnelly at (914) 736-8310.

Very truly yours,

Robert J. Barrett
Vice President, Operations - IP3
Indian Point 3 Nuclear Power Plant

STATE OF NEW YORK
COUNTY OF WESTCHESTER
Subscribed and sworn to before me
this 17 day of DECEMBER 2001.

Christina Leitmann
Notary Public, State of New York
Registration #01LE5070946
Qualified In Putnam County
My Commission Expires Jan. 6, 2003

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ENTERGY RESPONSES TO NRC REVIEWER COMMENTS

Comment 1: The use of notes to identify redundant channels of instrumentation is an unnecessarily complex method of providing this information in the Technical Specification. A more simplified method would be to include this information in the condition entry statements for Condition C. The NRC has previously approved this method for another licensee (Docket 50-445 / 446).

Response: Entergy stated in the initial request for the Technical Specification amendment, "These Notes unnecessarily complicate the Table and are not needed to ensure that appropriate Condition Statements are entered." Entergy agrees to use the approach that involves additional condition entry statements in Condition C, instead of notations in the Table, to reflect the specific licensing basis requirements for Indian Point 3. The proposed method assures that the single condition entry allowance provided in LCO 3.3.3 is maintained for all Functions listed in Table 3.3.3 -1.

Comment 2: The licensee has proposed keeping and modifying the Note that specifies Steam Generator Water Level (Wide Range) and Auxiliary Feedwater Flow as redundant channels to each other. If these two functions were merged into one function, the standard condition entry statement for Condition C would be applicable. With this merged function, there would be no need for the Note.

Response: Entergy agrees that combining the functions is a more streamlined presentation format and will result in the elimination of another Note in the Table. Therefore, the request for amendment has been revised to reflect this recommendation.

Comment 3: If the licensee desires to maintain the notes instead of using the recommendations from Comments 1 and 2, some modifications to the notes are required.

Response: As stated in the response to Comment 1, one of Entergy's objectives in this proposed amendment request is to simplify the Table by eliminating certain Notes. Addressing comments on the Notes is therefore not necessary because Entergy is adopting the NRC's recommendations in Comments 1 and 2, which are consistent with the objective of eliminating the Notes.

ATTACHMENT II TO IPN-01-089

PROPOSED TECHNICAL SPECIFICATION CHANGES REGARDING

POST ACCIDENT MONITORING INSTRUMENTATION

Remove Page	Insert Page
3.3.3-1	3.3.3-1
3.3.3-2	3.3.3-2
Table 3.3.3-1, Page 1 of 2	Table 3.3.3-1, Page 1 of 2
Table 3.3.3-1, Page 2 of 2	Table 3.3.3-1, Page 2 of 2

Note: These pages replace those previously transmitted in IPN-01-065, dated September 7, 2001

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

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

----------NOTES----------

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
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.7.	Immediately

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. One or more Functions with two required channels inoperable. OR One required T_{hot} channel and two required Core Exit Temperature channels inoperable. OR One required T_{cold} channel and two required SG Pressure channels inoperable. OR One required Main Steam Line Radiation channel and two required SG Water Level (Narrow Range) channels inoperable.	C.1 Restore one channel to OPERABLE status.	7 days
D. Required Action and associated Completion Time of Condition C not met.	D.1 Enter the Condition referenced in Table 3.3.3-1 for the channel.	Immediately
E. As required by Required Action D.1 and referenced in Table 3.3.3-1.	E.1 Be in MODE 3. AND E.2 Be in MODE 4.	6 hours 12 hours
F. As required by Required Action D.1 and referenced in Table 3.3.3-1.	F.1 Initiate action in accordance with Specification 5.6.7.	Immediately

