UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

October 3, 2000

Mr. Michael B. Sellman, President
Nuclear Management Company, LLC
700 First Street
Hudson, WI 54016

SUBJECT: DUANE ARNOLD ENERGY CENTER - ISSUANCE OF AMENDMENT (TAC NO. MA7270)

Dear Mr. Sellman:

The U.S. Nuclear Regulatory Commission (NRC) has issued the enclosed Amendment No.234 to Facility Operating License No. DPR-49 for the Duane Arnold Energy Center (DAEC). This amendment consists of changes to the Technical Specifications (TS) in response to your application dated November 22, 1999, as supplemented August 14, 2000.

The amendment revises the TS to adopt 16 changes to the DAEC TS resulting from the Technical Specification Task Force (TSTF) process developed by the Industry and the Nuclear Regulatory Commission. TSTF-71, TSTF-122, and TSTF-165 are changes to the Bases of the TS and, therefore, are not included in the amendment. The August 14, 2000, letter revised the TS amendment request submittal to withdraw consideration of TSTF-225 in its entirety. The remaining 12 TSTF changes are evaluated in the enclosed Safety Evaluation (SE). The NRC staff concluded in the SE that the amendment to incorporate these 12 TSTFs into the TS is acceptable because the justifications for the changes are acceptable. The changes agree with the NRC-approved TSTFs, and the TSTFs apply to the DAEC plant.

A copy of the SE is enclosed. Notice of Issuance will be included in the Commission's next biweekly Federal Register notice.

Sincerely,

Brenda Mozafari

Brenda L. Mozafari, Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-331

Enclosures: 1. Amendment No. 234 to License No. DPR-49
2. Safety Evaluation

cc w/encls: See next page

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/RA/
Brenda L. Mozafari, Project Manager, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Docket No. 50-331

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2. Safety Evaluation

cc w/encls: See next page

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Duane Arnold Energy Center

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

IES UTILITIES INC.

CENTRAL IOWA POWER COOPERATIVE

CORN BELT POWER COOPERATIVE

DOCKET NO. 50-331

DUANE ARNOLD ENERGY CENTER

AMENDMENT TO FACILITY OPERATING LICENSE

Amendment No. 234
License No. DPR-49

1. The U.S. Nuclear Regulatory Commission (the Commission) has found that:

   A. The application for amendment by IES Utilities Inc., et al., dated November 22, 1999, as supplemented August 14, 2000, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act), and the Commission's rules and regulations set forth in 10 CFR Chapter I;

   B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;

   C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;

   D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and

   E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.

2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment and paragraph 2.C.(2) of Facility Operating License No. DPR-49 is hereby amended to read as follows:

(2) Technical Specifications

The Technical Specifications contained in Appendix A, as revised through Amendment No. 234, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. The license amendment is effective as of the date of issuance and shall be implemented within 30 days of the date of issuance.

FOR THE NUCLEAR REGULATORY COMMISSION

Claudia M. Craig

Claudia M. Craig, Chief, Section 1
Project Directorate III
Division of Licensing Project Management
Office of Nuclear Reactor Regulation

Attachment: Changes to the Technical Specifications

Date of Issuance: October 3, 2000

ATTACHMENT TO LICENSE AMENDMENT NO. 234

FACILITY OPERATING LICENSE NO. DPR-49

DOCKET NO. 50-331

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised areas are identified by amendment number and contain marginal lines indicating the areas of change. Bases pages are included for information only.

Remove	Insert
1.1-1	1.1-1
1.1-2	1.1-2
1.1-4	1.1-4
3.0-2	3.0-2
3.4-15	3.4-15
3.4-18	3.4-18
3.6-9	3.6-9
3.6-10	3.6-10
3.6-11	3.6-11
3.6-12	3.6-12
3.6-38	3.6-38
3.8-13	3.8-13
3.8-23	3.8-23
3.8-24	3.8-24
3.9-10	3.9-10
3.9-13	3.9-13
5.0-7	5.0-7
5.0-11	5.0-11
5.0-15	5.0-15
5.0-19	5.0-19
5.0-20	5.0-20
B 3.0-2	B 3.0-2
B 3.0-6	B 3.0-6
B 3.0-7	B 3.0-7
B 3.0-8	B 3.0-8
B 3.0-9	B 3.0-9
B 3.0-10	B 3.0-10
B 3.0-11	B 3.0-11
B 3.0-12	B 3.0-12
B 3.0-13	B 3.0-13
B 3.0-14	B 3.0-14
B 3.0-15	B 3.0-15
B 3.0-16	B 3.0-16
B 3.0-17	B 3.0-17
B 3.3-28	B 3.3-28
B 3.3-29	B 3.3-29
B 3.3-30	B 3.3-30
B 3.3-31	B 3.3-31
B 3.3-44	B.3.3-44
B 3.3-53	B 3.3-53

Remove	Insert
B 3.3-54	B 3.3-54
B 3.3-56	B 3.3-56
B 3.3-84	B 3.3-84
B 3.3-94	B 3.3-94
B 3.3-137	B 3.3-137
B 3.3-138	B 3.3-138
B 3.3-149	B 3.3-149
B 3.3-186	B 3.3-186
B 3.3-199	B 3.3-199
B 3.3-207	B 3.3-207
B 3.3-213	B 3.3-213
B 3.3-222	B 3.3-222
B 3.3-229	B 3.3-229
B 3.4-31	B 3.4-31
B 3.4-32	B 3.4-32
B 3.4-38	B 3.4-38
B 3.4-44	B 3.4-44
B 3.6-20	B 3.6-20
B 3.6-21	B 3.6-21
B 3.6-22	B 3.6-22
B 3.6-24	B 3.6-24
B 3.6-87	B 3.6-87
B 3.8-30	B 3.8-30
B 3.8-31	B 3.8-31
B 3.9-4	B 3.9-4
B 3.9-8	B 3.9-8
B 3.9-23	B 3.9-23
B 3.9-28	B 3.9-28

1.0 USE AND APPLICATION

1.1 Definitions

----------NOTE----------
The defined terms of this section appear in capitalized type and are applicable throughout these Technical Specifications and Bases.

Term	Definition
ACTIONS	ACTIONS shall be that part of a Specification that prescribes Required Actions to be taken under designated Conditions within specified Completion Times.
AVERAGE PLANAR LINEAR HEAT GENERATION RATE (APLHGR)	The APLHGR shall be applicable to a specific planar height and is equal to the sum of the heat generation rate per unit length of fuel rod for all the fuel rods in the specified bundle at the specified height divided by the number of fuel rods in the fuel bundle at the height.
CHANNEL CALIBRATION	A CHANNEL CALIBRATION shall be the adjustment, as necessary, of the channel output such that it responds within the necessary range and accuracy to known values of the parameter that the channel monitors. The CHANNEL CALIBRATION shall encompass all devices in the channel required for channel OPERABILITY and the CHANNEL FUNCTIONAL TEST. Calibration of instrument channels with Resistance Temperature Detector (RTD) or thermocouple sensors may consist of an inplace qualitative assessment of sensor behavior and normal calibration of the remaining adjustable devices in the channel. The CHANNEL CALIBRATION may be performed by means of any series of sequential, overlapping, or total channel steps.

(continued)

1.1 Definitions (continued)

CHANNEL CHECK	A CHANNEL CHECK shall be the qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter.
CHANNEL FUNCTIONAL TEST	A CHANNEL FUNCTIONAL TEST shall be the injection of a simulated or actual signal into the channel as close to the sensor as practicable to verify OPERABILITY of all devices in the channel required for channel OPERABILITY. The CHANNEL FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total channel steps.
CORE ALTERATION	CORE ALTERATION shall be the movement of any fuel, sources, or reactivity control components, within the reactor vessel with the vessel head removed and fuel in the vessel. The following exceptions are not considered to be CORE ALTERATIONS: a. Movement of source range monitors, local power range monitors, intermediate range monitors, traversing incore probes, or special movable detectors (including undervessel replacement); and b. Control rod movement, provided there are no fuel assemblies in the associated core cell. Suspension of CORE ALTERATIONS shall not preclude completion of movement of a component to a safe position.

1.1 Definitions (continued)

LEAKAGE	LEAKAGE shall be: a. Identified LEAKAGE 1. LEAKAGE into the drywell, such as that from pump seals or valve packing, that is captured and conducted to a sump or collecting tank; or 2. LEAKAGE into the drywell atmosphere from sources that are both specifically located and known not to interfere with the operation of leakage detection systems; b. Unidentified LEAKAGE All LEAKAGE into the drywell that is not identified LEAKAGE; c. Total LEAKAGE Sum of the identified and unidentified LEAKAGE.
LOGIC SYSTEM FUNCTIONAL TEST	A LOGIC SYSTEM FUNCTIONAL TEST shall be a test of all logic components required for OPERABILITY of a logic circuit, from as close to the sensor as practicable up to, but not including, the actuated device, to verify OPERABILITY. The LOGIC SYSTEM FUNCTIONAL TEST may be performed by means of any series of sequential, overlapping, or total system steps so that the entire logic system is tested.
MINIMUM CRITICAL POWER RATIO (MCPR)	The MCPR shall be the smallest critical power ratio (CPR) that exists in the core for each class of fuel. The CPR is that power in the assembly that is calculated by application of the appropriate correlation(s) to cause some point in the assembly to experience transition boiling, divided by the actual assembly operating power. Transition boiling means the boiling regime between nucleate and film boiling. Transition boiling is the regime in which both nucleate and

(continued)

3.0 LCO APPLICABILITY

LCO 3.0.4 (continued)

Exceptions to this Specification are stated in the individual Specifications.

LCO 3.0.4 is only applicable for entry into a MODE or other specified condition in the Applicability in MODES 1, 2, and 3.

LCO 3.0.5

Equipment removed from service or declared inoperable to comply with ACTIONS may be returned to service under administrative control solely to perform testing required to demonstrate its OPERABILITY or the OPERABILITY of other equipment. This is an exception to LCO 3.0.2 for the system returned to service under administrative control to perform the testing required to demonstrate OPERABILITY.

LCO 3.0.6

When a supported system LCO is not met solely due to a support system LCO not being met, the Conditions and Required Actions associated with this supported system are not required to be entered. Only the support system LCO ACTIONS are required to be entered. This is an exception to LCO 3.0.2 for the supported system. In this event, an evaluation shall be performed in accordance with Specification 5.5.11, "Safety Function Determination Program (SFDP)." If a loss of safety function is determined to exist by this program, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

When a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

(continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.7 Residual Heat Removal (RHR) Shutdown Cooling System — Hot Shutdown

LCO 3.4.7 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

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

1. Both required RHR shutdown cooling subsystems and recirculation pumps may not be in operation for up to 2 hours per 8 hour period.

2. One required RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.

APPLICABILITY: MODE 3, with reactor steam dome pressure < the RCIC Steam Supply Line Pressure - Low isolation pressure.

ACTIONS

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

1. LCO 3.0.4 is not applicable.

2. Separate Condition entry is allowed for each RHR shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required RHR shutdown cooling subsystems inoperable.	A.1 Initiate action to restore required RHR shutdown cooling subsystem(s) to OPERABLE status. <u>AND</u>	Immediately (continued)

3.4 REACTOR COOLANT SYSTEM (RCS)

3.4.8 Residual Heat Removal (RHR) Shutdown Cooling System – Cold Shutdown

LCO 3.4.8 Two RHR shutdown cooling subsystems shall be OPERABLE, and, with no recirculation pump in operation, at least one RHR shutdown cooling subsystem shall be in operation.

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

1. Both required RHR shutdown cooling subsystems and recirculation pumps may not be in operation for up to 2 hours per 8 hour period.

2. One required RHR shutdown cooling subsystem may be inoperable for up to 2 hours for the performance of Surveillances.

APPLICABILITY: MODE 4.

ACTIONS

----------NOTE----------

Separate Condition entry is allowed for each shutdown cooling subsystem.

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required RHR shutdown cooling subsystems inoperable.	A.1 Verify by administrative means an alternate method of decay heat removal is available for each inoperable required RHR shutdown cooling subsystem.	1 hour <u>AND</u> Once per 24 hours thereafter

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 --------NOTES--------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation devices outside primary containment AND Prior to entering MODE 2 or 3 from MODE 4, if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days, for isolation devices inside primary containment

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. ---------NOTE--------- Only applicable to penetration flow paths with two PCIVs. ---------- One or more penetration flow paths with two PCIVs inoperable except for MSIV or purge valve leakage not within limits.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	1 hour
C. ---------NOTE--------- Only applicable to penetration flow paths with only one PCIV. ---------- One or more penetration flow paths with one PCIV inoperable.	C.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange. AND C.2 -------NOTES------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ----------	72 hours

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
C. (continued)	C.2 Verify the affected penetration flow path is isolated.	Once per 31 days
D. One or more penetration flow paths with one or more MSIVs not within leakage limits.	D.1 Restore leakage to within limits.	8 hours
E. One or more penetration flow paths with one or more containment purge valves not within purge valve leakage limits.	E.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve, closed manual valve, or blind flange.	24 hours
	AND	
	E.2 --------NOTE--------- Only required to be performed if a purge valve with resilient seal is used to satisfy Required Action E.1. ---------- Restore leakage to within limits.	72 hours
	AND	
	E.3 --------NOTES-------- 1. Isolation devices in high radiation areas may be verified by use of administrative means.	

