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SUBJECT: Application for amend to license DPR-49,incorporating results of licensing topical rept issued by GE re extension of surveillance test intervals & allowed outage times for reactor protection sys.

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Iowa Electric Light and Power Company

December 19, 1991
NG-91-3868

Dr. Thomas E. Murley, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

Subject: Duane Arnold Energy Center
Docket No. 50-331
Op. License No: DPR-49
Request for Technical Specification Change (RTS-186) "Revision of TS Sections 3/4.1 and 3/4.2 (Instrumentation Requirements)"
File: A-117

Dear Mr. Murley:

In accordance with the Code of Federal Regulations, Title 10, Section 50.59 and 50.90, Iowa Electric Light and Power Company (IELP) hereby requests revision of the Technical Specifications (TS) for the Duane Arnold Energy Center (DAEC).

The proposed amendment will incorporate the results of Licensing Topical Reports issued by General Electric concerning the extension of surveillance test intervals (STIs) and allowed outage times (AOTs) for Reactor Protection System, Isolation Actuation and Emergency Core Cooling System instrumentation. In addition, changes have been made to TS Section 3.1, "Reactor Protection System", and Section 3.2, "Protective Instrumentation", to improve organization, clarity and consistency with Standard Technical Specifications. This amendment will enhance operational safety by reducing the potential for 1) inadvertent plant scrams, 2) excessive test cycles on equipment and 3) the diversion of plant personnel and resources on unnecessary testing. Further improvements are achieved by clearly and concisely stating the necessary requirements and improving the organization and format of the affected TS.

Included in this submittal are the plant-specific evaluations issued by General Electric in support of the incorporation of the topical reports. This information is considered by General Electric to be proprietary information and affidavits to that effect are enclosed. Pursuant to 10 CFR 2.790, it is requested

that the information contained in these reports be withheld from public disclosure.

In order to provide adequate time to make the necessary changes in procedures and provide training to plant personnel we request an implementation period of 180 days from the effective date of the approved amendment.

This application has been reviewed and approved by the DAEC Operations Committee and the DAEC Safety Committee. A copy of this submittal, which includes a no significant hazards analysis, is being forwarded to our appointed State Official pursuant to the requirements of 10 CFR 50.91.

This letter is true and accurate to the best of my knowledge and belief.

IOWA ELECTRIC LIGHT AND POWER COMPANY

By Daniel L Mineck

DANIEL L. MINECK
Manager, Nuclear Division

State of Iowa
(County) of Linn

Signed and sworn to before me on this 19th day of December, 1991, by Daniel L. Mineck.

Kathleen M Turman

Notary Public in and for the State of Iowa

September 28, 1992

Commission Expires

DLM/LRH:so
Attachments:
1) Evaluation of Change Pursuant to 10 CFR 50.92
2) Proposed Change RTS-186 to the Duane Arnold Energy Center Technical Specifications and List of Affected Pages
3) Environmental Consideration
4) MDE-95-0485 Technical Specification Improvement Analysis for the Reactor Protection System for Duane Arnold Energy Center, April 1985
5) RE-013 Technical Specification Improvement Analysis for the Emergency Core Cooling System Actuation Instrumentation for the Duane Arnold

Energy Center, February, 1987

6) Letter, M. M. Sadeghi (GE) to T. Browning (IELP), Assessment of DAEC Isolation Actuation Instrumentation Against NEDC-31677P-A Bounding Analysis, November 14, 1991

cc: L. Heckert
L. Liu
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NRC Resident Office
S. Brown (State of Iowa)

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(4-78)

EVALUATION OF CHANGE PURSUANT TO 10 CFR 50.92

Background:

As part of the BWR Owners' Group (BWROG) Technical Specification Improvement Program, General Electric (GE) was commissioned to perform reliability analyses to identify improvements to surveillance test intervals (STIs) and allowed outage times (AOTs) for the instrumentation associated with References 1 through 5. The NRC has determined that these Licensing Topical Reports (LTRs) provide an acceptable basis for extending the STIs and AOTs for the applicable instrumentation, subject to confirmation of the plant-specific applicability of the generic analyses.

As noted in NEDC-30851-P-A (Reference 1), implementation of the extended STIs and AOTs for the Reactor Protection System (RPS) requires the following:

1. Confirm the applicability of the generic analysis for NEDC-30851-P-A to the DAEC.

   A plant-specific evaluation of modifications to the STIs and AOTs for the Reactor Protection System was performed by GE (Reference 6). This evaluation concluded that the differences between the RPS configuration in the generic evaluation and the DAEC would not significantly affect the improvement in plant safety achieved in the generic analysis. Therefore, the generic analysis is applicable to the DAEC.

2. Demonstrate by use of current drift information provided by the equipment vendor or plant-specific data, that the drift characteristics for instrumentation used in the RPS channels in the plant are bounded by the assumptions used in NEDC-30851-P-A when the functional test interval is extended from monthly to quarterly.

   Instrument setpoint drift is monitored during channel calibration tests when setpoints are required to be verified, not during the performance of the channel functional tests. A concern exists for plants that have calibration intervals shorter than the proposed quarterly functional tests. For those cases, an extension of the functional test interval would require a change to the channel calibration interval. The change in calibration interval would then require consideration of the affects on setpoint drift.

The calibration intervals for the DAEC instrumentation addressed by these LTRs have been verified to be equal to or longer than once per quarter and are therefore unaffected by the proposed changes.

3. Confirm that the differences between the parts of the RPS that perform the trip functions in the plant and those of the base case plant were included in the analysis for the plant using the procedures of Appendix K of NEDC-30851-P-A, or provide plant-specific analyses to demonstrate that there is no appreciable change in RPS availability or public risk.

The GE plant-specific report for the DAEC utilizes the procedures of NEDC-30851-P-A, Appendix K to identify and evaluate the differences between the parts of RPS that perform the trip functions at the DAEC and those of the base case plant. The results indicate that while there are several differences, those differences and their impact do not significantly affect the improvement in plant safety achieved in the generic analysis. Therefore, the results of LTR NEDC-30851-P-A are applicable and the DAEC is bounded by the generic analysis and the corresponding NRC SER.

For the remaining LTRs (References 2 through 5) being implemented in this proposed revision, the following conditions must be satisfied.

1. Confirm the applicability of the generic analyses to the DAEC.

Appendix B of References 2, 3 and 4 identifies IELP as a participating utility in the development of the corresponding analyses. Reference 5 was purchased by IELP after it was developed and approved by the NRC. GE was commissioned to perform plant-specific evaluations of the modifications to the STIs and AOTs for References 2 through 5. These evaluations (References 6, 7 and 8) determined the differences between DAEC and the generic model and concluded that the proposed changes to Technical Specifications would meet the acceptance criteria stated in the respective LTRs. Therefore, the generic analyses are applicable to and bounds the design of DAEC.

2. Confirm that any increase in instrument drift due to the extended STIs is properly accounted for in the setpoint calculation methodology.

Instrument setpoint drift is monitored during channel calibration tests when setpoints are required to be verified, not during the performance of the channel functional tests. As previously stated, a concern exists for plants that have calibration

intervals shorter than the proposed quarterly functional tests. For those cases, an extension of the functional test interval would require a change to the channel calibration interval. The change in calibration interval would then require consideration of the effects on setpoint drift.

The calibration intervals for the DAEC instrumentation addressed by these LTRs have been verified to be equal to or longer than once per quarter and are therefore unaffected by the proposed changes.

Iowa Electric Light and Power Company, Docket No. 50-331,

Duane Arnold Energy Center, Linn County, Iowa

Date of Amendment Request: December 19, 1991

Description of Amendment Request:

The proposed license amendment will 1) significantly revise Sections 3.1 and 3.2 to improve clarity and consistency with the NRC Standard Technical Specifications (NUREG-0123); 2) incorporate the extended STIs and AOTs for RPS Instrumentation, Isolation Actuation Instrumentation, Emergency Core Cooling Systems (ECCS) Actuation Instrumentation and Control Rod Block Instrumentation in accordance with References 1 through 5; 3) incorporate Operating Modes into the Technical Specifications (TS) requirements for instrumentation; and, 4) make editorial changes to TS Sections 3.1 and 3.2 to correct errors.

The Limiting Conditions for Operation and Surveillance Requirements text will be revised to a format similar to that of Standard Technical Specifications (STS) while retaining the two column page format currently in place. This will provide consistency between sections and improve overall clarity.

The instrument tables will be revised to use a format similar to STS.

The titles of all trip functions and instrumentation are being changed to use consistent terminology similar to that of STS. The Actions for each table are numbered in a similar manner as STS with a sequence corresponding to the order of the DAEC tables. Tables that do not directly correspond with those of STS have been changed to the STS format in order to provide consistency throughout TS Section 3.2. Table notations and required Actions have been separated out for clarity and consistency with STS.