Table 3.3.3-1 (page 1 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION D.1	SR 3.3.3.2 FREQUENCY
1.	Neutron Flux	2	F	24 months
2.	RCS Hot Leg Temperature, (Wide Range) (T_{hot})	1 per loop	E	24 months
3.	RCS Cold Leg Temperature (Wide Range) (T_{cold})	1 per loop	E	24 months
4.	RCS Pressure (Wide Range)	2	E	24 months
5.	Reactor Vessel Water Level	2	E	24 months
6.	Containment Water Level (Wide Range)	2	E	24 months
7.	Containment Water Level (Recirculation Sump)	2	E	24 months
8.	Containment Pressure	2	E	18 months
9.	Automatic Containment Isolation Valve Position	2 per penetration flow path(a)(b)	F	24 months
10.	Containment Area Radiation (High Range)	2	F	24 months
11.	Containment Hydrogen Monitors	2(c)	E	92 days
12.	Pressurizer Level	2	E	24 months
13.	SG Water Level (Narrow Range)	2 per SG	E	24 months
14.	SG Water Level (Wide Range) and Auxiliary Feedwater Flow	1 each per SG	E	24 months, SGL 18 months, AFF
15.	NOT USED			
16.	SG Pressure	2 per SG	E	24 months
17.	Condensate Storage Tank Level	2	F	24 months
18.	Core Exit Temperature-Quadrant 1	2(d)	E	24 months
19.	Core Exit Temperature-Quadrant 2	2(d)	E	24 months
20.	Core Exit Temperature-Quadrant 3	2(d)	E	24 months
21.	Core Exit Temperature-Quadrant 4	2(d)	E	24 months
22.	Main Steam Line Radiation	1 per steam line	F	24 months
23.	Gross Failed Fuel Detector	2	F	24 months
24.	RCS Subcooling	2	E	24 months

See NOTES, next page.

(continued)

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

NOTES:

(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.

(b) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

(c) Hydrogen monitor OPERABILITY requires that at least one of the associated containment fan cooler unit is OPERABLE.

(d) A channel consists of two core exit thermocouples (CETs).

ATTACHMENT III TO IPN-01-089

SAFETY EVALUATION FOR

PROPOSED TECHNICAL SPECIFICATION CHANGE REGARDING

POST ACCIDENT MONITORING INSTRUMENTATION

Note: The following Safety Evaluation replaces the Safety Evaluation previously transmitted by IPN-01-065, dated September 7, 2001. The changes reflect an alternate method for formatting the proposed Technical Specification. The conclusions of the No Significant Hazards Evaluation are not affected by these changes.

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

SAFETY EVALUATION FOR PROPOSED CHANGES TO TECHNICAL SPECIFICATIONS REGARDING POST ACCIDENT INSTRUMENTATION

Section I - Description of Proposed Changes

The proposed changes to Technical Specification 3.3.3, "Post Accident Monitoring Instrumentation" are described below:

1. Revise required channels for Functions 18 to 21 from "2 per train" to "2 (d)". The function name is also changed from "Core Exit Thermocouples ... " to "Core Exit Temperature..." .

2. Add new Note (d) for Functions 18 to 21; "A channel consists of two core exit thermocouples (CETs)."

3. Add three additional condition entry statements for Condition C, as follows:

   One required T_{hot} channel and two required Core Exit Temperature channels inoperable.

   OR

   One required T_{cold} channel and two required SG Pressure channels inoperable.

   OR

   One required Main Steam Line Radiation channel and two required SG Water Level (Narrow Range) channels inoperable.

4. Delete existing Notes (a), (b), (f), and (g). Renumber remaining Notes; (c) becomes (a), (d) becomes (b), and (e) becomes (c).

5. Combine existing Functions 14 and 15 into a new Function 14 with required channels becoming '1 each per SG'. The surveillance frequency for each instrument channel in this function is not changed. Function 15 becomes "NOT USED".

6. Add " (T_{hot})" and "(T_{cold})" to function name for Functions 2 and 3 respectively.

7. Revise function name for Function 16 from "Steam Generator Pressure" to "SG Pressure".

Section II - Purpose of Proposed Changes

a) Clarification of required channels for Core Exit Temperature

The changes proposed in items 1 and 2 are needed to ensure that Regulatory Guide 1.97 requirements for Indian Point 3 are properly reflected in the Technical Specifications. The revised wording of the function name and required channels, including the new explanatory Note (d), for core exit temperature adopts the wording from the Standard Technical Specifications (STS), NUREG 1431, Revision 2. The existing wording could be interpreted to impose a more restrictive requirement that is not consistent with the design of the system.

b) Revised presentation format for certain instrument channels

The changes proposed in items 3, 4, and 5 allow the elimination of certain notes to reduce unnecessary complication in the instrumentation Table. The proposed new format for the specification does not involve any change in existing requirements. The approach for this improved format is based on a Technical Specification previously approved by the NRC (Docket No. 50-445 / 446).

c) Editorial changes

The changes proposed in items 6 and 7 are editorial in nature. The proposed revisions to the affected function names support the proposed wording for the new condition entry statements described in item 3.