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. (continued)	E.3 -------NOTES------- 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days for isolation device outside containment
F. Required Action and associated Completion Time of Condition A, B, C, D, or E not met in MODE 1, 2, or 3.	F.1 Be in MODE 3. AND F.2 Be in MODE 4.	12 hours 36 hours
G. Required Action and associated Completion Time of Condition A, B, C, D, or E not met for PCIV(s) required to be OPERABLE during MODE 4 or 5.	G.1 Initiate action to suspend OPDRVs within the Residual Heat Removal (RHR) Shutdown Cooling System. OR G.2 Initiate action to restore valve(s) to OPERABLE status.	Immediately Immediately

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. (continued)	A.2 --------NOTES-------- 1. Isolation devices in high radiation areas may be verified by use of administrative means. 2. Isolation devices that are locked, sealed, or otherwise secured may be verified by use of administrative means. ---------- Verify the affected penetration flow path is isolated.	Once per 31 days
B. ---------NOTE--------- Only applicable to penetration flow paths with two isolation valves/dampers. ---------- One or more penetration flow paths with two SCIV/Ds inoperable.	B.1 Isolate the affected penetration flow path by use of at least one closed and de-activated automatic valve/damper, closed manual valve, or blind flange.	4 hours
C. Required Action and associated Completion Time of Condition A or B not met in MODE 1, 2, or 3.	C.1 Be in MODE 3. AND C.2 Be in MODE 4.	12 hours 36 hours

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION		COMPLETION TIME
B. One required DG inoperable.	B.1	Suspend CORE ALTERATIONS.	Immediately
	AND		
	B.2	Suspend movement of irradiated fuel assemblies in secondary containment	Immediately
	AND		
	B.3	Initiate action to suspend OPDRVs.	Immediately
	AND		
	B.4	Initiate action to restore required DG to OPERABLE status.	Immediately

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.8.2.1	----------NOTES---------- 1. The following SRs are not required to be performed: SR 3.8.1.3, SR 3.8.1.9 through SR 3.8.1.13. 2. SR 3.8.1.13 is considered to be met without the ECCS initiation signals OPERABLE when the ECCS initiation signals are not required to be OPERABLE per Table 3.3.5.1-1. ---------- For AC sources required to be OPERABLE, the SRs of Specification 3.8.1, except SR 3.8.1.8, are applicable.	In accordance with applicable SRs

3.8 ELECTRICAL POWER SYSTEMS

3.8.6 Battery Cell Parameters

LCO 3.8.6 Battery cell parameters for the Division I and Division II 125 VDC and the 250 VDC batteries shall be within limits.

APPLICABILITY: When associated DC electrical power subsystems are required to be OPERABLE.

ACTIONS

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

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or more batteries with one or more battery cell parameters not within Table 3.8.6-1 Category A or B limits.	A.1 Verify pilot cell electrolyte level and float voltage meet Table 3.8.6-1 Category C limits.	1 hour
	AND	
	A.2 Verify parameters for required battery cells meet Table 3.8.6-1 Category C limits.	24 hours AND Once per 7 days thereafter
	AND	
	A.3 Restore parameters for required battery cells to Table 3.8.6-1 Category A and B limits.	31 days

(continued)

ACTIONS (continued)

CONDITION	REQUIRED ACTION	COMPLETION TIME
B. Required Action and associated Completion Time of Condition A not met. OR One or more batteries with average electrolyte temperature of the representative cells not within limits. OR One or more batteries with one or more battery cell parameters for required battery cells not within Table 3.8.6-1 Category C limits.	B.1 Declare associated battery inoperable.	Immediately

3.9 REFUELING OPERATIONS

3.9.7 Residual Heat Removal (RHR) – High Water Level

LCO 3.9.7 One RHR shutdown cooling subsystem shall be OPERABLE; and in operation when reactor coolant temperature ≥ 150 °F.

----------NOTE----------
The required RHR shutdown cooling subsystem may not be in operation for up to 2 hours per 8 hour period.

APPLICABILITY: MODE 5 with irradiated fuel in the Reactor Pressure Vessel (RPV) and the water level ≥ 21 ft-1 inch above the top of the RPV flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Required RHR shutdown cooling subsystem inoperable.	A.1 Verify by administrative means an alternate method of decay heat removal is available.	1 hour AND Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Suspend loading irradiated fuel assemblies into the RPV. AND	Immediately (continued)

3.9 REFUELING OPERATIONS

3.9.8 Residual Heat Removal (RHR) – Low Water Level

LCO 3.9.8 Two RHR shutdown cooling subsystems shall be OPERABLE, and one RHR shutdown cooling subsystem shall be in operation.

----------NOTE----------
The required operating shutdown cooling subsystem may not be in operation for up to 2 hours per 8 hour period.

APPLICABILITY: MODE 5 with irradiated fuel in the Reactor Pressure Vessel (RPV) and the water level < 21 ft-1 inch above the top of the RPV flange.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One or two required RHR shutdown cooling subsystems inoperable.	A.1 Verify by administrative means an alternate method of decay heat removal is available for each inoperable required RHR shutdown cooling subsystem.	1 hour AND Once per 24 hours thereafter
B. Required Action and associated Completion Time of Condition A not met.	B.1 Initiate action to restore secondary containment to OPERABLE status. AND	Immediately (continued)

5.0 ADMINISTRATIVE CONTROLS

5.5 Programs and Manuals

The following programs shall be established, implemented and maintained.

5.5.1 Offsite Dose Assessment Manual (ODAM)

a. The ODAM shall contain the methodology and parameters used in the calculation of offsite doses resulting from radioactive gaseous and liquid effluents, in the calculation of gaseous and liquid effluent monitoring alarm and trip setpoints, and in the conduct of the radiological environmental monitoring program; and

b. The ODAM shall also contain the radioactive effluent controls and radiological environmental monitoring activities and descriptions of the information that should be included in the Annual Radiological Environmental Operating Report and Radioactive Material Release Report required by Specification 5.6.2 and Specification 5.6.3.

c. Licensee initiated changes to the ODAM:

1. Shall be documented and records of reviews performed shall be retained. This documentation shall contain:

a. Sufficient information to support the change(s) together with the appropriate analyses or evaluations justifying the change(s), and

b. A determination that the change(s) maintain the levels of radioactive effluent control required by 10 CFR 20.1302, 40 CFR 190, 10 CFR 50.36a, and 10 CFR 50, Appendix I, and not adversely impact the accuracy or reliability of effluent dose or setpoint calculations;

2. Shall become effective after the approval of the plant manager; and

3. Shall be submitted to the NRC in the form of a complete, legible copy of the entire ODAM as a part of or concurrent with the Radioactive Material Release Report for the period of the report in which any change in the ODAM was made. Each change shall be identified by

(continued)

5.5 Programs and Manuals (continued)

5.5.6 Inservice Testing Program

This program provides controls for inservice testing of ASME Code Class 1, 2, and 3 components. The program shall include the following:

a. Testing Frequencies specified in Section XI of the ASME Boiler and Pressure Vessel Code and applicable Addenda are as follows:

ASME Boiler and Pressure Vessel Code and applicable Addenda terminology for inservice testing activities	Required Frequencies for performing inservice testing activities
Weekly	At least once per 7 days
Monthly	At least once per 31 days
Biquarterly	At least once per 46 days
Quarterly or every 3 months	At least once per 92 days
Semiannually or every 6 months	At least once per 184 days
Every 9 months	At least once per 276 days
Yearly or annually	At least once per 366 days
Biennially or every 2 years	At least once per 731 days

b. The provisions of SR 3.0.2 are applicable to the above required Frequencies for performing inservice testing activities;

c. The provisions of SR 3.0.3 are applicable to inservice testing activities; and

d. Nothing in the ASME Boiler and Pressure Vessel Code shall be construed to supersede the requirements of any TS.

(continued)

5.5.8 Explosive Gas and Storage Tank Radioactivity Monitoring Program (continued)

b. A surveillance program to ensure that the quantity of radioactivity contained in all outdoor liquid radwaste tanks that are not surrounded by liners, dikes, or walls, capable of holding the tanks' contents and that do not have tank overflows and surrounding area drains connected to the Liquid Radwaste Treatment System is ≤ 50 curies, excluding tritium and dissolved or entrained noble gases. The liquid radwaste storage tanks in the Low-Level Radwaste Processing and Storage Facility are considered unprotected outdoor tanks.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Explosive Gas and Storage Tank Radioactivity Monitoring Program surveillance frequencies.

5.5.9 Diesel Fuel Oil Testing Program

A diesel fuel oil testing program to implement required testing of both new fuel oil and stored fuel oil shall be established. The program shall include sampling and testing requirements, and acceptance criteria, all in accordance with applicable ASTM Standards. The purpose of the program is to establish the following:

a. Acceptability of new fuel oil for use prior to addition to storage tanks by determining that the fuel oil has:

   1. An API gravity within limits,

   2. A viscosity within limits for ASTM 2-D fuel oil, and

   3. Water and sediment within limits;

b. Viscosity, water and sediment for stored ASTM 2-D fuel oil are within limits every 31 days; and

c. Total particulate concentration of the stored fuel oil is ≤ 10 mg/l when tested every 92 days.

The provisions of SR 3.0.2 and SR 3.0.3 are applicable to the Diesel Fuel Oil Testing Program testing frequencies.

(continued)

5.0 ADMINISTRATIVE CONTROLS

5.6 Reporting Requirements

The following reports shall be submitted in accordance with 10 CFR 50.4.

5.6.1 Occupational Radiation Exposure Report

A tabulation on an annual basis of the number of station, utility, and other personnel (including contractors), for whom monitoring was performed, receiving an annual deep dose equivalent > 100 mrems and the associated collective deep dose equivalent (reported in person - rem) according to work and job functions (e.g., reactor operations and surveillance, inservice inspection, routine maintenance, special maintenance [describe maintenance], waste processing, and refueling). This tabulation supplements the requirements of 10 CFR 20.2206. The dose assignments to various duty functions may be estimated based on pocket ionization chamber, thermoluminescence dosimeter (TLD), electronic dosimeter, or film badge measurements. Small exposures totaling < 20 percent of the individual total dose need not be accounted for. In the aggregate, at least 80 percent of the total deep dose equivalent received from external sources should be assigned to specific major work functions. The report covering the previous calendar year shall be submitted by April 30 of each year.

5.6.2 Annual Radiological Environmental Operating Report

The Annual Radiological Environmental Operating Report covering the operation of the unit during the previous calendar year shall be submitted by May 15 of each year. The report shall include summaries, interpretations, and analyses of trends of the results of the Radiological Environmental Monitoring Program for the reporting period. The material provided shall be consistent with the objectives outlined in the Offsite Dose Assessment Manual (ODAM), and in 10 CFR 50, Appendix I, Sections IV.B.2, IV.B.3, and IV.C.

The Annual Radiological Environmental Operating Report shall include the results of analyses of all radiological environmental samples and of all environmental radiation measurements taken during the period pursuant to the locations specified in the table and figures in the ODAM, as well as summarized and tabulated results of these analyses and measurements in the format of the table in Regulatory Guide 4.8. In the event that some individual results are not available for inclusion with the report, the report shall be submitted noting and explaining the reasons for the missing results. The missing data shall be submitted in a supplementary report as soon as possible.

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5.6 Reporting Requirements (continued)

5.6.3 Radioactive Material Release Report

The Radioactive Material Release Report covering the operation of the unit during the previous calendar year shall be submitted prior to May 1 of each year in accordance with 10 CFR 50.36a. The report shall include a summary of the quantities of radioactive liquid and gaseous effluents and solid waste released from the unit. The material provided shall be consistent with the objectives outlined in the ODAM and Process Control Program and in conformance with 10 CFR 50.36a and 10 CFR Part 50, Appendix I, Section IV.B.1.

5.6.4 Monthly Operating Reports

Routine reports of operating statistics and shutdown experience including documentation of all challenges to the safety/relief valves shall be submitted on a monthly basis no later than the 15th of each month following the calendar month covered by the report.

5.6.5 CORE OPERATING LIMITS REPORT (COLR)

a. Core operating limits shall be established prior to each reload cycle, or prior to any remaining portion of a reload cycle, and shall be documented in the COLR for the following:

   1. The Average Planar Linear Heat Generation Rate (APLHGR) for Specification 3.2.1;

   2. The Minimum Critical Power Ratio (MCPR) for Specification 3.2.2; and

   3. Exclusion Region in the Power/Flow Map for Specification 3.4.1.

b. The analytical methods used to determine the core operating limits shall be those previously reviewed and approved by the NRC in General Electric Standard Application for Reactor Fuel, NEDE-24011-P-A, (GESTAR II). The revision number is the one approved at the time the reload fuel analyses are performed.

(continued)

BASES

LCO 3.0.2 (continued)

ACTIONS.) The second type of Required Action specifies the remedial measures that permit continued operation of the unit that is not further restricted by the Completion Time. In this case, compliance with the Required Actions provides an acceptable level of safety for continued operation.

Completing the Required Actions is not required when an LCO is met or is no longer applicable, unless otherwise stated in the individual Specifications.

The nature of some Required Actions of some Conditions necessitates that, once the Condition is entered, the Required Actions must be completed even though the associated Condition no longer exists. The individual LCO's ACTIONS specify the Required Actions where this is the case. An example of this is in LCO 3.4.9, "RCS Pressure and Temperature (P/T) Limits."

The Completion Times of the Required Actions are also applicable when a system or component is removed from service intentionally. The reasons for intentionally relying on the ACTIONS include, but are not limited to, performance of Surveillances, preventive maintenance, corrective maintenance, or investigation of operational problems. Entering ACTIONS for these reasons must be done in a manner that does not compromise safety. Intentional entry into ACTIONS should not be made for operational convenience. Additionally, if intentional entry into ACTIONS would result in redundant equipment being inoperable, alternatives should be used instead. Doing so limits the time both subsystems/divisions of a safety function are inoperable and limits the time conditions exist which may result in LCO 3.0.3 being entered. Individual Specifications may specify a time limit for performing an SR when equipment is removed from service or bypassed for testing. In this case, the Completion Times of the Required Actions are applicable when this time limit expires, if the equipment remains removed from service or bypassed.

When a change in MODE or other specified condition is required to comply with Required Actions, the unit may enter a MODE or other specified condition in which another Specification becomes applicable. In this case, the Completion Times of the associated Required Actions would apply from the point in time that the new Specification becomes applicable and the ACTIONS Condition(s) are entered.

(continued)

BASES

LCO 3.0.4 (continued)

that are required to comply with ACTIONS. In addition, the provisions of LCO 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown.