The proposed tables for RPS, Isolation Activation, ECCS and Control Rod Block instrumentation fully incorporate the Action statements from STS. The proposed actions are more directly associated with the instruments or systems they address. In addition, the STS Actions use time restrictions that are more consistent with the associated loss of instrumentation.

The tables of surveillance requirements will be rearranged to follow the corresponding instrument table, similar to the arrangement in STS. STS format will be used. The designated surveillance intervals will incorporate the standard frequency notations where possible, as defined in Section 1.0 of the DAEC TS.

Table of Contents

The Table of Contents (page i) will be changed to reflect the reorganization of TS Sections 3.1 and 3.2.

List of Tables

The List of Tables (pages v and vi) will be changed to reflect the reorganization of the instrument tables in TS Sections 3.1 and 3.2.

Table 1.0-1: OPERATING MODES

Table 1.0-1 is being added to define the various Operating Modes and to support their use in the revised instrumentation tables. The titles and listed criteria are consistent with the existing definitions of the various modes of operation. A reference to the "Refuel" mode switch position in Mode 2 and the addition of note (a) address possible plant conditions not currently covered by Standard Technical Specifications (STS). The term "Operating Mode" was used in place of the "Operational Condition" term in STS in order to minimize the transition in terminology.

SECTION 3.1/4.1 REACTOR PROTECTION SYSTEM INSTRUMENTATION

The Limiting Conditions for Operation (LCOs) and Surveillance Requirements (SRs) for Sections 3.1.A and 4.1.A will use a format similar to STS. The Action statements incorporate AOTs and include the extended time requirements justified by NEDC-30851-P-A. Specification 3.1.A.2.a is being added to address the potential for a loss of RPS functional capability should the loss of both channels of one or more RPS instrumentation functions in one trip system occur. The current DAEC requirements for system time response and response time measurements are being retained. The requirement to test the redundant channels whenever a channel has failed in the unsafe

direction will be deleted. This requirement is inconsistent with the conclusions of the topical reports and conflicts with the proposed Action statements.

Table 3.1-1 Reactor Protection System Instrumentation

The proposed changes to Table 3.1-1 fully incorporate the features of STS, while retaining the "Trip Level Setting" column in its current format. The "Applicable Operating Modes" were revised to reflect the requirements of STS.

a. APRM NEUTRON FLUX-UPSCALE - In the "Trip Level Setting" column "For two recirc loop operation" was changed to "For Two Loop Operation" and "For SLO" was changed to "For Single Loop Operation." The preferred direction of the setpoint was also added for consistency.

b. APRM DOWNSCALE - GE has determined that this trip function is technically unnecessary and therefore should be eliminated. GE has confirmed that the APRM downscale trip serves no safety function during normal operations and/or abnormal operating transients and no credit for this function is taken in any safety analysis.

c. REACTOR WATER LEVEL-LOW - The Trip Level Setting of "≥+170 Indicated Level" will be changed to "≥ 170 Inches".

d TURBINE FIRST STAGE PRESSURE PERMISSIVE - The Trip Level Setting of "Bypass below 165 psig" will be changed to "≤ 165 psig" to improve consistency.

e. The ACTIONS for Table 3.1-1 will be separated from the table notes and are replaced with the ACTIONS from STS. These Actions are in some cases more conservative and in other cases less conservative than the present requirements. The proposed ACTIONS are, however, more specific to the situations created by the inoperable status of the associated trip functions and are, therefore, more appropriate.

Note (a) is being added consistent with STS and incorporates the AOT authorized in the corresponding LTR.

Notes (b), (e), (g) and (i) are being added consistent with STS.

Table 3.1-1 Notations

The TABLE NOTATIONS for Table 3.1-1 will be changed as follows:

NOTE 1 - Replaced by the STS ACTIONS.

NOTE 2, 3, 6 - No longer required with "Applicable Operating Modes".

NOTE 4 - Replaced by equivalent Note (h).

NOTE 5 - Revised to delete reference to the APRM Downscale Trip and its effect on IRM trip functions.

NOTE 7 - Replaced by equivalent Note (f).

NOTE 8 - Replaced by equivalent Note (d).

NOTE 9 - Deleted. Note only applies to the APRM Downscale Trip.

NOTE 10 - Replaced by equivalent Note (c).

NOTE 11, 12 - Replaced by (*) which references the APRM setpoint information in Specification 2.1.A.1.

NOTE 13 - Deleted. Note provided unnecessary detail.

NOTE 14 - The reference to a previously deleted note was removed.

NOTE 15 - Deleted. The reference to top of active fuel is being relocated to the Bases.

NOTE 16 - Replaced by identical Note (j).

Table 3.1-2 Protective Instrumentation Response Times

Table 3.1-2 was rotated on the page to be consistent with the orientation of other tables in Section 3.1. The table was also placed behind the actions and table notations for Table 3.1-1 to enhance the continuity of the section.

Table 4.1-1 Reactor Protection System Instrumentation Surveillance Requirements

The proposed changes to Table 4.1-1 and 4.1-2 combine both tables into a single table using STS format. The trip functions addressed reflect the changes in content of Table 3.1-1. The "Group" column and the descriptions of functional testing and calibration methods will be

deleted. The Applicable Operating Modes will be incorporated into the table, consistent with STS. Channel check requirements for all instruments have been added, consistent with the required intervals in STS. The addition of these requirements is a conservative change and provides consistency with the requirements of other instrumentation in Technical Specifications.

The functional testing intervals for the following trip functions will be extended to quarterly in accordance with Reference 1:

1. APRM Neutron Flux - Upscale
2. APRM Inoperative
3. Reactor Vessel Steam Dome Pressure - High
4. Reactor Water Level-Low
5. Main Steam Line Isolation Valve - Closure
6. Main Steam Line Radiation - High
7. Drywell Pressure - High
8. Turbine Stop Valve - Closure
9. Turbine Control Value Fast Closure, Valve Trip System Oil Pressure - Low

The functional test interval for Manual Scram is being reduced from once per three months to once per week in accordance with the LTR. This change will ensure that the scram contactors continue to be tested at a frequency which will maintain overall RPS availability.

The LPRM signal listed in Table 4.1-2 is being addressed by the equivalent Note (f).

The surveillance requirements for the RPS channel test switches are being deleted. The switches are only used during post-maintenance testing and provide no automatic function. These requirements are not in STS and are inconsistent with the content of the Technical Specifications.

The surveillance requirements for the REACTOR PRESSURE PERMISSIVE function are being deleted. This line item refers to a permissive signal which enabled the MSIV closure scram. This permissive signal is not active at the DAEC and, in addition, is not consistent with the content of STS.

The APRM NEUTRON FLUX - UPSCALE IN STARTUP calibration requirement is not currently specified. The proposed change will establish a semi-annual channel calibration for this trip function consistent with STS and other DAEC calibration intervals.

The surveillance requirement currently listed as Flow Bias has been incorporated into the APRM NEUTRON FLUX - UPSCALE requirements.

Table 4.1-1 Notations

The TABLE NOTATIONS for Table 4.1-1 will be changed as follows:

Current Table 4.1-1 Notes

NOTE 1 - Deleted. Note only applied to initial plant operations.

NOTE 2 - Deleted. Note is no longer applicable due to the deletion of the "Group" column in the table.

NOTE 3 - Deleted. The association of surveillance requirements to operability requirements will now be accomplished by the use of Applicable Operating Modes. The discussion of post-maintenance requirements is more appropriately addressed by plant procedures.

NOTE 4 - Replaced by equivalent Note (l) in a shorter form consistent with similar notations.

NOTE 5 - Deleted. The addition of shiftly channel checks for the reactor water level instruments is more conservative and causes the monthly check to be unnecessary.

Current Table 4.1-2 Notes

NOTE 1 - Deleted. Note is no longer applicable due to the deletion of the "Group" column in the table.

NOTE 2 - Deleted. The association of surveillance requirements to operability requirements will now be accomplished by the use of Applicable Operating Modes. The discussion of post-maintenance requirements is more appropriately addressed by plant procedures.

NOTE 3 - The quarterly and once per cycle calibration requirements will both be noted on Table 4.1-1 with the supporting descriptions placed in new notes (m) and (n).

NOTE 4 - Deleted. This note unnecessarily repeats the information provided in Specification 4.1.A.2.

NOTE 5 - Replaced by equivalent Note (g). The reference to "once per cycle" is accounted for by the Applicable Operating Modes and has been deleted.

NOTE 6 - Replaced by identical Note (k).

NOTES (a), (b), (c), (d), (e), (f), (h), (i) and (j) are being added consistent with and in support of the STS format.