Section III - Safety Implication of Proposed Changes

a) Clarification of required channels for Core Exit Temperature

Rewording of the 'Required Channel' statement for Core Exit Temperature (proposed change 1) and adding a new Note (proposed change 2) provides a better description of what constitutes the required channels for Functions 18, 19, 20, and 21 in Table 3.3.3-1.

Core Exit Temperature is used for verification and long term surveillance of core cooling. The system design at Indian Point 3 provides for 10 Core Exit Thermocouples (CETs) in each of two trains with a minimum of 2 CETs per train in each of the four core quadrants. This design ensures that sufficient design redundancy exists so that the safety function can still be met in the event of a limiting single failure of a power supply. Also, the relative location of the CETs is such that an evaluation can be made of core radial decay heat distribution. This feature is assured by specifying that the core exit temperature function depends on a pair of CETs. The wording for core exit temperature required channels in the STS is applicable to the Indian Point 3 design and licensing basis and is preferable to the existing wording.

The existing wording is: "2 per train" which could be interpreted to mean 2 channels per train and since there are two trains, this would imply that four channels are required. This would result in a requirement that is unintentionally more restrictive than the Indian Point 3 licensing basis and is not consistent with the system design. Although the Bases provides an explanation, it is preferable to use the wording from the STS (proposed change 1) in the Indian Point 3 technical specification to eliminate potential confusion. Revising the function name from "Core Exit Thermocouples..." to "Core Exit Temperature..." ensures that terminology is consistent with the STS.

b) Revised presentation format for certain instrument channels

The design of the Post Accident Monitoring instrumentation at Indian Point 3 does not provide redundant instrument channels for certain Type A / Category 1 variables. In these cases, a different variable is used to provide appropriate information to satisfy the redundancy requirement. This configuration was found acceptable in the NRC Safety Evaluation Report (Reference 1) for implementation of Regulatory Guide 1.97 requirements at Indian Point 3. The current format of Table 3.3.3-1 uses notes to identify the affected functions and instrument channels. This format unnecessarily complicates the Table. Proposed changes 3, 4, and 5 use an alternate format to establish the same requirements for these functions.

The structure of the Technical Specifications is such that one condition statement applies if there is a loss of redundancy for the monitored variable and another, more restrictive, condition statement applies if there is a loss of function. The purpose of Condition C is to establish the required actions and completion time for a loss of function. The existing format of Table 3.3.3-1 requires that the plant operators evaluate the information in the notes to determine when an instrument channel failure constitutes a loss of function for the affected variable. Proposed change 3 will add new condition entry statements in Condition C that specifically address a loss of function for those instrument channels (Functions 2, 3, and 22) that rely on a different variable to meet the redundancy requirement. This change will maintain the existing requirement using an improved presentation format. Proposed change 4 will eliminate Notes a, b, and g that are no longer needed as a result of adding the new condition entry statements.

Similarly, Proposed change 5 accomplishes the same objective for existing Functions 14 and 15 by combining the two functions, each of which have only one instrument channel. The instrument channel for Function 14 is Steam Generator Water Level (Wide Range) and the instrument channel for Function 15 is Auxiliary Feedwater Flow. Both of these instrument channels provide a means for monitoring the decay heat removal capability of the steam generators. Since both instrument channels provide a redundant means for monitoring the same variable, it is appropriate that both channels be combined into one function in Table 3.3.3-1. This revised format eliminates the need for existing Note f (proposed change 4)and provides an improved method of assuring that the appropriate condition statements are applied when one or both instrument channels are inoperable.

c) Editorial changes

Proposed changes 6 and 7 modify the function name used in Table 3.3.3-1 for Functions 2, 3, and 16. This change is made to support the format and wording used for the new condition entry statements described in proposed change 3. This change does not affect the requirements established in the current specification.

The above proposed changes are consistent with the criteria stated in 10 CFR 50.36(c) regarding the required content of Technical Specifications.

Section IV - Evaluation of Significant Hazards Consideration

Consistent with the criteria of 10 CFR 50.92, the enclosed application is judged to involve no significant hazards based on the following information:

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

Response:

The proposed amendment involves rewording or reformatting of technical specification requirements regarding certain post accident monitoring instrumentation at Indian Point 3, to improve the usability of the specification. The proposed rewording of the required channels for core exit temperature adopts the wording from the Standard Technical Specifications, which is applicable to the Indian Point 3 design. New condition entry statements are added in Condition C as an alternate formatting method which replaces the existing approach of using notes in the instrumentation list in Table 3.3.3-1, for certain instrument channels. Similarly, combining two existing functions into one new function is an improved formatting method that eliminates the need for a note in the Table. None of these proposed changes affect the requirements established in the existing specification.