Exceptions to LCO 3.0.4 are stated in the individual Specifications. The exceptions allow entry into MODES or other specified conditions in the Applicability when the associated ACTIONS to be entered do not provide for continued operation for an unlimited period of time. Exceptions may apply to all the ACTIONS or to a specific Required Action of a Specification.

Surveillances do not have to be performed on the associated inoperable equipment (or on variables outside the specified limits), as permitted by SR 3.0.1. Therefore, changing MODES or other specified conditions while in an ACTIONS Condition, either in compliance with LCO 3.0.4 or where an exception to LCO 3.0.4 is stated, is not a violation of SR 3.0.1 or SR 3.0.4 for those Surveillances that do not have to be performed due to the associated inoperable equipment. However, SRs must be met to ensure OPERABILITY prior to declaring the associated equipment OPERABLE (or variable within limits) and restoring compliance with the affected LCO.

LCO 3.0.4 is only applicable when entering MODE 3 from MODE 4, MODE 2 from MODE 3 or 4, or MODE 1 from MODE 2. Furthermore, LCO 3.0.4 is applicable when entering any other specified condition in the Applicability only while operating in MODE 1, 2, or 3. The requirements of LCO 3.0.4 do not apply in MODES 4 and 5, or in other specified conditions of the Applicability (unless in MODE 1, 2, or 3) because the ACTIONS of individual specifications sufficiently define the remedial measures to be taken.

LCO 3.0.5

LCO 3.0.5 establishes the allowance for restoring equipment to service under administrative controls when it has been removed from service or declared inoperable to comply with ACTIONS. The sole purpose of this Specification is to provide an exception to LCO 3.0.2 (e.g., to not comply with the applicable Required Action(s)) to allow the performance of required testing to demonstrate:

a. The OPERABILITY of the equipment being returned to service; or

(continued)

BASES

LCO 3.0.5 (continued)

b. The OPERABILITY of other equipment.

The administrative controls ensure the time the equipment is returned to service in conflict with the requirements of the ACTIONS is limited to the time absolutely necessary to perform the required testing to demonstrate OPERABILITY. This Specification does not provide time to perform any other preventive or corrective maintenance.

An example of demonstrating the OPERABILITY of the equipment being returned to service is reopening a containment isolation valve that has been closed to comply with Required Actions and must be reopened to perform the required testing.

An example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to prevent the trip function from occurring during the performance of required testing on another channel in the other trip system. A similar example of demonstrating the OPERABILITY of other equipment is taking an inoperable channel or trip system out of the tripped condition to permit the logic to function and indicate the appropriate response during the performance of required testing on another channel in the same trip system.

LCO 3.0.6

LCO 3.0.6 establishes an exception to LCO 3.0.2 for support systems that have an LCO specified in the Technical Specifications (TS). This exception is provided because LCO 3.0.2 would require that the Conditions and Required Actions of the associated inoperable supported system LCO be entered solely due to the inoperability of the support system. This exception is justified because the actions that are required to ensure the plant is maintained in a safe condition are specified in the support system LCO's Required Actions. These Required Actions may include entering the supported system's Conditions and Required Actions or may specify other Required Actions.

When a support system is inoperable and there is an LCO specified for it in the TS, the supported system(s) are required to be declared inoperable if determined to be inoperable as a result of the support system inoperability.

(continued)

BASES

LCO 3.0.6 (continued)

However, it is not necessary to enter into the supported systems' Conditions and Required Actions unless directed to do so by the support system's Required Actions. The potential confusion and inconsistency of requirements related to the entry into multiple support and supported systems' LCOs' Conditions and Required Actions are eliminated by providing all the actions that are necessary to ensure the plant is maintained in a safe condition in the support system's Required Actions.

However, there are instances where a support system's Required Action may either direct a supported system to be declared inoperable or direct entry into Conditions and Required Actions for the supported system. This may occur immediately or after some specified delay to perform some other Required Action. Regardless of whether it is immediate or after some delay, when a support system's Required Action directs a supported system to be declared inoperable or directs entry into Conditions and Required Actions for a supported system, the applicable Conditions and Required Actions shall be entered in accordance with LCO 3.0.2.

Specification 5.5.11, "Safety Function Determination Program (SFDP)," ensures loss of safety function is detected and appropriate actions are taken. Upon entry into LCO 3.0.6, an evaluation shall be made to determine if loss of safety function exists. Additionally, other limitations, remedial actions, or compensatory actions may be identified as a result of the support system inoperability and corresponding exception to entering supported system Conditions and Required Actions. The SFDP implements the requirements of LCO 3.0.6.

Cross division checks to identify a loss of safety function for those support systems that support safety systems are required. The cross division check verifies that the supported systems of the redundant OPERABLE support system are OPERABLE, thereby ensuring safety function is retained.

(continued)

BASES

LCO 3.0.6 (continued)

A loss of safety function may exist when a support system is inoperable, and:

A. A required system redundant to system(s) supported by the inoperable support system is also inoperable; or (EXAMPLE B3.0.6-1)

B. A required system redundant to system(s) in turn supported by the inoperable supported system is also inoperable; or (EXAMPLE B3.0.6-2)

C. A required system redundant to support system(s) for the supported systems (a) and (b) above is also inoperable. (EXAMPLE B3.0.6-3)

EXAMPLE B3.0.6-1
If System 2 of Train A is inoperable, and System 5 of Train B is operable, a loss of safety function exists in supported System 5.

EXAMPLE B3.0.6-2
If System 2 of Train A is inoperable, and System 11 of Train B is inoperable, a loss of safety function exists in System 11 which is in turn supported by System 5.

EXAMPLE B3.0.6-3
If System 2 of Train A is inoperable, and System 1 of Train B is inoperable, a loss of safety function exists in Systems 2, 4, 5, 8, 9, 10, and 11.

If this evaluation determines that a loss of safety function exists, the appropriate Conditions and Required Actions of the LCO in which the loss of safety function exists are required to be entered.

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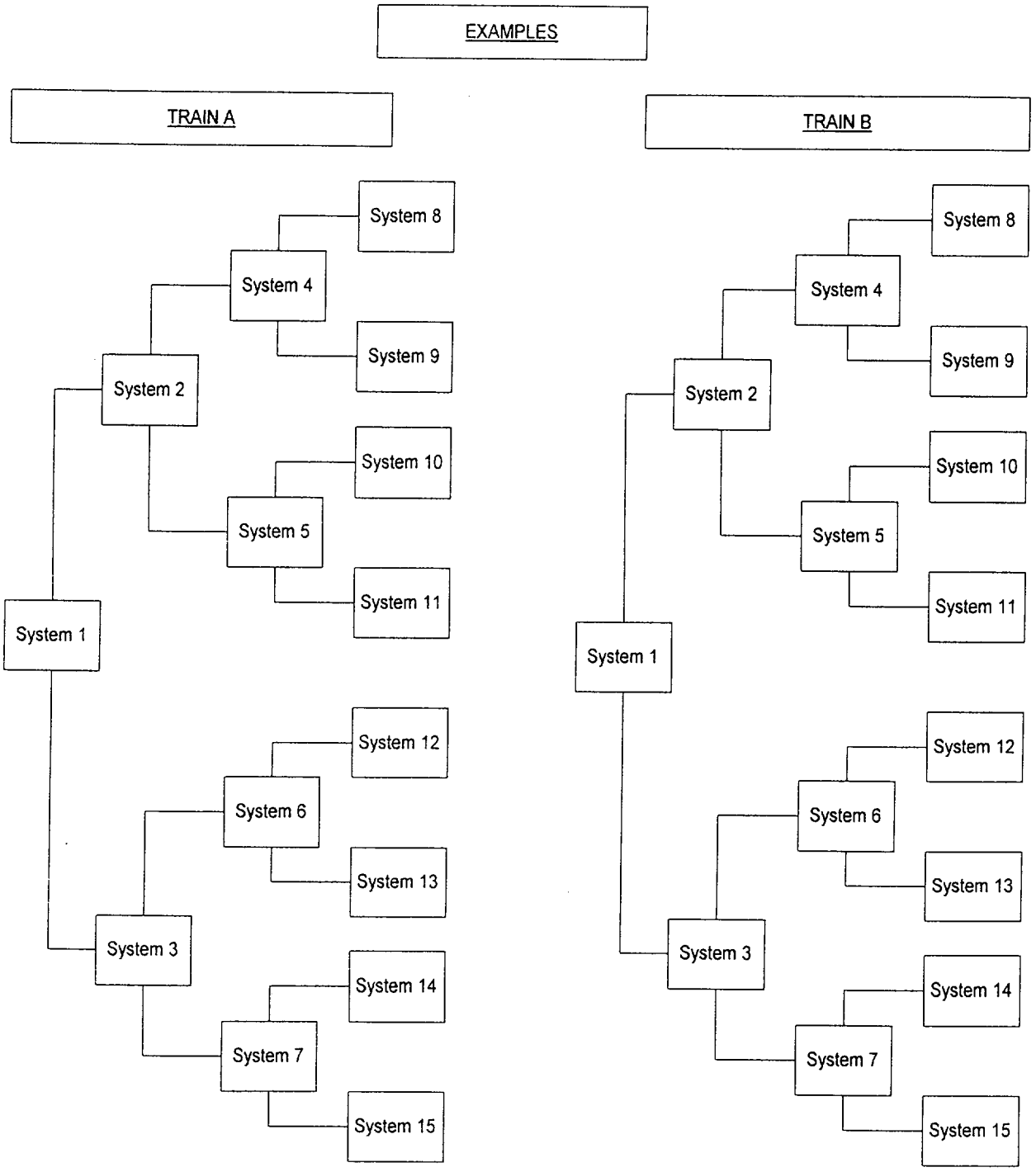
BASES

LCO 3.0.6
(continued)



BASES (continued)

LCO 3.0.7

There are certain special tests and operations required to be performed at various times over the life of the unit. These special tests and operations are necessary to demonstrate select unit performance characteristics, to perform special maintenance activities, and to perform special evolutions. Special Operations LCOs in Section 3.10 allow specified TS requirements to be changed to permit performances of these special tests and operations, which otherwise could not be performed if required to comply with the requirements of these TS. Unless otherwise specified, all the other TS requirements remain unchanged. This will ensure all appropriate requirements of the MODE or other specified condition not directly associated with or required to be changed to perform the special test or operation will remain in effect.

The Applicability of a Special Operations LCO represents a condition not necessarily in compliance with the normal requirements of the TS. Compliance with Special Operations LCOs is optional. A special operation may be performed either under the provisions of the appropriate Special Operations LCO or under the other applicable TS requirements. If it is desired to perform the special operation under the provisions of the Special Operations LCO, the requirements of the Special Operations LCO shall be followed. When a Special Operations LCO requires another LCO to be met, only the requirements of the LCO statement are required to be met regardless of that LCO's Applicability (i.e., should the requirements of this other LCO not be met, the ACTIONS of the Special Operations LCO apply, not the ACTIONS of the other LCO). However, there are instances where the Special Operations LCO's ACTIONS may direct the other LCO's ACTIONS be met. The Surveillances of the other LCO are not required to be met, unless specified in the Special Operations LCO. If conditions exist such that the Applicability of any other LCO is met, all the other LCO's requirements (ACTIONS and SRs) are required to be met concurrent with the requirements of the Special Operations LCO.

B 3.0 SURVEILLANCE REQUIREMENT (SR) APPLICABILITY

BASES

SRs

SR 3.0.1 through SR 3.0.4 establish the general requirements applicable to all Specifications in Sections 3.1 through 3.10 and apply at all times, unless otherwise stated.

SR 3.0.1

SR 3.0.1 establishes the requirement that SRs must be met during the MODES or other specified conditions in the Applicability for which the requirements of the LCO apply, unless otherwise specified in the individual SRs. This Specification is to ensure that Surveillances are performed to verify the OPERABILITY of systems and components, and that variables are within specified limits. Failure to meet a Surveillance within the specified Frequency, in accordance with SR 3.0.2, constitutes a failure to meet an LCO.

Systems and components are assumed to be OPERABLE when the associated SRs have been met. Nothing in this Specification, however, is to be construed as implying that systems or components are OPERABLE when:

a. The systems or components are known to be inoperable, although still meeting the SRs; or

b. The requirements of the Surveillance(s) are known to be not met between required Surveillance performances.

Surveillances do not have to be performed when the unit is in a MODE or other specified condition for which the requirements of the associated LCO are not applicable, unless otherwise specified. The SRs associated with a Special Operations LCO are only applicable when the Special Operations LCO is used as an allowable exception to the requirements of a Specification.

Surveillances, including Surveillances invoked by Required Actions, do not have to be performed on inoperable equipment because the ACTIONS define the remedial measures that apply. Surveillances have to be met and performed in accordance with SR 3.0.2, prior to returning equipment to OPERABLE status.

(continued)

BASES

SR 3.0.1 (continued)

Upon completion of maintenance, appropriate post maintenance testing is required to declare equipment OPERABLE. This includes ensuring applicable Surveillances are not failed and their most recent performance is in accordance with SR 3.0.2. Post maintenance testing may not be possible in the current MODE or other specified conditions in the Applicability due to the necessary unit parameters not having been established. In these situations, the equipment may be considered OPERABLE provided testing has been satisfactorily completed to the extent possible and the equipment is not otherwise believed to be incapable of performing its function. This will allow operation to proceed to a MODE or other specified condition where other necessary post maintenance tests can be completed.

Some examples of this process are:

a. Control Rod Drive maintenance during refueling that requires scram testing at > 800 psi. However, if other appropriate testing is satisfactorily completed and the scram time testing of SR 3.1.4.3 is satisfied, the control rod can be considered OPERABLE. This allows startup to proceed to reach 800 psi to perform other necessary testing.

b. High pressure coolant injection (HPCI) maintenance during shutdown that requires system functional tests at a specified pressure. Provided other appropriate testing is satisfactorily completed, startup can proceed with HPCI considered OPERABLE. This allows operation to reach the specified pressure to complete the necessary post maintenance testing.

SR 3.0.2

SR 3.0.2 establishes the requirements for meeting the specified Frequency for Surveillances and any Required Action with a Completion Time that requires the periodic performance of the Required Action on a "once per..." interval.