3.1 Bases

A brief reference to the addition of AOTs in accordance with NEDC-30851-P-A is being added. References to core standby cooling systems and equipment are being updated to reference emergency core cooling systems (ECCS) and equipment. The reference to operability requirements in the Refuel mode is inconsistent with the STS use of Applicable Operating Modes and is being deleted. The discussion of the APRM downscale trip is being revised to reflect the deletion of this signal from the tables. A definition of the top-of-active fuel is being added in support of the water level trip settings. The word "adequate" (page 3.1-19, 3rd paragraph) was spelled incorrectly and has been corrected. The word "control" at the beginning of the second full paragraph on page 3.1-21 was revised to lower case for consistency.

4.1 Bases

All references to Table 4.1-2 are being deleted. The flow-biasing network functional test is being changed from "once per month" to "once per quarter". A reference to the extension of STI's to quarterly in accordance with NEDC-30851-P-A is being added.

SECTION 3.2/4.2 PROTECTIVE INSTRUMENTATION

The "Protective Instrumentation" heading is being retained in order to maintain the existing numbering scheme. The "Applicability" and "Objective" statements and the "Specification" heading will be deleted. The LCO and Surveillance Requirement statements for each section will be grouped with the corresponding tables, similar to the arrangement in STS.

SECTION 3.2.A/4.2.A ISOLATION ACTUATION INSTRUMENTATION

The section title has been changed to be consistent with STS. The LCOs and Surveillance Requirements will use a format similar to STS and delete the reference to primary containment integrity. This reference is no longer appropriate in the STS format. The Action statements incorporate AOTs and include the extended time requirements authorized in References 3 and 5.

The Logic System Functional Test requirements previously in Table 4.2-A will be moved to the Surveillance Requirement text. The HPCI

Subsystem Auto Isolation and RCIC Subsystem Auto Isolation will be added to these requirements from Table 4.2-B consistent with the change in content of this section.

Table 3.2-A Isolation Actuation Instrumentation

The proposed changes to Table 3.2-A incorporate the features and format of STS while retaining the "Trip Level Setting" column in its current format. The Applicable Operating Modes have been added and applied consistent with STS. Trip Functions were grouped similar to STS format with an additional grouping of instruments that are common to two or more valve groups. The "Common Isolation Signals" group provides human factors improvements for those instruments which would normally be listed in several different places in the table.

Common Isolation Signals

a. REACTOR WATER LEVEL-LOW - The operability requirements will be listed by valve group and required action. The reference to Secondary Containment is replaced by Note (c).

b. REACTOR WATER LEVEL-LOW-LOW-LOW - Valve Group 7 is being added to the table using the STS actions required for similar primary containment isolation signals, since the Group 7 isolation affects the Reactor Building Closed Cooling Water (RBCCW) and Well Water supplies to the Primary Containment.

c. DRYWELL PRESSURE - HIGH - The operability requirements will be listed by valve group and required action. The reference to Secondary Containment is replaced by Note (c). Valve Group 8 was incorrectly listed under this trip function and has been deleted.

Main Steam Line Isolation

a. MAIN STEAM LINE FLOW - HIGH - The minimum operable channels requirement is being changed from two per trip system to "2/line" per trip system. This change is consistent with STS and provides the necessary clarification to prevent a non-conservative interpretation of this requirement.

b. CONDENSER BACKPRESSURE - HIGH - The new title for this trip function replaces the current title of "Loss of Main Condenser Vacuum". The proposed title is consistent with the indications for this parameter in the DAEC Control Room. The trip level setting is being changed from "≤ 10 in Hg Vacuum" to "≤ 20 in. Hg" of backpressure. This change reflects the change to the trip function title and also accounts for the incorrect "≤" sign in the current table.

c. MAIN STEAM LINE TUNNEL TEMPERATURE - HIGH - This trip function is being separated out from the existing combined listing with Turbine Building High Temperature. The minimum operable channels requirement is being changed from two per trip system to "2/line" per trip system. This change is consistent with STS and provides the necessary clarification to prevent a non-conservative interpretation of this requirement. The proposed change ensures that at least two channels per steam line are operable and thereby provides the necessary coverage for the steam tunnel area.

d. TURBINE BUILDING TEMPERATURE - HIGH - This trip function is being listed separately using the same Applicable Operating Modes and Action as the Main Steam Line Tunnel Temperature - High. The minimum operable channels requirement has been changed from "2 per trip system" to "4 per trip system." This change conservatively increases the margin of safety to account for the relatively large distance between the sensors in the individual trip systems.

e. MAIN STEAM LINE RADIATION - HIGH - Note (b) has been added to the "Valve Groups Isolated by Signal" column to clarify that the mechanical vacuum pump is also tripped and isolated by this trip function.

Secondary Containment

The "Refuel Floor Exhaust Duct-High Radiation" and "Reactor Building Exhaust Shaft-High Radiation" trip functions have been moved to this table from Table 3.2-D to be consistent with STS. The term "Upscale" is being deleted from the Trip Level Settings for both instruments for consistency. Action 26 is being proposed consistent with STS (NUREG-0123). Note (c) is being added to the "Valve Groups Isolated by Signal" column to clarify that the trip functions in this section also initiate the Standby Gas Treatment System.

The "Offgas Vent Stack - High Radiation" trip function is being added to TS to reflect modifications to the Group 3 isolation logic previously installed in accordance with the requirements of NUREG-0737, Item II.E.4.2(7). The operability requirements are consistent with the other Group 3 isolation signals. The addition of this trip function to TS ensures that it will be effective in mitigating the consequences of accidents for which it is designed.

RHR System Shutdown Cooling

REACTOR VESSEL PRESSURE - HIGH - This trip function consolidates the equivalent line items in Tables 3.2-A and 3.2-B in a manner consistent with STS. The Trip Level Setting is being changed from "p ≤ 135 psig" to "≤ 135 psig" to provide consistency. ACTION 23 is being proposed in place of the Action used in STS, eliminating the requirement to lock the associated isolation valves. It was determined that the accessibility of these valves might, in some cases, prohibit locking the valves.

Reactor Water Cleanup

a. RWCU AREA TEMPERATURE - HIGH - The Trip Level Setting was changed from "130°F" to "≤ 130°F" in order to consistently indicate the preferred direction.

b. STANDBY LIQUID CONTROL SYSTEM INITIATION - This trip function is being added to TS consistent with STS.

Reactor Core Isolation Cooling (RCIC)

The RCIC isolation signals are being moved to this table from Table 3.2-B, consistent with STS. The "6A" designation is used in the "Valve Groups Isolated by Signal" column for all trip functions that isolate the RCIC System.

a. RCIC STEAM LINE DIFFERENTIAL PRESSURE (FLOW) - HIGH - The Trip Level Setting deleted the "±5" tolerance value and replaced the "+" preceding the setpoint with "≤" to provide consistency with other trip settings.

b. RCIC TURBINE EXHAUST DIAPHRAGM PRESSURE - HIGH and MANUAL INITIATION - These trip functions were added to TS consistent with the content of STS. These additions provide an increased level of assurance that the consequences of an accident involving the RCIC system will be mitigated by the proper functioning of the isolation instrumentation.

c. RCIC EQUIPMENT ROOM TEMPERATURE - HIGH and RCIC ROOM VENTILATION DIFFERENTIAL TEMPERATURE - HIGH - The minimum operable channels requirement for these trip functions is being changed from two per trip system to one per trip system. This change reflects the actual plant configuration as there are only two instrument channels (one per trip system) for each of these trip functions.

d. RCIC LEAK DETECTION TIME DELAY - The Trip Level Setting for this function will be changed from "30 min." to "≤30 Minutes" to provide consistency and to indicate the preferred direction.

e. SUPPRESSION POOL AREA TEMPERATURE - HIGH and SUPPRESSION POOL AREA VENTILATION DIFFERENTIAL TEMPERATURE - HIGH - The trip functions that these instruments supply to the HPCI and RCIC system will be listed separately in the associated sections of Table 3.2-A. This results in a change to the minimum operable channels requirement from two per trip system to one per trip system. This change provides clarification only and ensures that a sufficient number of instrument channels are available for each system. In addition, Trip Level Setting for the ventilation differential temperature is being changed from "50°F" to "≤ Δ50°F" and "≤ is being added to the 150°F setting for area temperature to provide clarity and indication of the preferred direction.

f. RCIC SYSTEM INITIATION - The current reference in Table 3.2-A to "High Drywell Pressure" and "Reactor Low-Low Water Level" as initiating signals for a Group 8 isolation is incorrect. The Group 8 isolation for RCIC is actually initiated when the RCIC Turbine Steam Supply Valve (MO-2404) leaves the full closed position. This trip function is being added to the RCIC section and is assigned an Action Statement consistent with other automatic isolation signals. Only one channel exists for this trip function as reflected in the "Minimum Operable Channels Per Trip System" column. This change provides a significant improvement in the clarity of this Specification.