Post accident monitoring instrumentation is a tool used by plant operators to conduct diagnostic activities outlined in plant emergency operating procedures. The presence or absence of this instrumentation does not influence accident initiators for accidents previously analyzed. Also, this instrumentation is not credited to support automatic responses for accident mitigating systems or equipment. Therefore, the proposed amendment does not involve a significant increase in the probability or consequences of an accident previously evaluated.

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

Response:

The proposed amendment involves rewording or reformatting of technical specification requirements to improve the usability of the specification for certain post accident monitoring instrumentation at Indian Point 3. The proposed amendment does not involve any changes to plant equipment, setpoints, or the way in which the plant is operated. The proposed amendment maintains the existing requirements for post accident monitoring instrumentation using an improved presentation format. Therefore the proposed amendment does not create the possibility of a new or different kind of accident from any accident previously evaluated.

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

Response:

The proposed amendment involves rewording or reformatting of technical specification requirements to improve the usability of the specification for certain post accident monitoring instrumentation at Indian Point 3. The proposed rewording of the required channels for core exit temperature adopts the wording from the Standard Technical Specifications, which is applicable to Indian Point 3. Use of the standard wording ensures consistent application of the requirements for this post accident monitoring function. Similarly, reformatting the specification to use new condition entry statements, rather than the existing notations in the Table will improve the usability of the specification and ensure that the intended requirements will be consistently applied.

The proposed changes do not delete or modify existing requirements or add new requirements. The changes involve rewording or reformatting of existing requirements and provide an improved method of stating the requirements intended in the existing specification. Therefore, the proposed amendment does not involve a significant reduction in a margin of safety.

Section V - Implementation of the Proposed Change

This amendment request meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9) as follows:

- The amendment involves no significant hazards consideration.

  As described in Section IV of this evaluation, the proposed change involves no significant hazards consideration.

- There is no significant change in the types or significant increase in the amounts of any effluents that may be released offsite.

  The proposed change does not involve the installation of any new equipment or the modification of any equipment that may affect the amounts or types of effluents that may be released offsite. The changes do not revise any procedures that affect the amounts or types of effluents that may be released offsite. The changes reword or reformat existing information in the Technical Specifications in a manner intended to improve the usability of the specification.

- There is no significant increase in individual or cumulative occupational radiation exposure.

  The proposed changes do not involve any physical plant changes or introduce any new mode of plant operation or testing. The changes will not have any significant increase in individual or cumulative occupational radiation exposure.

Based on the above, Entergy concludes that the proposed changes meet the criteria specified in 10 CFR 51.22 for a categorical exclusion from the requirements of 10 CFR 51.21 relative to requiring a specific environmental assessment by the Commission.

Section VI - Conclusion

The Plant Operating Review Committee (PORC) and Safety Review Committee (SRC) have reviewed the proposed changes to the Technical Specifications and concluded that these changes:

a) will not significantly increase the probability or the consequences of an accident or malfunction of equipment important to safety as previously evaluated in the Safety Analysis Report;
b) will not significantly increase the possibility for an accident or malfunction of a different type than any evaluated previously in the Safety Analysis Report; and,
c) will not significantly reduce the margin of safety as defined in the bases for any technical specification.

Therefore, the change involves no significant hazards considerations as defined in 10 CFR 50.92.

Section VII – References

1. NRC letter to Power Authority of the State of New York, "Emergency Response Capability - Conformance to Regulatory Guide 1.97, Revision 3, for Indian Point 3," dated April 3, 1991.