SR 3.0.2 permits a 25% extension of the interval specified in the Frequency. This extension facilitates Surveillance scheduling and considers plant operating conditions that may not be suitable for conducting the Surveillance (e.g.,

(continued)

BASES

SR 3.0.2 (continued)

transient conditions or other ongoing Surveillance or maintenance activities).

The 25% extension does not significantly degrade the reliability that results from performing the Surveillance at its specified Frequency. This is based on the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the SRs. The exceptions to SR 3.0.2 are those Surveillances for which the 25% extension of the interval specified in the Frequency does not apply. These exceptions are stated in the individual Specifications. The requirements of regulations take precedence over the TS. Therefore, when a test interval is specified in the regulations, the test interval cannot be extended by TS, and the SR includes a Note in the Frequency stating, "SR 3.0.2 is not applicable."

As stated in SR 3.0.2, the 25% extension also does not apply to the initial portion of a periodic Completion Time that requires performance on a "once per..." basis. The 25% extension applies to each performance after the initial performance. The initial performance of the Required Action, whether it is a particular Surveillance or some other remedial action, is considered a single action with a single Completion Time. One reason for not allowing the 25% extension to this Completion Time is that such an action usually verifies that no loss of function has occurred by checking the status of redundant or diverse components or accomplishes the function of the inoperable equipment in an alternative manner.

The provisions of SR 3.0.2 are not intended to be used repeatedly merely as an operational convenience to extend Surveillance intervals (other than those consistent with refueling intervals) or periodic Completion Time intervals beyond those specified.

SR 3.0.3

SR 3.0.3 establishes the flexibility to defer declaring affected equipment inoperable or an affected variable outside the specified limits when a Surveillance has not been completed within the specified Frequency. A delay period of up to 24 hours or up to the limit of the specified Frequency, whichever is less, applies from the point in time that it is discovered that the Surveillance has not been

(continued)

BASES

SR 3.0.3 (continued)

performed in accordance with SR 3.0.2, and not at the time that the specified Frequency was not met.

This delay period provides adequate time to complete Surveillances that have been missed. This delay period permits the completion of a Surveillance before complying with Required Actions or other remedial measures that might preclude completion of the Surveillance.

The basis for this delay period includes consideration of unit conditions, adequate planning, availability of personnel, the time required to perform the Surveillance, the safety significance of the delay in completing the required Surveillance, and the recognition that the most probable result of any particular Surveillance being performed is the verification of conformance with the requirements.

When a Surveillance with a Frequency based not on time intervals, but upon specified unit conditions or operational situations, is discovered not to have been performed when specified, SR 3.0.3 allows the full delay period of 24 hours to perform the Surveillance.

SR 3.0.3 also provides a time limit for completion of Surveillances that become applicable as a consequence of MODE changes imposed by Required Actions.

Failure to comply with specified Frequencies for SRs is expected to be an infrequent occurrence. Use of the delay period established by SR 3.0.3 is a flexibility which is not intended to be used as an operational convenience to extend Surveillance intervals.

If a Surveillance is not completed within the allowed delay period, then the equipment is considered inoperable or the variable is considered outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon expiration of the delay period. If a Surveillance is failed within the delay period, then the equipment is inoperable, or the variable is outside the specified limits and the Completion Times of the Required Actions for the applicable LCO Conditions begin immediately upon the failure of the Surveillance.

(continued)

BASES

SR 3.0.3 (continued)

Completion of the Surveillance within the delay period allowed by this Specification, or within the Completion Time of the ACTIONS, restores compliance with SR 3.0.1.

SR 3.0.4

SR 3.0.4 establishes the requirement that all applicable SRs must be met before entry into a MODE or other specified condition in the Applicability.

This Specification ensures that system and component OPERABILITY requirements and variable limits are met before entry into MODES or other specified conditions in the Applicability for which these systems and components ensure safe operation of the unit.

The provisions of this Specification should not be interpreted as endorsing the failure to exercise the good practice of restoring systems or components to OPERABLE status before entering an associated MODE or other specified condition in the Applicability.

However, in certain circumstances, failing to meet an SR will not result in SR 3.0.4 restricting a MODE change or other specified condition change. When a system, subsystem, division, component, device, or variable is inoperable or outside its specified limits, the associated SR(s) are not required to be performed per SR 3.0.1, which states that Surveillances do not have to be performed on inoperable equipment. When equipment is inoperable, SR 3.0.4 does not apply to the associated SR(s) since the requirement for the SR(s) to be performed is removed. Therefore, failing to perform the Surveillance(s) within the specified Frequency does not result in an SR 3.0.4 restriction to changing MODES or other specified conditions of the Applicability. However, since the LCO is not met in this instance, LCO 3.0.4 will govern any restrictions that may (or may not) apply to MODE or other specified condition changes.

The provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that are required to comply with ACTIONS. In addition, the provisions of SR 3.0.4 shall not prevent changes in MODES or other specified conditions in the Applicability that result from any unit shutdown.

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BASES

SR 3.0.4 (continued)

The precise requirements for performance of SRs are specified such that exceptions to SR 3.0.4 are not necessary. The specific time frames and conditions necessary for meeting the SRs are specified in the Frequency, in the Surveillance, or both. This allows performance of Surveillances when the prerequisite condition(s) specified in a Surveillance procedure require entry into the MODE or other specified condition in the Applicability of the associated LCO prior to the performance or completion of a Surveillance. A Surveillance that could not be performed until after entering the LCO Applicability would have its Frequency specified such that it is not "due" until the specific conditions needed are met. Alternately, the Surveillance may be stated in the form of a Note as not required (to be met or performed) until a particular event, condition, or time has been reached. Further discussion of the specific formats of SRs annotation is found in Section 1.4, Frequency.

SR 3.0.4 is only applicable when entering MODE 3 from MODE 4, MODE 2 from MODE 3 or 4, or MODE 1 from MODE 2. Furthermore, SR 3.0.4 is applicable when entering any other specified condition in the Applicability only while operating in MODE 1, 2, or 3. The requirements of SR 3.0.4 do not apply in MODES 4 and 5, or in other specified conditions of the Applicability (unless in MODE 1, 2, or 3) because the ACTIONS of individual Specifications sufficiently define the remedial measures to be taken.

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.3 (continued)

necessity of using an automatic scram function trip. This functional test can be accomplished by placing the associated RPS Test Switch in the trip position, which will deenergize a pair of the automatic scram contactors and in turn, trip the associated RPS logic. The RPS Test Switches were not specifically credited in the accident analysis and thus, do not have any OPERABILITY requirements of their own. However, because the Manual Scram pushbuttons at the DAEC are not configured the same as the generic model used in Reference 9, (i.e., they are in a separate RPS logic - A3 and B3), the RPS Test Switches have been found to be functionally equivalent to the Manual Scram pushbuttons in the generic model for performing the weekly functional test of the automatic scram contactors required by Reference 9. If an RPS Test Switch(es) is (are) not available for performing this test, it is permissible to take credit for a CHANNEL FUNCTIONAL TEST of an automatic RPS trip function (i.e., SR 3.3.1.1.9), if performed within the required Frequency for this Surveillance, as it will also test the K14 relay contacts.

The Frequency of 7 days is based upon the reliability analysis in Reference 9.

SR 3.3.1.1.4

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

As noted, SR 3.3.1.1.4 is not required to be performed when entering MODE 2 from MODE 1, since testing of the MODE 2 required IRM and APRM Functions cannot be performed in MODE 1 without utilizing jumpers, lifted leads, or movable links.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.4 (continued)

This allows entry into MODE 2 if the 7 day Frequency is not met per SR 3.0.2. In this event, the SR must be performed within 12 hours after entering MODE 2 from MODE 1. Twelve hours is based on operating experience and in consideration of providing a reasonable time in which to complete the SR. A Frequency of 7 days provides an acceptable level of system average unavailability over the Frequency interval and is based on reliability analysis (Ref. 9).

SR 3.3.1.1.5

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. A Frequency of 7 days provides an acceptable level of system average availability over the Frequency and is based on the reliability analysis using the concepts developed in Reference 10.

SR 3.3.1.1.6 and SR 3.3.1.1.7

These Surveillances are established to ensure that no gaps in neutron flux indication exist from subcritical to power operation for monitoring core reactivity status.

The overlap between SRMs and IRMs is required to be demonstrated to ensure that reactor power will not be increased into a neutron flux region without adequate indication. This is required prior to withdrawing SRMs from the fully inserted position since indication is being transitioned from the SRMs to the IRMs.

The overlap between IRMs and APRMs is of concern when reducing power into the IRM range. On power increases, the system design will prevent further increases (by initiating a rod block) if adequate overlap is not maintained.

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.6 and SR 3.3.1.1.7 (continued)

Overlap between IRMs and APRMs exists when sufficient IRMs and APRMs concurrently have onscale readings such that the transition between MODE 1 and MODE 2 can be made without either APRM downscale rod block, or IRM upscale rod block (i.e., approximately one-half decade of range). Overlap between SRMs and IRMs similarly exists when, prior to withdrawing the SRMs from the fully inserted position, IRMs are indicating at least 5/40 on range 1 before SRMs have reached 10^6 counts per second.

As noted, SR 3.3.1.1.7 is only required to be met during entry into MODE 2 from MODE 1. That is, after the overlap requirement has been met and indication has transitioned to the IRMs, maintaining overlap is not required (APRMs may be reading downscale once in MODE 2).

If overlap for a group of channels is not demonstrated (e.g., IRM/APRM overlap), the reason for the failure of the Surveillance should be determined and the appropriate channel(s) declared inoperable. Only those appropriate channels that are required in the current MODE or condition should be declared inoperable.

A Frequency of 7 days is reasonable based on engineering judgment and the reliability of the IRMs and APRMs.

SR 3.3.1.1.8

LPRM gain settings are determined using analytical methods with input from the axial flux profiles measured by the Traversing Incore Probe (TIP) System. This establishes the relative local flux profile for appropriate representative input to the APRM System. The 1000 MWD/T Frequency is based on operating experience with LPRM sensitivity changes.

SR 3.3.1.1.9 and SR 3.3.1.1.13

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verificiation of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all

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BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.1.1.9 and SR 3.3.1.1.13 (continued)

of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The 92 day Frequency of SR 3.3.1.1.9 is based on the reliability analysis of Reference 9.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown that these components usually pass the Surveillance when performed at the 24 month Frequency.

SR 3.3.1.1.10

Calibration of trip units provides a check of the actual trip setpoints. The channel must be declared inoperable if the trip setting is discovered to be less conservative than the Allowable Value specified in Table 3.3.1.1-1. If the trip setting is discovered to be less conservative than accounted for in the appropriate setpoint methodology, but is not beyond the Allowable Value, the channel performance is still within the requirements of the plant safety analysis. Under these conditions, the setpoint must be readjusted to be equal to or more conservative than accounted for in the appropriate setpoint methodology. The Frequency of 92 days is based on the reliability analysis of Reference 9.

SR 3.3.1.1.11, SR 3.3.1.1.12 and SR 3.3.1.1.14

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. The CHANNEL CALIBRATION for Functions 5 and 8 shall consist of the physical inspection and actuation of these position switches.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.1.2.5 and SR 3.3.1.2.6

Performance of a CHANNEL FUNCTIONAL TEST demonstrates the associated channel will function properly. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. SR 3.3.1.2.5 is required in MODE 5, and the 7 day Frequency ensures that the channels are OPERABLE while core reactivity changes could be in progress. This Frequency is reasonable, based on operating experience and on other Surveillances (such as a CHANNEL CHECK), that ensure proper functioning between CHANNEL FUNCTIONAL TESTS.

SR 3.3.1.2.6 is required in MODE 2 with IRMs on Range 2 or below, and in MODES 3 and 4. Since core reactivity changes do not normally take place in MODES 3 and 4 and core reactivity changes are due solely to control rod movement in MODE 2, the Frequency has been extended from 7 days to 31 days. The 31 day Frequency is based on operating experience and on other Surveillances (such as CHANNEL CHECK) that ensure proper functioning between CHANNEL FUNCTIONAL TESTS.

The Note to the Surveillance allows the Surveillance to be delayed until entry into the specified condition of the Applicability (THERMAL POWER decreased to IRM Range 2 or below). The SR must be performed within 12 hours after IRMs are on Range 2 or below. The allowance to enter the Applicability with the 31 day Frequency not met is reasonable, based on the limited time of 12 hours allowed after entering the Applicability and the inability to perform the Surveillance while at higher power levels. Although the Surveillance could be performed while on IRM Range 3, the plant would not be expected to maintain steady state operation at this power level. In this event, the 12 hour Frequency is reasonable, based on the SRMs being otherwise verified to be OPERABLE (i.e., satisfactorily performing the CHANNEL CHECK) and the time required to perform the Surveillances.

(continued)

BASES

ACTIONS

E.1 and E.2 (continued)

one or more fuel assemblies will ensure that the core is subcritical with adequate SDM ensured by LCO 3.1.1. Control rods in core cells containing no fuel assemblies do not affect the reactivity of the core and are therefore not required to be inserted. Action must continue until all insertable control rods in core cells containing one or more fuel assemblies are fully inserted.

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each Control Rod Block instrumentation Function are found in the SRs column of Table 3.3.2.1-1.

The Surveillances are modified by a second Note to indicate that when an RBM channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains control rod block capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 9) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that a control rod block will be initiated when necessary.

SR 3.3.2.1.1

A CHANNEL FUNCTIONAL TEST is performed for each RBM channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. It includes the Reactor Manual Control Multiplexing System input.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.2.1.1 (continued)

Testing of the Reactor Manual Control Multiplexing System input shall include inputs of "no rod selected," "peripheral rod selected," and "center rod selected with two, three, or four LPRM strings around it" (Ref. 10).

The Frequency of 92 days is based on reliability analyses (Ref. 8).