<u>High Pressure Coolant Injection (HPCI)</u>

The HPCI isolation signals are being moved to this table from Table 3.2-B, consistent with STS. The "6B" designation is used in the "Valve Groups Isolated by Signal" column for all trip functions that isolate the HPCI system.

a. HPCI STEAM LINE DIFFERENTIAL PRESSURE (FLOW) - HIGH - The trip level setting was changed from "+53" H_2O (outboard Instr.)" and "+99" H_2O (Inboard Instr.)" to "≤ 53 Inches H_2O (Outboard)" and "≤ 99 Inches H_2O (Inboard)." This change improves the consistency and clarity of the setting and indicates the preferred direction.

b. HPCI TURBINE EXHAUST DIAPHRAGM PRESSURE - HIGH and MANUAL INITIATION - These trip functions were added to TS consistent with the content of STS. These additions provide an increased level of assurance that the consequences of an accident involving

the HPCI system will be mitigated by the proper functioning of the isolation instrumentation.

c. HPCI EQUIPMENT ROOM TEMPERATURE - HIGH and HPCI ROOM VENTILATION DIFFERENTIAL TEMPERATURE - HIGH - The minimum operable channels requirement for these trip functions is being changed from two per trip system to one per trip system. This change reflects the actual plant configuration as there are only two instrument channels (one per trip system) for each of these trip functions.

d. HPCI LEAK DETECTION TIME DELAY - The trip level setting for this function is being changed from "15 min." to "≤ 15 Minutes" to provide consistency and to indicate the preferred direction.

e. SUPPRESSION POOL AREA TEMPERATURE - HIGH and SUPPRESSION POOL AREA VENTILATION DIFFERENTIAL TEMPERATURE - HIGH - These trip functions have been separated from the similar inputs into the RCIC isolation logic as previously discussed. The trip level settings are being modified as discussed in the RCIC isolation section.

f. HPCI SYSTEM INITIATION - As discussed in the RCIC isolation section, the Group 8 isolation for the HPCI system has been clarified to more accurately reflect the source of the initiating signal. The Group 8 isolation for HPCI is initiated when the HPCI Steam Supply Valve (MO-2202) leaves the full closed position. This trip function is being incorporated into the HPCI section in an identical manner as the corresponding function for RCIC.

Table 3.2-A Actions and Notes

The ACTIONS for Table 3.2-A are consistent with STS with the following exceptions:

ACTION 24 - Not used. STS applies this action to the manual initiation of a containment isolation. This trip function does not exist at DAEC.

ACTION 27 - Not used. As discussed earlier, the requirement to lock the affected system isolation valves within one hour may not be possible during plant conditions that prohibit access to certain valves. Action 23 is equivalent to this action in all other aspects and will be used in its place.

The NOTES for Table 3.2-A are being changed as follows:

NOTE * (page 3.2-5a) - Replaced by equivalent Note (d).

NOTE * (page 3.2-5) - Replaced by equivalent Note (g).

NOTE 1,2 -Deleted. Notes are being replaced by the STS Action Statements.

NOTE 3 - Deleted. A discussion of water level indication with respect to the top of active fuel is included in the Bases.

NOTE 5 - Deleted. The required number of channels is being clarified in the table. This note is no longer necessary.

NOTE 6 - Replaced by equivalent Note (c).

NOTE 7 - Deleted. This note is adequately addressed by the Applicable Operating Modes.

NOTE 8 - Replaced by identical Note (j).

Notes (a), (b), (e), (f), (g), (h) and (i) are being added consistent with STS format. Note (a) has been modified to reflect the extended AOT authorized in References 3 and 5. NOTE (b) has been modified to more accurately reflect the operation of the DAEC Mechanical Vacuum Pump.

Table 4.2-A: Isolation Actuation Instrumentation Surveillance Requirements

The proposed changes to Table 4.2-A incorporate the STS format and include the Applicable Operating Modes. The trip functions included in the proposed table reflect the changes in content of Table 3.2-A.

The following instruments being added to the table will use the surveillance intervals consistent with STS:

1. RCIC Turbine Exhaust Diaphragm Pressure - High
2. HPCI Turbine Exhaust Diaphragm Pressure - High
3. RCIC Manual Initiation
4. HPCI Manual Initiation

The trip functions listed under "Common Isolation Signals" currently have varying surveillance requirements. In order to ensure that a conservative approach was maintained the most restrictive of the various STIs were used.

The STANDBY LIQUID CONTROL SYSTEM INITIATION trip function being added by this submittal will be assigned the current DAEC functional test

interval of once every operating cycle (18 months). This interval is appropriate since the performance of this functional test will cause an isolation of the RWCU system.

Requirements for the HPCI and RCIC Leak Detection time delay are not clearly addressed in the current table. The functional test and calibration intervals will be assigned consistent with the requirements of the related trip functions (room temperatures and ventilation differential temperatures). This is consistent with similar cases in STS.

The HPCI SYSTEM INITIATION and RCIC SYSTEM INITIATION trip functions will be assigned testing intervals consistent with similar trips initiated by valve position limit switches and with the Manual Initiation, which also requires the cycling of the steam supply valves.

The channel functional test interval for the following instruments will be extended to quarterly as authorized by References 3 and 5:

1. All Common Isolation Signals
2. All Main Steam Line Isolation Signals
3. Reactor Vessel Pressure - High
4. All Reactor Water Cleanup Signals
5. All RCIC signals which previously required monthly intervals
6. All HPCI signals which previously required monthly intervals

The remaining trip functions will retain their current surveillance requirements.

Table 4.2-A Notes

The notes for Table 4.2-A in the current DAEC TS are combined with notes applicable to several tables in Section 4.2. This section will only address changes to those notes specifically affecting Table 4.2-A.

NOTE 1 - Deleted. Note only applied to initial plant operations.

NOTE 5 - Replaced by equivalent Notes (#), (##) and (###). Notes (#), (##) and (###) are being added to specify the instrumentation shared with RPS and/or ECCS consistent with Reference 3.

NOTE 6 - Deleted. Logic System Functional Tests have been relocated to TS Section 4.2.A.2.

NOTE 7 - Deleted. Note is not applicable due to the broader scope of Table 4.2-A.

NOTE 8 - Replaced by equivalent Note (a).

NOTE 9 - Deleted. The incorporation of Applicable Operating Modes provides the necessary association with the operability of systems supported by this instrumentation. The requirements for post-maintenance testing will be fully incorporated into plant procedures.

Notes (*) and (**) are being added consistent with STS format.

SECTION 3.2.B/4.2.B CORE AND CONTAINMENT COOLING SYSTEMS INITIATION/CONTROL INSTRUMENTATION

The section title has been modified to be consistent with the other sections while retaining the necessary language to address plant-specific trip functions not included in STS. The LCO's and Surveillance Requirements will use a format similar to STS and delete the reference to the system operability requirements in Section 3.5. Those requirements will now be addressed via the use of Applicable Operating Modes in Tables 3.2-B and 4.2-B.

The Logic System Functional Test requirements currently in Table 4.2-B are being added to the text in Specification 4.2.B.2. Proposed items 4.2.B.2.a, d and e are being changed from "Subsystems" to "Systems" as is appropriate. Items 4.2.B.2.b and c are also being changed to more accurately describe the RHR modes being tested.

Table 3.2-B: Core and Containment Cooling Systems Initiation/Control Instrumentation

The proposed changes to Table 3.2-B incorporate STS features while retaining the "Trip Level Setting" column in its current format. The Applicable Operating Modes have been applied consistent with STS. Trip Functions were grouped similar to STS with the additional listings for LPCI Loop Select and Containment Cooling currently in the DAEC TS. All HPCI and RCIC isolation signals have been moved to Table 4.2-A. The minimum operable channel requirements will be changed to reflect the "per Trip Function" criteria in place of the current "per Trip System" criteria. Trip functions common to more than one system will be listed in each section and assigned the appropriate Action for that system, consistent with STS.

Core Spray System

CORE SPRAY PUMP START TIME DELAY - The minimum operable channels requirement has been clarified to be one per pump rather than one per trip system.

REACTOR WATER LEVEL-LOW-LOW-LOW - The trip level setting is being changed from "≥ +18.5 in. indicated level" to "≥ +18.5 Inches."

Low Pressure Coolant Injection Mode of RHR

a. LPCI PUMP START TIME DELAY - The minimum operable channels requirement has been clarified to be one per pump. The trip level setting has also been enhanced by identifying the specific pumps and their corresponding time delays.

b. REACTOR WATER LEVEL-LOW-LOW-LOW - The trip level setting has been changed from "≥ +18.5 in. indicated level" to "≥ +18.5 Inches."