2. Indian Point 3, Updated Final Safety Analysis Report; Section 7.5, Process Instrumentation.

ATTACHMENT IV TO IPN-01-089

MARKED PAGES FOR THE PROPOSED

TECHNICAL SPECIFICATION CHANGE REGARDING

POST ACCIDENT MONITORING INSTRUMENTATION

FOR INFORMATION ONLY

(includes proposed changes to Bases)

ENTERGY NUCLEAR OPERATIONS, INC.
INDIAN POINT 3 NUCLEAR POWER PLANT
DOCKET NO. 50-286
DPR-64

3.3 INSTRUMENTATION

3.3.3 Post Accident Monitoring (PAM) Instrumentation

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

----------NOTES----------

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
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action in accordance with Specification 5.6.7.	Immediately
C. One or more Functions with two required channels inoperable. SEE INSERT, next page	C.1 Restore one channel to OPERABLE status.	7 days

(continued)

INSERT FOR CONDITION C:

OR

One required T_{hot} channel and two required Core Exit Temperature channels inoperable.

OR

One required T_{cold} channel and two required SG Pressure channels inoperable.

OR

One required Main Steam Line Radiation channel and two required SG Water Level (Narrow Range) channels inoperable.

Table 3.3.3-1 (page 1 of 2)
Post Accident Monitoring Instrumentation

	FUNCTION	REQUIRED CHANNELS	CONDITION REFERENCED FROM REQUIRED ACTION D.1	SR 3.3.3.2 FREQUENCY
1.	Neutron Flux	2	F	24 months
2.	RCS Hot Leg Temperature (Wide Range)	1 per loop (a)	E	24 months
3.	RCS Cold Leg Temperature (Wide Range)	1 per loop (b)	E	24 months
4.	RCS Pressure (Wide Range)	2	E	24 months
5.	Reactor Vessel Water Level	2	E	24 months
6.	Containment Water Level (Wide Range)	2	E	24 months
7.	Containment Water Level (Recirculation Sump)	2	E	24 months
8.	Containment Pressure	2	E	18 months
9.	Automatic Containment Isolation Valve Position	2 per penetration flow path (c) (d)	F	24 months
10.	Containment Area Radiation (High Range)	2	F	24 months
11.	Containment Hydrogen Monitors	2 (e)	E	92 days
12.	Pressurizer Level	2	E	24 months
13.	SG Water Level (Narrow Range)	2 per SG	E	24 months
14.	SG Water Level (Wide Range)	1 per SG (f)	E	24 months
15.	Auxiliary Feedwater Flow	1 per SG	E	18 months
16.	Steam Generator Pressure	2 per SG	E	24 months
17.	Condensate Storage Tank Level	2	F	24 months
18.	Core Exit Thermocouples Quadrant 1	2 per train (d)	E	24 months
19.	Core Exit Thermocouples Quadrant 2	2 per train (d)	E	24 months
20.	Core Exit Thermocouples Quadrant 3	2 per train (d)	E	24 months
21.	Core Exit Thermocouples Quadrant 4	2 per train (d)	E	24 months
22.	Main Steam Line Radiation	1 per steam line	F	24 months
23.	Gross Failed Fuel Detector	2	F	24 months
24.	RCS Subcooling	2	E	24 months

See NOTES, next page.

(continued)

Table 3.3.3-1 (page 2 of 2)
Post Accident Monitoring Instrumentation

NOTES:

(a) The redundant channel in each of four loops is any qualified CET in the quadrant associated with that loop.

(b) The redundant channel in each of four loops is any channel of steam generator pressure for that loop.

a (c) 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.

b (d) Only one position indication channel is required for penetration flow paths with only one installed control room indication channel.

c (e) Hydrogen monitor OPERABILITY requires that at least one of the associated containment fan cooler unit is OPERABLE.

(f) The redundant channel in each steam generator is the auxiliary feedwater flow rate channel for that steam generator.

(g) The redundant channel in each steam line is any one steam generator narrow range level indicator for that loop.

(d) A channel consists of two core exit thermocouples (CETs).

BASES

LCO
(continued)

The LCO requires one channel of valve closed position indication in the control room (or at local control stations for valves without control room indication) to be OPERABLE for each active CIV in a containment penetration flow path, 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 (d) requires a single channel of valve position indication to be OPERABLE. This is sufficient to redundantly verify the isolation 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, position indication is not needed to determine status. Therefore, the position indication for valves in this state is not required to be OPERABLE.

Note (c) 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.

Note that non-automatic containment isolation valves are not provided with position indication. As described in the Bases for LCO 3.6.3, "Containment Isolation Valves, containment isolation valves classified as essential and non-automatic are maintained in the open position and are closed after the initial phases of an accident. Emergency procedures are utilized to control the closing of these valves. Non-essential containment isolation valves are maintained in the closed position and may be opened, if necessary, for plant operation and for only as long as necessary to perform the intended function, under administrative controls described in the Bases for LCO 3.6.3.