SR 3.3.2.1.2 and SR 3.3.2.1.3

A CHANNEL FUNCTIONAL TEST is performed for the RWM to ensure that the entire system will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The CHANNEL FUNCTIONAL TEST for the RWM is performed by attempting to withdraw a control rod not in compliance with the prescribed sequence and verifying a control rod block occurs and for SR 3.3.2.1.2, and by attempting to select a control rod, in each fully inserted group, not in compliance with the prescribed sequence and verifying a selection error occurs. As noted in the SRs, SR 3.3.2.1.2 is not required to be performed until 1 hour after any control rod is withdrawn at ≤ 10% RTP in MODE 2, and SR 3.3.2.1.3 is not required to be performed until 1 hour after THERMAL POWER is ≤ 10% RTP in MODE 1. This allows entry into MODE 2 for SR 3.3.2.1.2, and entry into MODE 1 when THERMAL POWER is ≤ 10% RTP for SR 3.3.2.1.3, to perform the required Surveillance if the 92 day Frequency is not met per SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs. The Frequencies are based on reliability analysis (Ref. 8).

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.2.1.6

A CHANNEL FUNCTIONAL TEST is performed for the Reactor Mode Switch—Shutdown Position Function to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The CHANNEL FUNCTIONAL TEST for the Reactor Mode Switch—Shutdown Position Function is performed by attempting to withdraw any control rod with the reactor mode switch in the shutdown position and verifying a control rod block occurs. As noted in the SR, the Surveillance is not required to be performed until 1 hour after the reactor mode switch is in the shutdown position, since testing of this interlock with the reactor mode switch in any other position cannot be performed without using jumpers, lifted leads, or movable links. This allows entry into MODES 3 and 4 if the 24 month Frequency is not met per SR 3.0.2. The 1 hour allowance is based on operating experience and in consideration of providing a reasonable time in which to complete the SRs.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power. Operating experience has shown these components usually pass the Surveillance when performed at the 24 month Frequency.

SR 3.3.2.1.7

The RWM will only enforce the proper control rod sequence if the rod sequences are properly input into the RWM computer. This SR ensures that the proper sequences are loaded into the RWM so that it can perform its intended function. The Surveillance is performed once prior to declaring the RWM OPERABLE following loading of a sequence into the RWM, since this is when rod sequence input errors are possible.

(continued)

BASES

ACTIONS (continued)

C.1 and C.2

With any Required Action and associated Completion Time not met, THERMAL POWER must be reduced to < 30% RTP within 4 hours. Alternately, the associated recirculation pump may be removed from service, since this performs the intended function of the instrumentation. The allowed Completion Time of 4 hours is reasonable, based on operating experience, to reduce THERMAL POWER to < 30% RTP from full power conditions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 6 hours provided the associated Function maintains EOC-RPT trip capability. Upon completion of the Surveillance, or expiration of the 6 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken. This Note is based on the reliability analysis (Ref. 4) assumption of the average time required to perform channel Surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the recirculation pumps will trip when necessary.

SR 3.3.4.1.1

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The RPT breaker is excluded from this testing.

The Frequency of 92 days is based on reliability analysis of Reference 4.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.4.2.1

Performance of the CHANNEL CHECK for the Reactor Vessel Water Level-Low Low Function once every 12 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

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

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

SR 3.3.4.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The RPT breaker itself is excluded from this testing.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

Because the Ref. 5 analysis made no assumptions regarding the elapsed time between testing of consecutive channels in the same logic, it is not necessary to remove jumpers/relays blocks or reconnect lifted leads used to prevent actuation of the trip logic during testing of logic channels with instruments in series solely for the purpose of administering the AOT clocks, provided that the AOT allowance is not exceeded on a per instrument channel basis.

SR 3.3.5.1.1

Performance of the CHANNEL CHECK once every 24 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK guarantees that undetected outright channel failure is limited to 24 hours; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

Agreement criteria are determined by the plant staff, based on a combination of the channel instrument uncertainties, including indication and readability. If a channel is outside the criteria, it may be an indication that the instrument has drifted outside its limit. The Frequency is based upon operating experience that demonstrates channel failure is rare. The CHANNEL CHECK supplements less formal, but more frequent, checks of channels during normal operational use of the displays associated with the channels required by the LCO.

SR 3.3.5.1.2, SR 3.3.5.1.3, and SR 3.3.5.1.5

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.1.2, SR 3.3.5.1.3, and SR 3.3.5.1.5 (continued)

of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The Frequency of 92 days for SR 3.3.5.1.3 is based on the reliability analyses of Reference 5.

The Frequencies of 31 days and 12 months (SR 3.3.5.1.2 and SR 3.3.5.1.5, respectively) are based upon engineering judgment and the reliability of the components.

SR 3.3.5.1.4, SR 3.3.5.1.6, SR 3.3.5.1.7, and SR 3.3.5.1.8

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency of SR 3.3.5.1.4 is based upon the assumption of a 92 day calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

The Frequency of SR 3.3.5.1.6 is based upon the assumption of a 12 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

The Frequency of SR 3.3.5.1.7 is based upon the assumption of an 18 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

The Frequency of SR 3.3.5.1.8 is based upon the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.3.5.2.1 (continued)

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

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

SR 3.3.5.2.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extenstions.

The Frequency of 92 days is based on the reliability analysis of Reference 1.

SR 3.3.5.2.3 and SR 3.3.5.2.4

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency of SR 3.3.5.2.3 is based upon the assumption of a 12 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.1.1 and SR 3.3.6.1.2

Performance of the CHANNEL CHECK once every 12 hours or once every 24 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or of something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

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

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

SR 3.3.6.1.3, and SR 3.3.6.1.4

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.6.2.3

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The Frequency of 92 days is based on the reliability analysis of References 4 and 5.

SR 3.3.6.2.4

A CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency of SR 3.3.6.2.4 is based on the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

SR 3.3.6.2.5

The LOGIC SYSTEM FUNCTIONAL TEST demonstrates the OPERABILITY of the required isolation logic for a specific channel. The system functional testing performed on SCIV/Ds and the SBGT System in LCO 3.6.4.2 and LCO 3.6.4.3, respectively, overlaps this Surveillance to provide complete testing of the assumed safety function.

The 24 month Frequency is based on the need to perform this Surveillance under the conditions that apply during a plant outage and the potential for an unplanned transient if the Surveillance were performed with the reactor at power.

(continued)

BASES

SURVEILLANCE REQUIREMENTS (continued)

the reliability analysis (Ref. 3) assumption of the average time required to perform channel surveillance. That analysis demonstrated that the 6 hour testing allowance does not significantly reduce the probability that the LLS valves will initiate when necessary.

SR 3.3.6.3.1, and SR 3.3.6.3.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The 92 day Frequency is based on the reliability analysis of Reference 3.

A portion of the SRV tailpipe pressure switch channels is located inside the primary containment and is not available for testing during reactor operation. Therefore, SR 3.3.6.3.1 is only required on that portion of the channel that is outside primary containment.

SR 3.3.6.3.3, SR 3.3.6.3.4, and SR 3.3.6.3.5

CHANNEL CALIBRATION is a complete check of the instrument loop and sensor. This test verifies the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology. The Frequency of once every 92 days for SR 3.3.6.3.3, 184 days for SR 3.3.6.3.4, and 24 months for SR 3.3.6.3.5 is based on the assumption of the corresponding calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS (continued)

SR 3.3.7.1.1

Performance of the CHANNEL CHECK once every 24 hours ensures that a gross failure of instrumentation has not occurred. A CHANNEL CHECK is normally a comparison of the parameter indicated on one channel to a similar parameter on other channels. It is based on the assumption that instrument channels monitoring the same parameter should read approximately the same value. Significant deviations between the instrument channels could be an indication of excessive instrument drift in one of the channels or something even more serious. A CHANNEL CHECK will detect gross channel failure; thus, it is key to verifying the instrumentation continues to operate properly between each CHANNEL CALIBRATION.

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

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

SR 3.3.7.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The Frequency of 92 days is based on the reliability analyses of References 4 and 5.

(continued)

BASES

ACTIONS (continued)

C.1

If the Required Action and associated Completion Time is not met, the associated Function is not capable of performing the intended function. Therefore, the associated DG(s) is declared inoperable immediately. This requires entry into applicable Conditions and Required Actions of LCO 3.8.1 and LCO 3.8.2, which provide appropriate actions for the inoperable DG(s).

SURVEILLANCE REQUIREMENTS

As noted at the beginning of the SRs, the SRs for each LOP instrumentation Function are located in the SRs column of Table 3.3.8.1-1.

The Surveillances are modified by a Note to indicate that when a channel is placed in an inoperable status solely for performance of required Surveillances, entry into associated Conditions and Required Actions may be delayed for up to 2 hours provided the associated Function maintains DG initiation capability. Upon completion of the Surveillance, or expiration of the 2 hour allowance, the channel must be returned to OPERABLE status or the applicable Condition entered and Required Actions taken.

SR 3.3.8.1.1 and SR 3.3.8.1.2

A CHANNEL FUNCTIONAL TEST is performed on each required channel to ensure that the entire channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

The Frequencies of 31 days and 12 months are based on operating experience with regard to channel OPERABILITY and drift, which demonstrates that failure of more than one channel of a given Function in any 31 day interval or 12 month interval (as appropriate) is a rare event.

(continued)

BASES (continued)

SURVEILLANCE REQUIREMENTS

SR 3.3.8.2.1

A CHANNEL FUNCTIONAL TEST is performed on each overvoltage, undervoltage, and underfrequency channel to ensure that the channel will perform the intended function. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions.

As noted in the Surveillance, the CHANNEL FUNCTIONAL TEST is only required to be performed while the plant is in a condition in which the loss of the RPS bus will not jeopardize steady state power operation (the design of the system is such that the power source must be removed from service to conduct the Surveillance). The 24 hours is intended to indicate an outage of sufficient duration to allow for scheduling and proper performance of the Surveillance.

The 184 day Frequency and the Note in the Surveillance are based on guidance provided in Generic Letter 91-09 (Ref. 2).

SR 3.3.8.2.2

CHANNEL CALIBRATION is a complete check of the instrument loop and the sensor. This test verifies that the channel responds to the measured parameter within the necessary range and accuracy. CHANNEL CALIBRATION leaves the channel adjusted to account for instrument drifts between successive calibrations consistent with the plant specific setpoint methodology.

The Frequency is based on the assumption of a 24 month calibration interval in the determination of the magnitude of equipment drift in the setpoint analysis.

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

of leakage detection. The Required Action is to restore either of the inoperable monitoring systems to OPERABLE status within 4 hours to regain the intended leakage detection diversity. The 4 hour Completion Time ensures that the plant will not be operated in a degraded configuration for a lengthy time period.

D.1 and D.2

If any Required Action of Condition A or C cannot be met within the associated Completion Time, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to perform the actions in an orderly manner and without challenging plant systems.

SURVEILLANCE REQUIREMENTS

SR 3.4.5.1

This SR is for the performance of a CHANNEL CHECK of the required Primary Containment Air Sampling System. The check gives reasonable confidence that the channel is operating properly. The Frequency of 12 hours is based on instrument reliability and is reasonable for detecting off normal conditions.

SR 3.4.5.2

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of the required Primary Containment Air Sampling System instrumentation, equipment drain sump flow integrator and floor drain sump flow integrator. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. These tests ensure that the monitors can perform their function in the desired manner and

(continued)

BASES

SURVEILLANCE REQUIREMENTS

SR 3.4.5.2 (continued)

also verifies the Primary Containment Air Sampling System alarm functions properly. The Frequency of 31 days considers instrument reliability, and operating experience has shown it proper for detecting degradation.

SR 3.4.5.3

This SR is for the performance of a CHANNEL FUNCTIONAL TEST of required equipment drain sump fill and sump pump out timers and floor drain sump fill and sump pump out timers. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extentions. The Frequency of 92 days considers channel reliability. Operating experience has proven this Frequency is acceptable.

SR 3.4.5.4 and SR 3.4.5.5

These SRs are for the performance of a CHANNEL CALIBRATION of required Primary Containment Air Sampling System instrumentation, equipment drain sump flow integrator, floor drain sump flow integrator, equipment drain sump fill and sump pump out timers and floor drain sump fill and sump pump out timers. The calibration verifies the accuracy of the instrument string, excluding the level elements located inside containment. The level elements have no adjustable parts and thus, do not require calibration. The Frequency of 92 days or 12 months considers channel reliability. Operating experience has proven these Frequencies are acceptable.

REFERENCES

1. UFSAR Section 3.1.2.4.1.
2. GEAP-5620, "Failure Behavior in ASTM A106B Pipes Containing Axial Through-Wall Flaws," April 1968.
3. NUREG-75/067, "Investigation and Evaluation of Cracking in Austenitic Stainless Steel Piping of Boiling Water Reactors," October 1975.
4. UFSAR, Section 5.2.5.2.3.

BASES

LCO (continued)

associated heat exchanger in each of the two loops must be OPERABLE. Since the piping and heat exchangers are passive components that are assumed not to fail, they are allowed to be common to both subsystems. Thus, two RHR pumps in a common RHR subsystem, together with the associated heat exchanger and flow path components, constitutes two OPERABLE RHR shutdown cooling subsystems. Each shutdown cooling subsystem is considered OPERABLE if it can be manually aligned (remote or local) in the shutdown cooling mode for removal of decay heat. In MODE 3, one RHR shutdown cooling subsystem can provide the required cooling, but two subsystems are required to be OPERABLE to provide redundancy. Operation of one subsystem can maintain or reduce the reactor coolant temperature as required. To ensure adequate core flow to allow for accurate average reactor coolant temperature monitoring, nearly continuous operation of one RHR shutdown cooling subsystem is required.

Note 1 permits both required RHR shutdown cooling subsystems to not be in operation for a period of 2 hours in an 8 hour period. Note 2 allows one required RHR shutdown cooling subsystem to be inoperable for up to 2 hours for the performance of Surveillance tests. These tests may be on the affected RHR System or on some other plant system or component that necessitates placing the RHR System in an inoperable status during the performance. This is permitted because the core heat generation can be low enough and the heatup rate slow enough to allow some changes to the RHR subsystems or other operations requiring RHR flow interruption and loss of redundancy.