LPCI Loop Select

a. RECIRCULATION PUMP DIFFERENTIAL PRESSURE - The trip functions for Pump A and B are being combined into one with the minimum operable channels requirement stated in a "channels per pump" format for added clarity.

b. RECIRCULATION RISER DIFFERENTIAL PRESSURE - The title is being changed from the current "Recirculation Riser d/p A >B" for improved clarity.

c. REACTOR WATER LEVEL-LOW-LOW - The trip level setting has been changed from "≥ +18.5 in. indicated level" to "≥ +18.5 Inches."

High Pressure Coolant Injection System

REACTOR WATER LEVEL-LOW-LOW - The trip level setting is being changed from "≥ + 119.5 in. indicated level" to "≥ +119.5 Inches."

Reactor Core Isolation Cooling System

a. REACTOR WATER LEVEL-LOW-LOW - The trip level setting is being changed from "≥ + 119.5 in. indicated level" to "≥ +119.5 Inches."

b. REACTOR WATER LEVEL-HIGH - The trip level setting is being changed from "≤ + 221 in. indicated level" to "≤ +211 Inches."

Automatic Depressurization System

a. REACTOR WATER LEVEL-LOW (CONFIRMATORY) - The trip level setting is being changed from "≤ +170 in. indicated level" to "≥ +170 Inches" to reflect the conservative (preferred) direction, consistent with other level settings.

b. REACTOR WATER LEVEL-LOW-LOW-LOW - The trip level setting is being changed from "≥ +18.5 in. indicated level" to "≥ +18.5 Inches."

c. ADS TIMER - The tolerance of "±5 sec" is being deleted. This maintains consistency with other similar trip functions.

d. CORE SPRAY PUMP and RHR (LPCI) PUMP DISCHARGE PRESSURE - HIGH (PERMISSIVE) - The tolerances for both trip level settings are being deleted to maintain consistency in format with other trip level settings. The minimum operable channels requirements have been clarified on a "per pump" basis consistent with STS.

Containment Cooling

This section is being created to retain the trip functions in current TS that do not fit into the STS categories.

a. REACTOR WATER LEVEL - LOW (INSIDE SHROUD) - The trip level setting is being changed from "≥ + 305.5 in. above vessel zero" to "≥ -39 Inches". This provides consistency with other reactor water level setpoints and with the available indication for this parameter.

b. CONTAINMENT PRESSURE-HIGH - The trip level setting has been corrected to read "≥ 2.0 psig" rather than "> 2.0 psig", consistent with plant design.

Loss of Power

a. 4.16 KV EMERGENCY BUS DEGRADED VOLTAGE - The trip level settings for voltage and time delay were given a and b designators. The trip level setting of "8.0 ≤ T.D. ≤ 8.5 sec." is being changed to "8.0 ≤ t ≤ 8.5 sec time delay" for improved clarity. The minimum operable channels requirement is being changed from "2 matrices per trip system" to "8 channels per trip function" to more clearly reflect plant design.

b. 4.16 KV EMERGENCY TRANSFORMER SUPPLY UNDERVOLTAGE - The term "supply" has been added to the trip function title to clarify the parameter being measured.

Several items in Table 3.2-B which do not provide a trip function are being deleted. These items are not included in STS and are inconsistent with the intent of Table 3.2-B. Since these items perform an annunciator function only, their removal from TS does not affect the performance of safety-related equipment at the DAEC. The items being deleted from Table 3.2-B are as follows:

1. RHR (LPCI) Trip System Bus Power Monitor
2. Core Spray Trip System Bus Power Monitor
3. ADS Trip System Bus Power Monitor
4. HPCI Trip System Bus Power Monitor
5. RCIC Trip System Bus Power Monitor
6. 125 VDC System Undervoltage Relay
7. 250 VDC System Undervoltage Relay
8. ±24 VDC System Undervoltage Relay
9. 120 VAC Uninterruptible AC Undervoltage Relay
10. 120 VAC Instrument AC Undervoltage Relay
11. Core Spray Sparger to Reactor Pressure Vessel d/p

Table 3.2-B Notes

NOTE 1, 2 and 3 - Deleted. Notes are being replaced by STS Action Statements.

NOTE 4 - Deleted. A discussion of water level indication with respect to the top of active fuel is being placed in the Bases.

NOTE 5 - Deleted. Not applicable to STS format.

NOTE 6 - Deleted. Items that only provide an annunciator function are being removed from Table 3.2-B.

NOTE 7 - Deleted. The term "Matrix" has been deleted and therefore requires no explanation. Required actions are being replaced by STS Action Statements.

The proposed notes for Table 3.2-B are consistent with STS and include plant-specific titles and valve numbers as appropriate. Note (a) has been modified to reflect the extended AOT of 6 hours as authorized in Reference 4.

Table 3.2-B Actions

The extended AOTs authorized in Reference 4 have been implemented in the action statements as opposed to the LCOs in accordance with the guidance provided in Reference 9.

Action 33 is being applied, consistent with STS (NUREG-0123), for trip functions with the potential to affect emergency diesel generator operability.

Due to the incorporation of RCIC trip functions into Table 3.2-B, Actions 30, 31 and 35 are being used in place of the equivalent actions in the RCIC Section of STS.

The remaining Actions for Table 3.2-B are consistent with STS.

Table 4.2-B: Core and Containment Cooling Systems Initiation/Control Instrumentation

The proposed changes to Table 4.2-B incorporate the STS format and include the Applicable Operating Modes. The trip functions included in the proposed table reflect the changes in content of Table 3.2-B.

The Channel Functional Test intervals will be extended from monthly to quarterly in accordance with Reference 4 for the following instruments.

1. Reactor Water Level-Low-Low-Low (all applicable sections)
2. Drywell Pressure - High (all applicable sections)
3. Reactor Pressure - Low (Permissive) (all applicable sections)
4. All HPCI initiation/control signals
5. All RCIC initiation/control signals
6. Reactor Water Level-Low (Confirmatory)(ADS)
7. Core Spray Pump Discharge Pressure - High (Permissive)(ADS)
8. RHR (LPCI) Pump Discharge Pressure - High (Permissive)(ADS)

The surveillance requirements for the ADS timer is not clearly addressed in the current table. The functional test will be designated as quarterly as authorized by the LTR. The calibration interval will be once per operating cycle (18 months) consistent with the current DAEC test interval.

The surveillance requirements for Low-Low Set and Containment Cooling will remain in Table 4.2-B and will incorporate the Applicable Operating Modes consistent with the corresponding requirements in STS.

The 4.16 kv Emergency Bus Undervoltage (Loss of Voltage), 4.16 kv Emergency Transformer Supply - Undervoltage and 4.16 kv Emergency Bus Sequential Loading Relay surveillance requirements reflect the existing requirements in Table 4.2-B, under 4kv Emergency Power System Voltage Relays.

Table 4.2-B Notes

The notes for Table 4.2-B in the current DAEC TSs are combined with notes applicable to several tables in Section 4.2. This section will only address changes to notes affecting Table 4.2-B.

NOTE 1 - Deleted. Note applied to initial plant operations only.

NOTE 6 - Deleted. Logic System Functional Test requirements are no longer included in Table 4.2-B.

NOTE 9 - Deleted. The incorporation of Operating Modes provides the necessary association with the operability of systems supported by this instrumentation. The requirements for post-maintenance testing will be fully incorporated into plant procedures.

NOTE 11 - Deleted. Logic System Functional Test requirements have been relocated to Specification 4.2.B.2.

NOTES (*), (**), (#) and (##) are being added consistent with STS.

SECTION 3.2.C/4.2.C CONTROL ROD BLOCK INSTRUMENTATION

The section title is being changed consistent with STS. The LCO and Surveillance Requirements in Specification 3.2.C.1 and 4.2.C.1 will be changed consistent with STS. The current Rod Block Monitor LCOs and SRs are being retained. Terms in this section that are defined in Section 1.0 will use all capital letters, consistent with the STS Format used in the remainder of the section. The letter designators for Rod Block Monitor sections (a) and (b) are being changed to a. and b. for consistency. The term "Instrument functional test" in Specification 4.2.C.2 is being changed to "CHANNEL FUNCTIONAL TEST" for consistency.

Table 3.2-C: Control Rod Block Instrumentation

The proposed changes to Table 3.2-C incorporate the STS features while retaining the "Trip Level Setting" column in its current format. The Applicable Operating Modes have been applied consistent with STS. The minimum operable channels requirements will be changed from "Channels per trip system" to "Channels per trip function". The proposed minimum number of channels for each trip function have been changed to reflect the revised heading. This eliminates the need for interpretation regarding the configuration of the rod block logic.

The rod blocks associated with RBM INOPERATIVE, APRM INOPERATIVE, IRM INOPERATIVE, SRM INOPERATIVE, SRM DOWNSCALE, RECIRCULATION FLOW (UPSCALE, INOPERATIVE and COMPARATOR) and REACTOR MODE SWITCH-SHUTDOWN POSITION have been added to Table 3.2-C. The operability requirements specified in Table 3.2-C for the additional instruments are consistent with STS.