10. Containment Area Radiation (High Range)

Containment Area Radiation is provided to monitor for the potential of significant radiation releases and to provide release assessment for use by operators in determining the need to invoke site emergency plans.

(continued)

NO CHANGES THIS PAGE

INFO ONLY

BASES

LCO
(continued)

The LCO requirement for Containment Area Radiation (high range) monitoring is satisfied by radiation monitors designated R-25 and R-26.

11. Containment Hydrogen Monitors

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.

The LCO requirement for Containment Hydrogen monitoring is satisfied by containment hydrogen sampling monitors designated HCMC-A and HCMC-B. Hydrogen monitor OPERABILITY requires that at least one of the associated containment fan cooler units (FCU) is OPERABLE. HCMC-A is associated with FCU 32 or 35 and HCMC-B is associated with FCU 31 or 33 or 34.

12. Pressurizer Level

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 that the unit is maintained in a safe shutdown condition.

The LCO requirement for 2 channels of pressurizer level indication is satisfied by any two of the level instruments designated LT-459, LT-460 and LT-461.

13. Steam Generator Water Level (Narrow Range)

SG Water Level is required to monitor operation of decay heat removal via the SGs.

Each Steam Generator (SG) has three narrow range transmitters which span a range from the top of the tube bundles up to the moisture separator.

(continued)

BASES

LCO
(continued)

Requirements for steam generator water level indication assume that two of the four steam generators are required for heat removal.

Narrow range SG water level is a Category I, Type A variable used to determine if the SG's are being maintained as an adequate heat sink for decay heat removal and to maintain the SG level and prevent overfill. It is also used to determine whether SI should be terminated and may be used to diagnose an SG tube rupture event. The LCO requirement is satisfied by the following two instruments for each SG:

SG 31	SG 32	SG 33	SG 34
LT-417A	LT-427A	LT-437A	LT-447A
LT-417C	LT-427C	LT-437C	LT-447C

The 'B-series' instruments (LT-4x7B) are QA Category M and are not used to satisfy this LCO requirement.

14. Steam Generator Water Level (Wide Range)

Each steam generator has one level transmitter that spans a range from the tube sheet up to the moisture separator.

Wide range SG water level is a Category I, Type A variable used to determine if the SG's are being maintained as an adequate heat sink for decay heat removal. The LCO requirement for wide range water level is satisfied by instruments designated LT-417D, LT-427D, LT-437D, and LT-447D. Redundancy for wide range level in each SG is provided by the Auxiliary Feedwater Flow for that SG (Function 15).

SEE INSERT

15. Auxiliary Feedwater Flow

AFW Flow is provided to monitor the decay heat removal capability of each SG. Although not a category I or Type A variable for IP3, these instrument channels provide redundancy for SG wide range level in the event of the limiting single failure of a power supply. This LCO is satisfied by the OPERABILITY of the following instruments:

(continued)

INSERT FOR BASES PAGE B 3.3.3 -11:

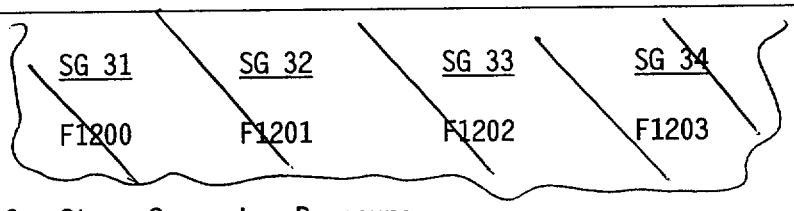
14. Steam Generator Water Level (Wide Range) and Auxiliary Feedwater Flow

Each steam generator has one level transmitter that spans a range from the tube sheet up to the moisture separator. Wide range SG water level is a Category I, Type A variable used to determine if the SG's are being maintained as an adequate heat sink for decay heat removal. Since there is only one instrument channel per steam generator, Auxiliary Feedwater (AFW) flow instrumentation is credited for providing a redundant means of determining if adequate decay heat removal by the SGs is being maintained. Although not a category I or Type A variable for IP3, the AFW flow instrument channels provide redundancy for SG wide range level in the event of the limiting single failure of a power supply. The LCO requirement for this function is satisfied by one SG wide range water level channel and one AFW flow channel for each steam generator. The instrument channels for SG wide range water level are designated LT-417D, LT-427D, LT-437D, and LT-447D. The instrument channels for AFW flow are designated F1200, F1201, F1202, and F1203.