APPLICABILITY

In MODE 3 with reactor steam dome pressure below the RCIC Steam Supply Line Pressure - Low isolation pressure the RHR System must be OPERABLE and shall be operated in the shutdown cooling mode to remove decay heat to reduce or maintain coolant temperature. Otherwise, a recirculation pump is required to be in operation.

In MODES 1 and 2, and in MODE 3 with reactor steam dome pressure greater than or equal to the RCIC Steam Supply Line Pressure - Low isolation pressure, this LCO is not applicable. Operation of the RHR System in the shutdown cooling mode is not allowed above the RHR shutdown cooling isolation interlock pressure (which is

(continued)

BASES

LCO (continued)

discharge piping. Thus, to meet the LCO, both pumps and a heat exchanger in one loop or one pump and an associated heat exchanger in each of the two loops must be OPERABLE. Since the piping and heat exchangers are passive components that are assumed not to fail, they are allowed to be common to both subsystems. Thus, two RHR pumps in a common RHR subsystem, together with the associated heat exchanger and flow path components, constitute two OPERABLE RHR shutdown cooling subsystems. In addition, the RHR cross tie valve (MO-2010) may be opened to allow pumps in one loop to discharge through the opposite recirculation loop to make a complete subsystem. Additionally, each shutdown cooling subsystem is considered OPERABLE if it can be manually aligned (remote or local) in the shutdown cooling mode for removal of decay heat. In MODE 4, one RHR shutdown cooling subsystem can provide the required cooling, but two subsystems are required to be OPERABLE to provide redundancy. Operation of one subsystem can maintain or reduce the reactor coolant temperature as required. To ensure adequate core flow to allow for accurate average reactor coolant temperature monitoring nearly continuous operation of a recirculation pump or one RHR shutdown cooling subsystem is required.

Note 1 permits both required RHR shutdown cooling subsystems to not be in operation for a period of 2 hours in an 8 hour period. Note 2 allows one required RHR shutdown cooling subsystem to be inoperable for up to 2 hours for the performance of Surveillance tests. These tests may be on the affected RHR System or on some other plant system or component that necessitates placing the RHR System in an inoperable status during the performance. This is permitted because the core heat generation can be low enough and the heatup rate slow enough to allow some changes to the RHR subsystems or other operations requiring RHR flow interruption and loss of redundancy.

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

outside primary containment" is appropriate because the devices are operated under administrative controls and the probability of their misalignment is low. For the devices inside primary containment, the time period specified "prior to entering MODE 2 or 3 from MODE 4, if primary containment was de-inerted while in MODE 4, if not performed within the previous 92 days" is based on engineering judgment and is considered reasonable in view of the inaccessibility of the devices and other administrative controls ensuring that device misalignment is an unlikely possibility.

Condition A is modified by a Note indicating that this Condition is only applicable to those penetration flow paths with two PCIVs. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions.

Required Action A.2 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas, and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertenly repositioned. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is low.

B.1

With one or more penetration flow paths with two PCIVs inoperable except for MSIV or purge valve leakage not within limits, either the inoperable PCIVs must be restored to OPERABLE status or the affected penetration flow path must be isolated within 1 hour. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. In addition, for the valve or flange to be acceptable for use as the OPERABLE isolation device, it must meet all the design requirements for the PCIV it is replacing, such as, 10 CFR 50, Appendix J leakage testing, seismic qualifications, piping code class provisions, etc. The 1 hour Completion Time is consistent with the ACTIONS of LCO 3.6.1.1.

(continued)

BASES

ACTIONS

B.1 (continued)

Condition B is modified by a Note indicating this Condition is only applicable to penetration flow paths with two PCIVs. For penetration flow paths with one PCIV, Condition C provides the appropriate Required Actions.

C.1 and C.2

Condition C is applicable to Type C islation valves (UFSAR Section 6.2.4.2) in the reactor building closed cooling water (MO-4841A and MO-4841B) and drywell cooling (CV-5718A, CV-5718B, CV-5704A and CV-5704B) systems and is also applicable to excess flow check valves. With one or more penetration flow paths with one PCIV inoperable, the inoperable valve must be restored to OPERABLE status or the affected penetration flow path must be isolated.

The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure. Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, and a blind flange. In addition, for the valve or flange to be acceptable for use as the OPERABLE isolation device, it must meet all the design requirements for the PCIV it is replacing, such as, 10 CFR 50, Appendix J leakage testing, seismic qualifications, piping code class provisions, etc. A check valve may not be used to isolate the affected penetration.

Required Action C.1 must be completed within 72 hours. The Completion Time of 72 hours is reasonable considering the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and the relative importance of supporting primary containment OPERABILITY during MODES 1, 2, and 3. The closed system must meet the requirements of Reference 9.

The Completion Time of 72 hours for EFCVs is also reasonable considering the instrument and the small pipe diameter of penetration (hence, reliability) to act as a penetration isolation boundary and the small pipe diameter of the affected penetrations. For affected penetrations that have been isolated in accordance with Required Action C.1, the affected penetration flow path(s) must be verified to be

(continued)

BASES

ACTIONS

C.1 and C.2 (continued)

isolated on a periodic basis. This is necessary to ensure that primary containment penetrations required to be isolated following an accident, and no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification that those valves outside containment and capable of potentially being mispositioned are in the correct position. The Completion Time of once per 31 days for verifying each affected penetration is isolated is appropriate because the valves are operated under administrative controls and the probability of their misalignment is low.

Condition C is modified by a Note indicating that this Condition is only applicable to penetration flow paths with only one PCIV. For penetration flow paths with two PCIVs, Conditions A and B provide the appropriate Required Actions.

Required Action C.2 is modified by two Notes. Note 1 applies to valves and blind flanges located in high radiation areas and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these valves, once they have been verified to be in the proper position, is low.

D.1

With one or more penetration flow paths with one or more MSIVs not within leakage limits, the assumptions of the safety analysis may not be met. Therefore, the leakage must be restored to within limit within 8 hours. Restoration can be accomplished by isolating the penetration that caused the limit to be exceeded by use of one closed and de-activated automatic valve, closed manual valve, or blind flange. In addition, for the valve or flange to be acceptable for use as the OPERABLE isolation device, it must meet all the design requirements for the PCIV it is replacing, such as, 10 CFR 50, Appendix J leakage testing, seismic qualifications, piping code class provisions, etc. When a penetration is isolated, the leakage rate for the isolated

(continued)

BASES

ACTIONS

E.2 (continued)

Required Action E.2 is modified by a Note indicating this Required Action is only required to be performed if a purge valve with resilient seal is used to satisfy Required Action E.1. If th method of isolation is by the use of at least one isolation barrier that cannot be adversely affected by a single active failure, then Required Action E.2 is not required because the integrity of the affected penetration flow path is being maintained by a passive device and unlimited operation is permitted.

E.3

In accordance with Required Action E.3, this penetration flow path must be verified to be isolated on a periodic basis. The periodic verification is necessary to ensure that containment penetrations required to be isolated following an accident, which are no longer capable of being automatically isolated, will be in the isolation position should an event occur. This Required Action does not require any testing or valve manipulation. Rather, it involves verification that those isolation devices outside containment and potentially capable of being mispositioned are in the correct position. The Completion Time of "once per 31 days for isolation devices outside containment" is appropriate because the devices are operated under administrative controls and the probability of their misalignment is low.

Required Action E.3 is modified by two Notes. Note 1 applies to isolation devices located in high radiation areas, and allows them to be verified by use of administrative means. Allowing verification by administrative means is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment of these devices, once they have been verified to be in the proper position, is low.

F.1 and F.2

If any Required Action and associated Completion Time cannot be met in MODE 1, 2, or 3, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed

(continued)

BASES

ACTIONS

A.1 and A.2 (continued)

any testing or device manipulation. Rather, it involves verification that the affected penetration remains isolated.

Required Action A.2 is modified by two Notes. Note 1 applies to devices located in high radiation areas and allows them to be verified closed by use of administrative controls. Allowing verification by administrative controls is considered acceptable, since access to these areas is typically restricted. Note 2 applies to isolation devices that are locked, sealed, or otherwise secured in position and allows these devices to be verified closed by use of administrative means. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned. Therefore, the probability of misalignment, once they have been verified to be in the proper position, is low.

B.1

With two SCIV/Ds in one or more penetration flow paths inoperable, the affected penetration flow path must be isolated within 4 hours. The method of isolation must include the use of at least one isolation barrier that cannot be adversely affected by a single active failure.

Isolation barriers that meet this criterion are a closed and de-activated automatic valve, a closed manual valve, or a blind flange. The 4 hour Completion Time is reasonable considering the time required to isolate the penetration and the probability of a DBA, which requires the SCIV/Ds to close, occurring during this short time, is very low.

The Condition has been modified by a Note stating that Condition B is only applicable to penetration flow paths with two isolation valves/dampers. This clarifies that only Condition A is entered if one or more penetration flow paths with one SCIV/D is inoperable.

C.1 and C.2

If any Required Action and associated Completion Time cannot be met, the plant must be brought to a MODE in which the LCO does not apply. To achieve this status, the plant must be brought to at least MODE 3 within 12 hours and to MODE 4 within 36 hours. The allowed Completion Times are reasonable, based on operating experience, to reach the

(continued)

BASES (continued)

ACTIONS (continued)

A.1

An offsite circuit is considered inoperable if it is not available to supply power to either of the essential buses. If both essential 4.16 kV buses are required per LCO 3.8.8, one division with offsite power available may be capable of supporting sufficient required features to allow continuation of CORE ALTERATIONS, fuel movement, and operations with a potential for draining the reactor vessel. By the allowance of the option to declare required features inoperable that are not powered from offsite power, appropriate restrictions can be implemented in accordance with the affected required feature(s) LCOs' ACTIONS.

Required features remaining powered from a qualified offsite power circuit, even if that circuit is considered inoperable because it is not powering other required features, are not declared inoperable by this Required Action.

A.2.1, A.2.2, A.2.3, A.2.4, B.1, B.2, B.3, and B.4

With the required offsite circuit not available to either division, the option still exists to declare all affected required features inoperable per required Action A.1. Since this option may involve undesired administrative efforts, the allowance for sufficiently conservative actions is made. With the required DG inoperable, the minimum required diversity of AC power sources is not available. It is, therefore, required to suspend CORE ALTERATIONS, movement of irradiated fuel assemblies in the secondary containment, and activities that could result in inadvertent draining of the reactor vessel.

Suspension of these activities shall not preclude completion of actions to establish a safe conservative condition. These actions minimize the probability of the occurrence of postulated events. It is further required to immediately initiate action to restore the required AC sources and to continue this action until restoration is accomplished in order to provide the necessary AC power to the plant safety systems.

The Completion Time of immediately is consistent with the required times for actions requiring prompt attention. The restoration of the required AC electrical power sources should be completed as quickly as possible in order to

(continued)

BASES

ACTIONS

A.2.1, A.2.2, A.2.3, A.2.4, B.1, B.2, B.3, and B.4 (continued)

minimize the time during which the plant safety systems may be without sufficient power. Pursuant to LCO 3.0.6, the Distribution System ACTIONS would not be entered even if all AC sources to it are inoperable, resulting in de-energization. Therefore, the Required Actions of Condition A have been modified by a Note to indicate that when Condition A is entered with no AC power to any required essential bus, ACTIONS for LCO 3.8.8 must be immediately entered. This Note allows Condition A to provide requirements for the loss of the offsite circuit whether or not a division is de-energized. LCO 3.8.8 provides the appropriate restrictions for the situation involving a de-energized division.

SURVEILLANCE REQUIREMENTS

SR 3.8.2.1

SR 3.8.2.1 requires the SRs from LCO 3.8.1 that are necessary for ensuring the OPERABILITY of the AC sources in other than MODES 1, 2, and 3. SR 3.8.1.8 is not required to be met since only one offsite circuit is required to be OPERABLE. Refer to the corresponding Bases for LCO 3.8.1 for a discussion of each SR.

This SR is modified by two Notes. The reason for Note 1 is to preclude requiring the OPERABLE DG(s) from being paralleled with the offsite power network or otherwise rendered inoperable during the performance of SRs, and to preclude deenergizing a required 4160 V essential bus or disconnecting a required offsite circuit during performance of SRs. With limited AC sources available, a single event could compromise both the required circuit and the DG. It is the intent that these SRs must still be capable of being met, but actual performance is not required during periods when the DG and offsite circuit is required to be OPERABLE.

Note 2 states that SR 3.8.1.13 is considered to be met without the ECCS initiation signals OPERABLE when the ECCS initiation signals are not required to be OPERABLE per Table 3.3.5.1-1. This SR demonstrates the DG response to an ECCS signal (either alone or in conjunction with a loss-of-power signal). This is consistent with the ECCS instrumentation requirements of Table 3.3.5.1-1 that do not require the ECCS signals to be OPERBALE in MODES 4 and 5 when ECCS is not required to be OPERABLE per LCO 3.5.2, "ECCS-Shutdown".

REFERENCES

None.

BASES

ACTIONS

A.1 (continued)

Suspension of in-vessel fuel movement shall not preclude completion of movement of a component to a safe position.

SURVEILLANCE REQUIREMENTS

SR 3.9.1.1

Performance of a CHANNEL FUNCTIONAL TEST demonstrates each required refueling equipment interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested.

The 7 day Frequency is based on engineering judgment and is considered adequate in view of other indications of refueling interlocks and their associated input status that are available to unit operations personnel.