The RBM Bypass Time Delay will be deleted. This requirement is clearly stated in Specification 3.2.C.2.b. and need not be repeated in Table 3.2-C.

The minimum channel requirements for Source Range Monitoring will be clarified to require three channels in the STARTUP MODE and two channels in the Refuel Mode consistent with STS. This is a significant improvement in the clarity of the SRM requirements and eliminates the need for further interpretation.

a. APRM FLOW-BIASED UPSCALE - The references to two loop and single loop operation were changed from "For two recirc loop operation" and "For SLO" to "Two loop operation" and "Single loop operation" respectively for added clarity and consistency. The trip level settings were modified to indicate (%) for clarity.

b. APRM UPSCALE IN STARTUP and DOWNSCALE - The trip level settings will be changed from "indicated on scale" to "% of RATED THERMAL POWER" for added clarity and consistency with STS.

c. IRM UPSCALE and DOWNSCALE - The trip level settings will be changed to a fraction "of full scale" for added consistency.

d. SRM UPSCALE - The trip level setting is being changed from "counts/sec" to "cps", consistent with STS.

Table 3.2-C Actions and Notes

The proposed Actions for Table 3.2-C are consistent, in their entirety, with STS. These changes eliminate the confusion regarding the term "trip system" and establish compensatory actions which are more consistent with the situation they address.

The Notes for Table 3.2-C will be changed as follows:

NOTE 1 - Replaced by STS Actions.

NOTE 2 - Replaced by equivalent Note (#).

NOTE 3 - Replaced by equivalent Note (e).

NOTE 4 - Replaced by Note (b). The note was modified to include the bypass in effect when the associated Intermediate Range Monitors (IRMs) are on range 3 or higher. This provides a more complete and accurate notation.

NOTE 5 - Deleted. Note is no longer applicable with the incorporation of the STS Format.

NOTE 6 - Replaced by equivalent Note (c).

NOTE 7 - The reference to RBM trips being bypassed below 30% of rated power is addressed in note (*). The remainder of the note provides descriptive detail that is considered to be of little value and inconsistent with the STS format and has been deleted.

NOTE 8 - Deleted. Note does not apply to the Operating Modes when this instrument is required.

NOTE 9 - Replaced by STS Actions.

NOTE 10 - Deleted. The item to which this note applies has been deleted from Table 3.2-C.

The remaining notes being proposed provide additional information consistent with STS.

Table 4.2-C: Control Rod Block Instrumentation Surveillance Requirements

The proposed changes to Table 4.2-C incorporate the STS format and include the Applicable Operating Modes. The trip functions included in the table reflect the changes in content of Table 3.2-C. The additional surveillance requirements represent a considerable improvement to safety.

The functional testing requirements for all Rod Block Monitor and APRM trip functions are being extended to quarterly in accordance with Reference 2.

The following instruments being added to the table will use surveillance intervals consistent with STS and include the extensions for functional test intervals authorized by Reference 2:

1. RBM Inoperative
2. APRM Inoperative
3. IRM Inoperative
4. SRM Inoperative

5. Recirculation Flow
   a. Upscale
   b. Inoperative
   c. Comparator

The SRM Downscale trip function will use surveillance intervals consistence with existing SRM and IRM trip functions.

Table 4.2-C Notes

The notes for Table 4.2-C in the current DAEC TSs are combined with notes applicable to several tables in Section 4.2. This section will only address changes to notes affecting Table 4.2-C.

NOTE 1 - Deleted. Note applied to initial plant operations only.

NOTE 2 - Surveillance requirements in this note are being incorporated into the corresponding sections of the table.

NOTE 3 - Deleted. Note is not applicable to the current definition of "Instrument or Channel Functional Test".

NOTE 9 - Deleted. The incorporation of Operating Modes provides the necessary association with the operability of systems supported by this instrumentation. The requirements of post-maintenance testing will be fully incorporated into plant procedures.

Notes (a), (b), (c), (*) and (**) are being added consistent with the STS format.

SECTION 3.2.D/4.2.D RADIATION MONITORING INSTRUMENTATION

The section title is being changed consistent with STS and the proposed changes in content. The LCOs and Surveillance Requirements in Specification 3.2.D.1 and 4.2.D.1 will be changed consistent with STS. The LCOs currently in Specification 3.2.D.1.a through d will be incorporated into Table 3.2-D with the exception of the second paragraph in Specification 3.2.D.1.c dealing with offgas release rates. This arrangement is more consistent with the other tables in Section 3.2 and allows easier access to the various requirements. The second paragraph of Specification 3.2.D.1.c is not directly associated with instrument operability requirements and is therefore being retained in the LCO Section as Specification 3.2.D.2.

The existing LCO and Surveillance Requirements in Specification 3.2.D.2 for Reactor Building Isolation and Standby Gas Treatment

System are being deleted. These requirements and the associated instrumentation will be accounted for, in their entirety, in Section 3.2.A.

The Logic System Functional Tests will be moved from Table 4.2-D to Specification 4.2.D.2 consistent with the other sections being revised in this submittal.

Table 3.2-D

The proposed changes to Table 3.2-D incorporate the STS format while retaining the "Valve(s) Operated by Signal" column in order to address the current TS requirements.

The REFUEL AREA EXHAUST MONITOR and REACTOR BUILDING AREA EXHAUST MONITORS requirements are being moved to Table 3.2-A consistent with their Secondary Containment isolation function.

The OFFGAS RADIATION MONITORS trip function will be separated to provide specific requirements for Pre-Treatment and Post-Treatment monitoring. This improves clarity and allows the LCOs mentioned above to be incorporated into the table. The requirement to maintain operability "during power operations" is being changed to "when the offgas system is operating". This is consistent with STS and with the intent of these monitoring requirements. The only releases monitored by these instruments are those that pass through the offgas system. Therefore, limiting the requirements of this table to periods when the offgas system is operating does not result in a reduction of safety.

Table 3.2-D Notes and Actions

The current notes for Table 3.2-D are being deleted as a result of the change in format for Section 3.2-D and the relocation of the Refuel Area and Reactor Building Area Exhaust Monitors to Table 3.2-A.

Proposed note (a) incorporates the trip setpoint and valve operation requirements currently in Specification 3.2.D.1.a. The associated reference to "Specification 3.15.2.1" is in error and has been corrected to read "Specification 3.15.B.1.

Proposed note (b) incorporates the alarm setpoint and valve operation requirements currently in Specification 3.2.D.1.c.

Action 50 incorporates the existing requirements of Specification 3.2.D.1.b.

Action 51 incorporates the existing requirements of Specification 3.2.D.1.d.

Table 4.2.D: Radiation Monitoring Instrumentation Surveillance Requirements

The proposed changes to Table 4.2-D incorporate the STS format and include the Applicable Operating Modes. The trip functions included in the table reflect the changes in content to Table 3.2-D.

The notes pertaining to this table in the current DAEC TS have been modified as follows:

NOTE 6 - Deleted. Logic System Functional Testing requirements have been relocated to Specification 4.2.D.2.

NOTE 9 - Deleted. The incorporation of Operating Modes provides the necessary association with the operability of systems supported by this instrumentation. The requirements for post-maintenance testing will be fully incorporated into plant procedures.

NOTE 10 - Replaced by equivalent Note (**).

SECTION 3.2.E/4.2.E DRYWELL LEAK DETECTION INSTRUMENTATION

The section title is being changed to provide consistency with other instrument sections. The LCOs and Surveillance Requirements in Specification 3.2.E.1 and 4.2.E.1 will be changed consistent with the format used in the other proposed sections. The Action statement will reference Specification 3.6.C, consistent with the current table.

Table 3.2-E: Drywell Leak Detection Instrumentation

The proposed changes to Table 3.2-E incorporate a format that is similar to the other proposed tables in this section. Applicable Operating Modes have been added to the table consistent with Specification 3.6.C. The current limits on reactor coolant leakage into the Primary Containment apply any time irradiated fuel is in the vessel and reactor coolant temperature is above 212°F. Operating Modes 1, 2 and 3 fully address this requirement and are consistent with the corresponding requirements in STS.

Table 3.2-E Notes and Actions

The notes for Table 3.2-E have been changed as follows:

NOTE (*)- Added to provide clarification and ensure consistency with the requirements of Specification 3.6.C.

NOTE 1 - Replaced by equivalent Note (a). The term "Sump Sub-System" in the last sentence has been changed to "Sump System" for consistency with the other references to same in the table.

NOTE 2 - Replaced by equivalent Note (b). A further explanation of the number of channels required to maintain operability of the Air Sampling System is being added. This will eliminate the need for a TS Interpretation currently in place.

The Action for Table 3.2-D was changed in format only.