15. NOT USED

BASES

LCO
(continued)



16. Steam Generator Pressure

Each SG contains 3 transmitters that indicate SG pressure. Requirements for steam generator pressure indication assume that two of the four steam generators are required for heat removal.

SG pressure is a Category I, Type A variable used to determine if a high energy secondary line rupture occurred and which steam generator is faulted. SG pressure is also used as the redundant channel of RCS cold leg temperature for natural circulation determination.

The LCO requirements for steam generator pressure indication is satisfied by any two channels from the following list for each of the four SGs:

SG 31	SG 32	SG 33	SG 34
PT-419A	PT-429A	PT-439A	PT-449A
PT-419B	PT-429B	PT-439B	PT-449B
PT-419C	PT-429C	PT-439C	PT-449C

17. Condensate Storage Tank (CST) Level

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.

CST Level is a Type A variable because the control room indication is 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.

(continued)

BASES

LCO
(continued)

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 to city water.

The LCO requirement for CST level indication is satisfied by level transmitters designated LT-1128 and LT-1128A. Normal control room indication or displays on the QSPDS in the Control Room will satisfy this requirement.

18, 19, 20, 21. Core Exit Temperature

Core Exit Temperature is required for verification and long term surveillance of core cooling. Core Exit Temperature is used as input for developing RCS Subcooling (Function 24) and is also used for unit stabilization and cooldown control. Core exit ~~thermocouples~~ also serves as a redundant channel for the RCS Hot Leg Temperature (Function 3).

There are 10 qualified CETs in each of two trains distributed among the four core quadrants. Requiring 2 CETs per train in each of the four quadrants provides assurance that sufficient CETs are available to support evaluation of core radial decay power distribution.

The LCO requirement for Core Exit Temperature is satisfied in each core quadrant by requiring two core exit temperature channels for that quadrant. An OPERABLE core exit temperature channel consists of two OPERABLE CETs. Both CETs in the channel must be from the same train.

22. Main Steam Line (MSL) Radiation

The MSL radiation monitors are a Type A variable provided to allow detection of a gross secondary side radioactivity release and to provide a means to identify the faulted steam generator. The LCO requirements for MSL radiation indication are satisfied by one channel in each of the 4 MSLs using instruments designated R62A, R62B, R62C, R62D. Steam generator narrow range level (Function 13) serves as the redundant channel for the one MSL radiation monitor provided per loop.

(continued)

NO CHANGES THIS PAGE

INFO ONLY

BASES

LCO (continued)

23. Gross Failed Fuel Detector

The gross failed fuel detector is a Type A variable provided to allow determination of reactor coolant system radioactivity concentration. The LCO requirement is satisfied by instrument loops R63A and R63B.

24. RCS Subcooling

RCS subcooling is a Type A variable provided to determine whether to terminate actuated SI or to reinitiate stopped SI, to determine when to terminate reactor coolant pump operation, and for unit stabilization and cooldown control. RCS subcooling is calculated and displayed in the plant Qualified Safety Parameter Display System using RCS Wide Range Pressure and Core Exit Temperature. Diverse indication is available using saturation pressure and steam tables.

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.

(continued)

BASES

ACTIONS (continued)

Note 2 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.

A.1

Condition A applies when one or more Functions 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 any remaining OPERABLE channels, 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.

B.1

Condition B applies when the Required Action and associated Completion Time for Condition A are not met. This Required Action specifies initiation of actions in Specification 5.6.7. which requires a written report to be submitted to the NRC immediately. This report discusses the results of the root cause evaluation 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.

C.1

Condition C applies when one or more Functions have two inoperable required channels (i.e., two channels inoperable in the same Function). Required Action C.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

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Condition C applies when one or more Functions have all required channels for that function inoperable. Most Functions in Table 3.3.3-1 have two required channels, and the first statement in Condition C addresses those situations when both channels are inoperable. However, there are three Functions (2, 3, and 22) where there is only one channel available for the Function. In these cases, redundancy is provided by instrument channels from another appropriate Function. The last three statements in Condition C address each of these Functions for the situation when the single channel in that Function is inoperable and both channels in the Function used for redundancy are inoperable.

Required Action C.1 requires restoring one channel in the affected Function(s) to OPERABLE status within 7 days.