REFERENCES

1. UFSAR, Section 3.1.2.3.7.
2. UFSAR, Section 7.6.2.
3. UFSAR, Section 15.4.3.
4. UFSAR, Section 15.4.4.

BASES

SURVEILLANCE REQUIREMENTS (continued)

SR 3.9.2.2

Performance of a CHANNEL FUNCTIONAL TEST on each channel demonstrates the associated refuel position one-rod-out interlock will function properly when a simulated or actual signal indicative of a required condition is injected into the logic. A successful test of the required contact(s) of a channel relay may be performed by the verification of the change of state of a single contact of the relay. This clarifies what is an acceptable CHANNEL FUNCTIONAL TEST of a relay. This is acceptable because all of the other required contacts of the relay are verified by other Technical Specifications and non-Technical Specifications tests at least once per refueling interval with applicable extensions. The CHANNEL FUNCTIONAL TEST may be performed by any series of sequential, overlapping, or total channel steps so that the entire channel is tested. The 7 day Frequency is considered adequate because of demonstrated circuit reliability, procedural controls on control rod withdrawals, and visual and audible indications available in the control room to alert the operator to control rods not fully inserted. To perform the required testing, the applicable condition must be entered (i.e., a control rod must be withdrawn from its full-in position). Therefore, SR 3.9.2.2 has been modified by a Note that states the CHANNEL FUNCTIONAL TEST is not required to be performed until 1 hour after any control rod is withdrawn.

REFERENCES

1. UFSAR, Section 3.1.2.3.7.

2. UFSAR, Section 7.6.2.2.

3. UFSAR, Section 15.4.3.

BASES

APPLICABLE SAFETY ANALYSES (continued)

RHR shutdown cooling satisfies Criterion 4 of 10 CFR 50.36(c)(2)(ii).

LCO

Only one RHR shutdown cooling subsystem is required to be OPERABLE in MODE 5 with irradiated fuel in the RPV and the water level ≥ 21 ft-1 inch above the top of the RPV flange. A minimum water level of 21 ft-1 inch above the top of the RPV flange corresponds to a level of 36 ft in the Spent Fuel Pool (SFP). Therefore, SFP water level indication may be used to monitor RPV level when the RPV is flooded up and the SFP gates are removed. Other means of monitoring RPV water level are used when those conditions are not present. Only one subsystem is required because the volume of water above the RPV flange provides backup decay heat removal capability. In addition, when the reactor coolant temperature is ≥ 150 °F, one RHR shutdown cooling subsystem is required to be in operation to provide an active decay heat removal capability. At reactor coolant temperatures less than 150 °F, natural circulation alone is adequate to provide the required decay heat removal capability while maintaining adequate margin to the reactor coolant temperature (212 °F) at which a MODE change would occur. An OPERABLE RHR shutdown cooling subsystem consists of one RHR pump, a heat exchanger, an RHRSW pump providing cooling to the heat exchanger, valves, piping, instruments, and controls to ensure an OPERABLE flow path. In addition, the necessary portions of the Emergency Service Water and River Water Supply System and Ultimate Heat Sink are required to provide appropriate cooling and a suction source to each required RHRSW pump.

Additionally, each RHR shutdown cooling subsystem is considered OPERABLE if it can be manually aligned (remote or local) in the shutdown cooling mode for removal of decay heat. Operation (either continuous or intermittent) of one subsystem can maintain and reduce the reactor coolant temperature as required. However, to ensure adequate core flow to allow for accurate average reactor coolant temperature monitoring when the reactor coolant temperature is ≥ 150 °F, nearly continuous operation is required. A Note is provided to allow a 2 hour exception for the operating subsystem to not be in operation during any 8 hour period. This 8 hour period is a continuous rolling clock.

(continued)

BASES (continued)

LCO

In MODE 5 with irradiated fuel in the Reactor Pressure Vessel (RPV) and the water level < 21 ft-1 inch above the top of the RPV flange, two RHR shutdown cooling subsystems must be OPERABLE.

An OPERABLE RHR shutdown cooling subsystem consists of one RHR pump, a heat exchanger, an RHRSW pump providing cooling to the heat exchanger, valves, piping, instruments, and controls to ensure an OPERABLE flow path. To meet the LCO, both pumps in one loop or one pump in each of the two loops must be OPERABLE. In addition, the necessary portions of the Emergency Service Water and River Water Supply Systems and the Ultimate Heat Sink are required to provide appropriate cooling and a suction source to each required RHRSW pump.

Additionally, each RHR shutdown cooling subsystem is considered OPERABLE if it can be manually aligned (remote or local) in the shutdown cooling mode for removal of decay heat. Operation (either continuous or intermittent) of one subsystem can maintain and reduce the reactor coolant temperature as required. However, to ensure adequate core flow to allow for accurate average reactor coolant temperature monitoring, nearly continuous operation is required. A Note is provided to allow a 2 hour exception for the operating subsystem to not be in operation during any 8 hour period. This 8 hour period is a continuously rolling clock. The 2 hour exception provides operational flexibility for varying plant conditions.

APPLICABILITY

Two RHR shutdown cooling subsystems are required to be OPERABLE, and one must be in operation in MODE 5, with irradiated fuel in the RPV and with the water level < 21 ft-1 inch above the top of the RPV flange, to provide decay heat removal. RHR System requirements in other MODES are covered by LCOs in Section 3.4, Reactor Coolant System (RCS).

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UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO AMENDMENT NO.234TO FACILITY OPERATING LICENSE NO. DPR-49

IES UTILITIES INC.

CENTRAL IOWA POWER COOPERATIVE

CORN BELT POWER COOPERATIVE

DUANE ARNOLD ENERGY CENTER

DOCKET NO. 50-331

1.0 INTRODUCTION

By letter dated November 22, 1999, as supplemented August 14, 2000, Duane Arnold Energy Center (the licensee) submitted a request for changes to the Duane Arnold Energy Center (DAEC) Technical Specifications (TS). The changes would revise the TS by incorporating 16 improvements to the TS that are identified by Technical Specifications Task Force (TSTF) numbers. The August 14, 2000, submittal provided additional clarifying information that did not change the initial proposed no significant hazards consideration determination, or expand the scope of the application as noticed in the Federal Register. The August 14, 2000, letter revised the TS amendment request submittal to withdraw consideration of TSTF-225 in its entirety.

These changes to the improved Standard Technical Specifications (STS) for General Electric Company Boiling Water Reactor/4 (BWR/4) plants, such as DAEC, are identified by TSTF numbers and are the following:

- TSTF-71 adds a brief example of the application of the Safety Function Determination Program (SFDP) in the Bases for limiting condition for operation (LCO) 3.0.6. This change in the TS Bases only will not be evaluated.

- TSTF-76 removes Operations Committee review and acceptance of Offsite Dose Assessment Manual (ODAM) changes from the TS. This requirement is located in the DAEC Updated Final Safety Analysis Report (UFSAR).

- TSTF-104 removes the additional discussion provided in LCO 3.0.4 with respect to the use of exceptions and provides the reworded discussion in the Bases.

- TSTF 118 revises administrative controls to add provisions of SR 3.0.2 and SR 3.0.3 to the Diesel Fuel Oil Testing Program testing frequencies.

- TSTF-122 revises two sentences in LCO 3.0.2 Bases to remove possible confusion concerning inoperable redundant equipment. This change in the TS Bases only will not be evaluated.

- TSTF-152 revises discussion of Occupational Radiation Exposure Report and Radioactive Material Release Report to be consistent with 10 CFR 20.

- TSTF-153 revises several Residual Heat Removal LCO exception notes to be consistent with the wording used in the LCO being excepted.

- TSTF-165 revises the Bases LCO 3.0.5 to use the words "required testing" instead of the acronym "SR." LCO 3.0.5 uses the word "testing." This change in the TS Bases only will not be evaluated.

- TSTF-166 revises LCO 3.0.6 to explicitly require an evaluation per the SFDP and delete the statement that "additional ... limitations may be required" from LCO 3.0.6.

- TSTF-205 revises definitions of CHANNEL CALIBRATION, CHANNEL FUNCTIONAL TEST, and LOGIC SYSTEM FUNCTIONAL TEST to remove ambiguity.

- TSTF-269 modifies requirements for repetitive verification of the status of "locked, sealed, or secured" components to allow the verification to be "by administrative means."

- TSTF-278 revises LCO 3.8.6 to require that battery cell parameters be "within limits" and delete the reference to "Table 3.8.6-1." Also, changes are made to Conditions and Required Actions to make the references to Table 3.8.6-1 consistent.

- TSTF-279 deletes the reference to the "applicable supports" from the description of the "Inservice Testing Program" in TS Section 5.5. The Technical Requirements Manual (TRM) contains the requirements for "applicable supports."

- TSTF-300 adds exceptions to the Diesel Generator (DG) surveillance requirements (SR) for LCO 3.8.2, AC Source-Shutdown. These exceptions will eliminate the requirement that the DG be capable of responding to Emergency Core Cooling System (ECCS) initiation signals while the ECCS subsystems are not required to be OPERABLE.

- TSTF-323 extends the Completion Time to isolate the affected penetration flow path to 72 hours for inoperable Excess Flow Check Valves (EFCV).

2.0 BACKGROUND

The DAEC implemented improved technical specifications (ITS) in 1998 via Amendment 223 using NUREG 1433, Rev. 1 as a model. The Industry and the Nuclear Regulatory Commission (NRC) staff have been working to improve STS NUREGS and, as a result, generic changes have been developed. The proposed amendment adopts selected NRC approved generic changes to the improved STS NUREGs.

The proposed 16 changes listed above are from the TSTF process developed by the Industry and the NRC. Three of these changes are Bases only changes but are included for completeness relative to the TSTF process.

3.0 EVALUATION

3.1 TSTF-76, Revision 1

The change in TSTF-76 is to remove Operations Committee review and acceptance of ODAM changes from the TS. This requirement is located in the DAEC UFSAR. Note: ODAM is Duane Arnold's plant specific term equivalent to Offsite Dose Calculation Manual (ODCM), the general term in TSTF-76.

The justification for the NRC-approved TSTF-76 to the Improved Standard Technical Specifications (ISTS) is that the onsite review committee and audit functions have been relocated to licensee controlled documents. The committee review of the ODAM should be relocated with the other review and audit functions to licensee controlled documents.

In its application, the licensee proposes to adopt TSTF-076, Rev.1 programmatic TS changes to the ODCM (STS Section 5.5.1). The proposed changes eliminate the current TS requirement for the Onsite Review function [Committee] to approve licensee initiated changes to the ODCM while retaining the current TS requirement for the Plant Superintendent to approve the same licensee initiated changes. As a result of this change, the ODCM program TS provides sufficient requirements to ensure the methodologies and parameters used in the calculation of offsite doses are controlled and that the conduct of radiological environmental monitoring is managed. Furthermore, Plant Superintendent signature authority for ODCM changes establishes a level of review of change documentation and records of review which is consistent with industry practice and which is sufficient to ensure safe operation of the plant.

Based on the above, the NRC staff concludes that the proposed change to incorporate TSTF-76 is acceptable.

3.2 TSTF-104, Revision 0

The change in TSTF-104 for NUREG-1433 is to remove additional discussion provided in LCO 3.0.4 with respect to use of exceptions and provides the necessary discussion in the Bases.

The justification given in the NRC-approved TSTF is that the change provides consistency with LCO 3.0.3 by moving the discussion of exceptions to the LCO to the Bases. In addition, this change reduces potential confusion by revising the discussion to eliminate the repeated use of the phrase "Modes or other specified conditions in the Applicability" to increase clarity. The discussion being moved is not crucial to understanding how LCO 3.0.4 works and is appropriate Bases material.

In its application, the licensee stated the same justification for DAEC that is provided by the NRC staff for approving the TSTF and that is given above. The licensee proposed the same changes to the TS that are given in the TSTF. Based on this, the NRC staff concludes that the proposed change to LCO 3.0.4 to incorporate TSTF-104 is acceptable.

The licensee also provided the change to the Bases for LCO 3.0.4 and the change is the same as that given in TSTF-104. The NRC staff does not have any disagreement with the change to the Bases for LCO 3.0.4.

3.3 TSTF-118, Revision 0

The change in TSTF-118 is to add a sentence to (1) TS 5.5 in the administrative section of the TS on the steam generator tube surveillance program that "The provisions of SR 3.0.3 are applicable to the program test frequencies," and (2) TS 5.5.9 in the administrative section of the TS on the diesel fuel oil testing program that "The provisions of SRs 3.0.2 and 3.0.3 are applicable to the program testing frequencies." SR 3.0.2 allows the surveillance interval for the specified frequency of a SR be increased by a factor of 1.25 and the SR is still met, and SR 3.0.3 allows a SR to be performed within up to 24 hours without declaring the LCO is not met, if it is discovered that the SR was not performed within the required frequency.

The part of TSTF-118 regarding the steam generator tube surveillance program does not apply to DAEC because the plant is a BWR/4 and does not have steam generators.

The justification for the NRC-approved TSTF to the improved STS on the diesel fuel oil testing program is that the addition of the sentence about SR 3.0.2 and 3.0.3 being applicable to the program test frequencies will provide consistency with the application of these requirements in TS 5.5.8, "Explosive Gas and Storage Tank Radioactivity Monitoring Program," which already has SR 3.0.2 and 3.0.3 applicable to the program surveillance frequencies. Therefore, the lack of applicability of these SRs to the diesel fuel oil testing program introduces confusion. Further, the applicability of SRs 3.0.2 and 3.0.3 to the program surveillance is consistent with the current licensing basis for plants.

In its application, the licensee stated the same justification for DAEC that is provided by the NRC staff for approving the TSTF, as provided above. The TSTF is applicable to the improved STS that was part of the basis for the TS and, therefore, is applicable to DAEC. The licensee proposed the same changes to the TS that are given in the TSTF. Based on this, the NRC staff concludes that the proposed change to LCO 5.5.9 of the TS to incorporate TSTF-118 is acceptable. There were no changes to Bases in the TSTF and the licensee did not submit any to the Bases for this TSTF.

3.4 TSTF-152, Revision 0

The change in TSTF-152 is to revise TS 5.6.1, Occupational Radiation Exposure Report, and TS 5.6.3, Radioactive Effluent Release Report, to be consistent with 10 CFR 20.

The justification for the NRC-approved TSTF to the improved STS is to make the TS consistent with an NRC letter dated July 28, 1995, on changes to TS resulting from the 10 CFR 20 rule change.