Table 4.2-E: Drywell Leak Detection Instrumentation Surveillance Requirements

The proposed changes to Table 4.2-E incorporate the STS format and include the Applicable Operating Modes. The listed instruments have been rearranged to group the sump-related equipment and to list the sump flow timers separately for consistency.

The notes pertaining to this table in the current DAEC TSs have been modified as follows:

NOTE 1 - Deleted. Note applied to initial plant operations only.

NOTE 9 - Deleted. The incorporation of Operating Modes provides the necessary association with the operability of systems supported by this instrumentation. The requirements for post-maintenance testing will be fully incorporated into plant procedures.

Note (*) is being added in support of the proposed Applicable Operating Modes.

SECTION 3.2.F/4.2.F SURVEILLANCE INSTRUMENTATION

The section title is being changed to provide consistency with other instrument sections. The LCOs and Surveillance Requirements in Specification 3.2.F and 4.2.F will be changed consistent with the format used in the other proposed sections.

Table 3.2-F: Surveillance Instrumentation

The proposed changes to Table 3.2-F incorporate a format that is similar to the other proposed tables in this section.

The range for Reactor Water Level is being changed from 158" - 218" to "158 to 218 Inches" for improved clarity. The range for Torus Water

Level is being changed from -10"/0/+10" H_2O to "-10 to +10 Inches H_2O" for improved clarity.

The "Control Rod Position" instrument is being deleted from the table. This item currently has no required compensatory actions. Consequently, the elimination of this item from the table would not affect plant safety as Specification 3.3.B adequately addresses the requirements for rod position indication.

The "Neutron Monitoring" instruments will be titled "Source Range Monitoring" and "IRM/APRM" to provide added clarity. The references to SRM, IRM and APRM will be removed from the "Type Indication and Range" column. The word "power" is being deleted from the IRM/APRM range since it is not appropriate for the IRMs. The "%" term can then apply to either a percent of rated power or a percent of full scale, as appropriate.

Table 3.2-F Notes and Actions

The notes for Table 3.2-F have been changed as follows:

NOTE 1, 2 and 3 - These notes are being incorporated into Action 90a, b and c for Table 3.2-F with minor editorial improvements.

NOTE 4 - Replaced by equivalent Note (b).

NOTE (*) - Deleted. A discussion of water level indication with respect to the top-of-active fuel is being placed in the Bases.

NOTE (**) Replaced by equivalent Note (a). The note is being moved to the Minimum Operable Channels column which is more appropriate for this information.

Table 4.2-F: Surveillance Instrumentation Surveillance Requirements

The proposed changes to Table 4.2-F incorporate a format similar to STS. The "Neutron Monitoring" instrument has been changed to "Average Power Range Monitoring" for added clarity. The parenthetical information for the APRM channel check is being separated out in the form of equivalent Note (*). The information provided for APRM channel calibration is being put into a note format as Note (a).

SECTION 3.2.G/4.2.G RECIRCULATION PUMP TRIP (RPT) AND ALTERNATE ROD INSERTION (ARI) INSTRUMENTATION

The section title is being changed to specifically address "instrumentation", consistent with the other sections in this submittal. The LCOs and Surveillance requirements in Specification 3.2.G.1 will be changed consistent with the format used in the other proposed sections. Surveillance Requirements 4.2.G.2 and 4.2.G.3 address the Logic System Functional Test and Time Response testing requirements currently in Tables 3.2-G and 4.2-G. The requirement to perform Logic System Functional Testing for Recirculation Pump Trip has been changed from "once/refueling cycle" to "once per operating cycle". This corrects an inadvertent change in Amendment 151.

Table 3.2-G (ATWS) RPT/ARI and EOC-RPT Instrumentation

The proposed changes to Table 3.2-G incorporate a format similar to the other proposed tables in this section. The Applicable Operating Modes have been incorporated consistent with the reference to the RUN mode in the current Note 1. The Trip Level Setting for (ATWS) RPT/ARI Reactor Water Level-Low-Low is being changed from "in. indicated level" to "inches" consistent with other water level setpoints in this submittal.

The (EOC) RPT System (Response Time) is being moved to Specification 4.2.G consistent with the format used in Section 3.1.

Table 3.2-G Notes and Actions

The notes for Table 3.2-G have been changed as follows:

NOTE 1 - Replaced by equivalent Note (a). The reference to the RUN mode is deleted since the Applicable Operating Modes address this.

NOTE 2 - Replaced by equivalent Action 80a and b.

NOTE 3 - The description of RPT systems is replaced by equivalent Note (d). The functional test requirements are being reflected in Table 4.2-G. A reference to the AOT for surveillance testing is replaced by equivalent Note (e). The compensatory action for RPT system(s) inoperability is being placed in Action Statement 81.

NOTE 4 - Replaced by equivalent Note (*) to Table 4.2-G.

NOTE 5 - Deleted. A discussion of the top-of-active fuel is being placed in the Bases.

NOTE 6 - Replaced by equivalent Note (c).

NOTE (*)- Replaced by equivalent Note (b).

NOTE (**) Deleted. A discussion of the top-of-active fuel is being placed in the Bases.

Table 4.2-G: (ATWS) RPT/ARI AND EOC-RPT Instrumentation Surveillance Requirements

The proposed changes to Table 4.2-G incorporate a format similar to STS and combine the current tables into one. The response time requirements for the RPT systems have been added as a separate section of the table.

SECTION 3.2.H/4.2.H ACCIDENT MONITORING INSTRUMENTATION

The LCO and Surveillance Requirements in Specification 3.2.H and 4.2.H will be changed consistent with STS. The reference to operational modes in Specification 4.2.H will be incorporated into Table 3.2-H and 4.2-H through the use of Applicable Operating Modes. These Operating Modes are also consistent with STS.

Table 3.2-H: Accident Monitoring Instrumentation

The proposed changes to Table 3.2-H incorporate the STS format. The Applicable Operating Modes have been incorporated. The "Type Indication and Range" column is being deleted consistent with the new format. The ranges are being retained in the "Instrument" column where this is necessary to prevent confusion with other similar instrumentation.

a. SAFETY/RELIEF VALVE and SAFETY VALVE POSITION INDICATOR (BACKUP - THERMOCOUPLE) - These items are being deleted. There are currently no minimum operable channel requirements or compensatory actions for these items. Therefore, the deletion of these items from Table 3.2-H has no effect on plant safety.

b. DRYWELL and TORUS RADIATION MONITORS - These monitors will be listed separately consistent with plant design. The minimum operable channels requirement for each will be one. This is consistent with STS and the current requirement and further clarifies that radiation monitoring must be available for both the torus and drywell.

c. TORUS WATER LEVEL MONITOR - The "primary detection" reference is being deleted.

d. CONTAINMENT WATER LEVEL MONITOR (BACKUP LEVEL) - This item will be deleted. There is currently no minimum operable channels or compensatory actions required for this instrument. Deletion of this item has no effect on plant safety.

e. CONTAINMENT HYDROGEN/OXYGEN IN-LINE MONITOR - The phrase "In-line Monitor" is being added to the instrument title to avoid confusion with similar analysis of containment grab samples.

Table 3.2-H Notes and Actions

In order to maintain a format consistent with other sections in this submittal, the notes for table 3.2-H are being changed as follows:

NOTE 1 - Replaced by equivalent Note (a). The reference to the logic being "connected to a relay" provides unnecessary detail and is being deleted.

NOTE 2 - Replaced by equivalent ACTION 90.

NOTE 3 - Replaced by equivalent Note (b).

NOTE 4,5 These notes were combined into equivalent ACTION 91.

NOTE 6 - Replaced by equivalent ACTION 92.

NOTE 7,8 - Combined into equivalent ACTION 93.

NOTE 9,10 - Combined into equivalent ACTION 94.

NOTE 11,12 - Combined into equivalent ACTION 95.

FOOTNOTE 1 - Replaced by equivalent Footnote (**).

FOOTNOTE 2 - Replaced by equivalent Footnote (***)

FOOTNOTE (*) to ACTION 91 is being added to reflect the relationship between grab sample analysis of the containment atmosphere and in-line monitoring provided by the H_2/O_2 analysis on panel 1C09. The proposed change allows the use of the Containment Hydrogen/Oxygen in-line monitors to satisfy the requirement to confirm the availability of alternative sample analytical support within 7 days. The monitors must be verified to be on-line, since Table 3.2-H allows these to be in the standby mode. Criteria for post-accident sampling and analysis contained in NUREG-0737, Item II.B.3 require the capability to promptly analyze samples of the containment atmosphere. It is specifically stated that in-line monitoring is an acceptable alternative to the analysis of grab samples. The in-line monitors are

equally qualified with the Post-Accident Sampling System to perform their function in a post-accident scenario. In addition, they provide instantaneous readout in the Control Room thereby enhancing operator awareness regarding changes in the condition of the containment atmosphere. Therefore, this change represents an alternative that is consistent with the criteria of NUREG-0737, Item II.B.3 and with the current level of plant safety.

Table 4.2-H Accident Monitoring Instrumentation Surveillance Requirement

The proposed changes to Table 4.2-H incorporate the STS format and include the Applicable Operating Modes. The instruments deleted from Table 3.2-H have been retained in order to ensure that the current level of instrument surveillance is maintained.

The Drywell and Torus radiation monitors are listed separately, consistent with Table 3.2-H.

The Drywell pressure monitors have been listed separately with their corresponding instrument range for ease of identification and for consistency with Table 3.2-H.

Table 4.2-H Notes

The notes for Table 4.2-H have been changed as follows:

NOTE 1 - Replaced by equivalent Note (a).

NOTE 2 - Deleted. Note repeats information already provided in Section 1.0 Definitions.

NOTE 3 - Replaced by equivalent Note (b).

NOTE 4 - Replaced by equivalent Note (c).

Note 5 - Replaced by equivalent Note (d) with an editorial correction.

NOTE 6 - Replaced by equivalent Note (e).

3.2 Bases

Several editorial changes were made to improve clarity and correct errors.

The description of the content of Section 3.2 (page 3.2-35, first paragraph) is incorrect and was deleted.

The second and third paragraphs on page 3.2-35 have been modified for improved consistency.

The paragraph referencing primary containment valves on page 3.2-36 is not consistent with the proposed changes and is being deleted.

The discussion of the "top of active fuel" on page 3.2-36 is being revised to support the proposed trip level settings for all water level indications. The discussion relating to the change in fuel pellet column heights is being revised to be less specific to a particular time frame.

All references to Core Standby Cooling Systems are being updated to reference ECCS.

The high differential temperature trip settings for HPCI and RCIC isolations on page 3.2-40 were corrected to read Δ50°F.

The reference to the scram discharge volume high level inputs is being corrected to reflect two instrument channels which provide input to the "B" logic.

The reference to the flow comparator logic and the requirement to bypass the comparator input when in single-loop operation is incorrect and is being deleted.

The "automatic pressure relief function" is being clarified to read "automatic depressurization system" for improved clarity.

A reference to Footnote 9 of Table 3.2-H is being changed to read "Action 94", consistent with the corresponding proposed revisions to the Table. The reference to containment water level monitors is being editorially modified.

The "3.2.D.1 Bases" heading and the paragraph number are being deleted.

Basis for proposed no significant hazards consideration:

The commission has provided standards (10 CFR 50.92(c)) for determining whether a significant hazards consideration exists. A proposed amendment to an operating license for a facility involves no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not (1) involve a significant increase in the probability or consequences of an accident previously evaluated; (2) create the possibility of a new or different kind of accident from any accident previously evaluated; or (3) involve a significant reduction in a margin of safety.

1. The proposed changes do not result in any physical or functional changes to the associated instrumentation. Consequently, the probability of occurrence of an accident previously evaluated in the FSAR is not increased.

The proposed changes to instrument AOTs and STIs have been evaluated and found to have an insignificant impact on the probability of instrument failure. Further, when the resulting reduction in test-related plant scrams and test-induced wearout of safety-related equipment is considered, the net effect of these changes is to reduce the consequences of any previously evaluated accident.

The proposed elimination of the APRM downscale trip signal for the RPS logic does not affect the consequences of any accidents evaluated in the FSAR. The downscale trip provides a scram signal only in cases of operator error during startup or power descent. In these cases, such errors would be covered by the remaining neutron monitoring trip functions.

The proposed elimination of instruments which provide an annunciator function only has no effect on the consequences of any accident evaluated in the FSAR, since there are no automatic trip functions involved.

The proposed change in format to the LCOs, surveillance requirements and instrument tables does not affect the consequences of any accident evaluated in the FSAR. The proposed format provides significant improvements in the overall clarity and consistency of the associated TS. The incorporation of Applicable Operating Modes is consistent with STS and provides a more precise correlation with the conditions for which the trip functions are required.

The use of the "minimum operable channels per trip function" requirement for ECCS and Control Rod Block instrumentation only serves to improve clarity and does not affect the level of protection required.

The use of STS action statements in several instrument tables causes some actions to be more restrictive and allow other actions to be less restrictive than presently required by TS. This ensures that an appropriate amount of urgency is maintained without creating the need for unnecessary plant transients or creating an environment conducive to operator error. The proposed action statements have no effect on the consequences of any accident evaluated in the FSAR.

The proposed addition of several trip functions to the instrument tables increases the level of assurance that appropriate compensatory actions are taken should these functions become inoperable. Since the availability of protective instrumentation is maintained, there is no adverse effect on the consequences of any accident evaluated in the FSAR.

The proposed corrections to the number of channels and/or trip systems for specific instruments provide clarification only and do not represent a reduction in the level of instrumentation required. There is therefore no effect on the consequences of any accidents evaluated in the FSAR.

The proposed changes to the Bases of Sections 3.1 and 3.2 reflect the above changes and include various editorial corrections. These changes have no affect on the consequences of previously evaluated accident.

2. The proposed changes do not result in any physical or functional changes to the affected instrumentation and therefore do not create the possibility of a new or different kind of accident.

3. The proposed changes to AOTs for the instruments addressed in the LTRs provide additional time for making repairs and performing tests. The lack of AOTs in the current TS creates a hurried atmosphere during repairs and tests which could cause an increased risk of error. Also, placing an individual channel in a tripped condition when no AOT exists, as in the current TS, increases the potential of an inadvertent scram. The proposed AOTs provide realistic times to complete the required actions without increasing the overall instrument failure frequency. Therefore, there is no reduction in the margin of safety.

   The incorporation of extended STIs results in insignificant changes in the probability of instrument failure as demonstrated by the LTRs. These changes, when coupled with the reduced probability of test-induced plant transients and equipment failure, result in an overall increase in the margin of safety.

   The proposed elimination of the APRM downscale trip does not affect the margin of safety as defined in the technical specifications or the FSAR. No credit is taken for the APRM downscale scram for any of the accidents analyzed in the FSAR.

   The proposed elimination of several instruments which provide an annunciator function only does not effect any margin of safety since there are no automatic trip functions involved.

The proposed change in format to the LCOs, surveillance requirements and instrument tables does not affect the margin of safety. The incorporation of Applicable Operating Modes provides a more precise correlation with the conditions for which the trip functions are required. The use of "minimum operable channels per trip function" requirement for ECCS and Control Rod Block instrumentation improves clarity without affecting the level of protection required. Consequently, there is no reduction in the margin of safety.

The proposed incorporation of the STS action statements into several instrument tables will in some cases cause actions to be more restrictive and in other cases cause actions to be less restrictive than presently required by TS. This will ensure that the appropriate amount of urgency is maintained without creating the need for unnecessary plant transients or creating an environment conducive to operator error. In all cases the actions provide guidance that is more specific with regard to the circumstances addressed. Consequently, there is no reduction in the margin of safety.

The proposed addition of several trip functions to the instrument tables increases the level of assurance that appropriate compensatory actions are taken should these functions become inoperable. Since the availability of protective instrumentation is maintained, there is no reduction in the margin of safety.

The proposed corrections to the number of channels and/or trip systems for specific instruments provide clarification only and do not represent a reduction in the level of instrumentation required. These corrections therefore have no affect on the margin of safety.

The proposed changes to the TS Bases of Section 3.1 and 3.2 reflect the above changes and include various editorial corrections. These changes have no effect on the margin of safety.

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REFERENCE SHEET

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2. NEDC-30851-P-A Supplement 1 Technical Specification Improvement Analysis for BWR Control Rod Block Instrumentation, October 1988

3. NEDC-30851-P-A Supplement 2 Technical Specification Improvement Analysis for BWR Isolation Instrumentation Common to RPS and ECCS Instrumentation, July 1986

4. NEDC-30936-P-A BWR Owners' Group Technical Specification Improvement Methodology (With Demonstration for BWR ECCS Actuation Instrumentation), Parts 1 and 2, December 1988

5. NEDC-31677-P-A Technical Specification Improvement Analysis for BWR Isolation Activation Instrumentation, July 1990

6. MDE-95-0485 Technical Specification Improvement Analysis for the Reactor Protection System for Duane Arnold Energy Center, April 1985

7. RE-013 Technical Specification Improvement Analysis for the Emergency Core Cooling System Actuation Instrumentation for the Duane Arnold Energy Center, February 1987

8. Letter, M. M. Sadeghi (GE) to T. Browning (IELP), Assessment of DAEC Isolation Actuation Instrumentation Against NEDC-31677P-A Bounding Analysis, November 14, 1991

9. 0G090-319-32D, J. F. Klapproth (GE BWROG) to M. L. Wohl (NRC), Clarification of Technical Specification Changes Given in ECCS Actuation Instrumentation Analysis, March 22, 1990