In its application, the licensee stated the same justification for DAEC that is provided by the NRC staff for approving the TSTF as given above. However, the notes in brackets for TS 5.6.1 and TS 5.6.3 do not apply to DAEC, because the plant has only one unit. The licensee proposed the same changes to the TS 5.6.1 and TS 5.6.3 that are given in the TSTF.

Based on the above, the NRC staff concludes that the proposed changes to LCO 5.6.1 and 5.6.3 to the TS to incorporate TSTF-152 are acceptable. There were no changes to Bases in the TSTF and the licensee did not submit any changes to the Bases for this TSTF.

3.5 TSTF-153, Revision 0

The change in TSTF-153 is to revise notes on exceptions to the LCO 3.4.7, LCO 3.4.8, LCO 3.9.7, and LCO 3.9.8 for the residual heat removal (RHR) shutdown cooling system at hot shutdown, cold shutdown, high water level, and low water level. The revision to the notes is to provide consistent wording with the requirements being excepted. In addition, the appropriate wording changes are also made to the corresponding Bases sections of the LCO.

The justification for the NRC-approved TSTF to the improved STS is that several of the RCS, RHR, and emergency core cooling system specifications require two pumps to be operable and one to be in operation. Some of these LCOs contain LCO notes which exempt this pump requirement for a period of time. However, these notes are incorrectly worded. The phrase such as "may be removed from operation" in the LCO Note is confusing. This ambiguity can lead to errors or improper enforcement, and should be corrected. The TSTF corrects the wording in the notes.

In its application, the licensee stated the same justification for DAEC that is provided by the NRC staff for approving the TSTF, and is given above. The TSTF is applicable to the improved STS that was part of the basis for the TS and, therefore, is applicable to DAEC. The licensee proposed the same changes to the TS that are given in the TSTF and the wording concerns the same subject as the first note (i.e., both RHR shutdown cooling subsystems and recirculation pumps may be removed from operation), and the correction in the TSTF, as discussed above, should be deleting the phrase "be removed from" in the first note, and using the phrase "not be in" instead.

In the Bases of LCO 3.4.7, LCO 3.4.8, "Note 1 permits both required RHR shutdown cooling subsystems to be shut down for a period of two hours" is changed to: "Note 1 permits both required RHR shutdown cooling subsystems to not be in operation for a period of two hours."

In the Bases of LCO 3.9.7, LCO 3.9.8, "A Note is provided to allow a 2 hour exception to shut down the operating subsystem during any 8-hour period" is changed to "A Note is provided to allow a 2 hour exception 'for' the operating subsystem 'to not be in operation' during any 8 hour period."

Based on the above, the NRC staff concludes that the proposed changes to LCO 3.4.7, 3.4.8, 3.9.7, and 3.9.8 of the TS to incorporate TSTF-153 are acceptable. The NRC staff does not have any disagreement with the changes to the Bases for the LCO.

3.6 TSTF-166, Revision 0

The change in TSTF-166 for NUREG-1433 is to revise LCO 3.0.6 to explicitly require an evaluation per the SFDP by deleting the statement, "additional evaluations and limitations may be required" and replacing it with the statement, "an evaluation shall be performed."

The justification given in the NRC-approved TSTF is that there is an inconsistency between LCO 3.0.6, the SFDP, and the LCO 3.0.6 Bases. As currently written, LCO 3.0.6 does not explicitly require an evaluation in accordance with the SFDP; rather, it states that additional evaluations may be required. Both the SFDP and the LCO 3.0.6 Bases state that, upon entry into LCO 3.0.6, an evaluation shall be made to determine if a loss of safety function exists. In

addition, because LCO 3.0.6 states that the evaluation shall be done in accordance with the SFDP and the SFDP states that other appropriate actions may be taken, there is no need for the statement "additional evaluations and limitations may be required" in LCO 3.0.6.

In its application, the licensee stated the same justification for DAEC that is provided by the NRC staff for approving the TSTF, and is given above. The licensee proposed the same changes to the TS that are given in the TSTF. Based on this, the NRC staff concludes that the proposed change to LCO 3.0.6 to incorporate TSTF-166 is acceptable.

3.7 TSTF-205, Revision 3

The change in TSTF-205 to the Improved STS is to revise definitions of CHANNEL CALIBRATION, CHANNEL FUNCTIONAL TEST, and LOGIC SYSTEM FUNCTIONAL TEST to remove ambiguity.

The justification for the NRC-approved TSTF to the Improved STS is that the list of required devices in the definitions is replaced with a phrase similar to "all devices required for Operability" to make it clear what "required" means and to clarify which devices need to be tested or calibrated. The meaning and intent of definitions are not changed. Also, an unnecessary phrase at the end of two of the definitions is deleted to eliminate a conflict between the definition and the Bases.

In its application, the licensee proposed to adopt TSTF-205, Rev. 3 TS changes to the definitions of the Channel Calibration, Channel Functional Test and Logic System Functional Test to eliminate current ambiguity and possible misinterpretations of testing requirements. In addition, conforming Bases changes were made to provide an appropriate basis for these revised terms.

The current definitions for instrumentation Channel Calibration, Channel Functional Test and Logic System Functional Test use phrases "required sensor, alarm, interlock, display and trip functions and channel failure trips," and "all required relays and contacts, trip units, solid state logic elements, etc." to describe those instrument channel devices required to be included for specified tests. There is ambiguity in the use of the word "required" and whether the list is inclusive of all devices that must be tested or whether the list is representative of devices to be tested. Thus, the licensee adopted proposed changes from TSTF-205, Rev. 3 which replace the string of required instrument channel devices in the definitions discussed above with "all devices in the channel required for channel OPERABILITY." In addition, the current TS definition for Channel Calibration specifies that testing may be "performed by means of any series of sequential, overlapping or total channel steps so that the entire channel is calibrated" and the definition for Channel Functional Test specifies that testing may be "performed by means of any series of sequential, overlapping or total channel steps so that the entire channel is tested." The proposed TS changes delete the phrase "so that the entire channel is calibrated" from the definition of channel calibration and "so that the entire channel is tested" from the definition of channel functional test to eliminate a verbatim conflict between the definition and the Bases, which state a successful test to be the verification of the change of state of a single contact of the relay. These changes will provide for a consistent application of the definitions, tests and calibrations; therefore, the NRC staff finds these changes acceptable.

The revised channel functional test definition does not address the method for conducting testing of all required channel devices. The NRC staff position is that a successful test of a channel relay and associated required contacts may be the verification of a single contact and that all contacts of the required device need not be tested provided the required channel contact is otherwise tested. The licensee chose to adopt the approved TSTF-205, Rev. 3 Bases which clarify testing requirements by modifying the Bases of applicable surveillance to provide acceptable methods. Therefore, the NRC staff does not object to the Bases changes.

3.8 TSTF-269, Revision 2

The change in TSTF-269 to the improved STS is to change the ACTION requirements for repetitive verification of the status of locked, sealed or otherwise secured primary or secondary containment isolation valves to verification by Administrative means.

The justification for the NRC-approved TSTF to the Improved STS is that for an inoperable primary or secondary containment isolation valve that the affected penetration flow path be isolated within a specified time period and verified isolated on a periodic frequency. It is sufficient to assume that the initial establishment of component status (e.g., isolation valves closed) was performed correctly. Subsequently, verification is intended to ensure that the component has not been inadvertently repositioned. Given that the function of locking, sealing or securing components is to ensure the same avoidance of inadvertent repositioning the periodic re-verification should only be a verification of the administrative control that ensure that the component remains in the required state. Allowing verification by administrative means is considered acceptable, since the function of locking, sealing, or securing components is to ensure that these devices are not inadvertently repositioned.

In its application, the licensee stated the same justification for DAEC, and proposed to change TS 3.6.1.3 Required Actions A.2 Notes, C.2 Notes, and E.3 Notes, TS 3.6.4.2 Required Action A.2 Notes and their Associated Bases to conform to the changes proposed in TSTF-269 Revision 2 for these specifications. Based on the above, the NRC staff concludes that proposed TS changes are acceptable.

3.9 TSTF-278, Revision 0

The change in TSTF-278 is to revise LCO 3.8.6 to require that the battery cell parameters be within limits, to delete the reference to Table 3.8.6-1 from the LCO, and to change the actions for the LCO to reference the table.

The justification for the NRC-approved TSTF to the Improved STS is that LCO 3.8.6 requires the cell parameters for the DC batteries to be within the limits specified in Table 3.8.6-1, which lists the battery cell parameter requirements on the electrolyte level, float voltage, and specific gravity. This requirement in the LCO is not inclusive of the limits specified in the applicable SRs. In addition to the limits specified in the table, there is a limit regarding average electrolyte temperature contained within a SR. Therefore, the LCO is in conflict with the other SR requirements if it references only Table 3.8.6-1, which does not contain all the requirements on the battery cells. LCO 3.8.6 was revised to simply require the battery cell parameters to be within limits, thus, deleting the reference to the table in the LCO. A reference to the table was made in the actions for LCO 3.8.6, where the conditions refer to Category A, B, and C of the table.

In its application, the licensee stated the same justification for DAEC that is provided by the NRC staff for approving the TSTF, which is given above. The TSTF is applicable to the Improved STS that was part of the basis for the TS and, therefore, is applicable to DAEC. The licensee proposed the same changes to the TS that are given in the TSTF, although some of the TSTF change had already been incorporated into the TS.

Based on this, the NRC staff concludes that the proposed change to LCO 3.8.6 and its associated TS actions to incorporate TSTF-278 is acceptable. There were no changes to Bases in the TSTF and the licensee did not submit any changes to the Bases for this TSTF.

3.10 TSTF-279, Revision 0

The change in TSTF-279 is to delete the reference to "applicable supports" from the description of the Inservice Testing (IST) Program in TS 5.5.6 on the program.

The justification for the NRC-approved TSTF to the Improved STS is that the IST program provides controls for testing American Society of Mechanical Engineers Boiler and Pressure Vessel Code (ASME Code) Class 1, 2, and 3 components. The discussion of the IST program in Section 5.5.6 of the Improved STS was revised to include the "applicable supports" due to concerns related to the re-location of the snubber LCO from the Improved STS NUREGS; however, this is inappropriate because supports are addressed in the Inservice inspection program description, not the IST program description. Thus, the reference to the applicable supports in the IST program description in the Improved STS section was deleted. Additionally, in the past seven years, plants have implemented the improved TS with no known issues related to testing of snubbers or supports. Also, ASME has developed O.M.-5 and other guidance to provide appropriate testing requirements for supports and snubbers.

In its application, the licensee stated the same justification for DAEC that is provided by the NRC staff for approving the TSTF, which is given above. The TSTF is applicable to the Improved STS that was part of the basis for the TS and, therefore, is applicable to DAEC. The licensee proposed the same changes to the TS that are given in the TSTF. Based on this, the NRC staff concludes that the proposed change to TS 5.5.6 in the administrative section of the TS to incorporate TSTF-279 is acceptable. There were no changes to Bases in the TSTF and the licensee did not submit any changes to the Bases for this TSTF.

3.11 TSTF-300, Revision 0

The change in TSTF-300 is that exceptions are added to the DG SR requirements for LCO 3.8.2, AC Sources-Shutdown. These exceptions will eliminate the requirement that the DG be capable of responding to ECCS initiation signals (i.e., eliminate the requirement of SR 3.8.1.12 and SR 3.8.1.19 to be met) while the ECCS subsystems are not required to be Operable.

The justification provided for the NRC-approved TSTF to the Improved STS is that during shutdown Modes, when the vessel is defueled or when the reactor cavity is flooded, the ECCS Systems are not required to be Operable. Therefore, the ECCS-start functions of the DGs serve no safety significant support function. As such, the SRs that test/prove the DG capability to respond to an ECCS-start signal may be removed from DG OPERABILITY considerations at these times when the ECCS Systems are not required to be Operable.

In its application, the licensee stated that the proposed change is consistent with the TSTF. However, since NUREG SRs 3.8.1.11, 3.8.1.12, and 3.8.1.19 were combined into DAEC SR 3.8.1.13 in the conversion to the ITS, the wording of the exception is modified in order to accomplish the same result in the DAEC TS (i.e., eliminate the requirement for NUREG SRs 3.8.1.12 and 3.8.1.19 to be met). The NRC staff reviewed the wording in the NRC staff-approved TSTF and the DAEC proposed change, and finds that the change is the same as the TSTF, and concurs that during shutdown Modes, when the vessel is refueled or when the reactor cavity is flooded, the ECCS systems are not required to be OPERABLE and the DG ECCS start function serves no safety function. Based on this, the NRC staff concludes that the proposed change to LCO 3.8.2 (and its associated BASES) of the TS to incorporate TSTF-300 are acceptable.

3.12 TSTF-323, Revision 0

The change in TSTF-323 is to extend the Completion Time for an Inoperable EFCV in improved STS 3.6.1.3 ACTION C from 12 hours to 72 hours.

The improved STS provides an Action and Completion Time for those Containment penetrations with a single containment isolation. The Required Action is to isolate the penetration within a specified time period depending on the type of valve and whether the system is closed or not. The Completion Time for a single valve in a closed system is longer than the normal containment isolation valve Completion Time of 4 hours because of the relative stability of the closed system (hence, reliability) to act as a penetration isolation boundary and its relative importance of supporting containment OPERABILITY during MODES 1, 2, and 3. The BWR/4 design (NUREG-1433) includes a unique class of single isolation valve penetrations, instrument lines with an EFCV, whose Completion Time to isolate is 12 hours versus the 72 hours allowed for other single isolation valve, closed system penetrations. The EFCV similarly are on penetrations that have been found to have acceptable barrier(s) in the event that a single isolation valve failed. Thus, increasing the Completion Time from 12 hours to 72 hours is acceptable and reasonable considering the instrument, and the small pipe diameter penetration (hence, reliability) to act as a penetration isolation boundary, and the small pipe diameter of the affected penetrations.

In its application the licensee proposes to change the Completion Time in TS 3.6.1.3 ACTION C from 12 hours for EFCV to 72 hours for all penetrations with a single valve and the associated bases to conform to the changes proposed in TSTF-323.

The licensee justified these changes by reference to the justifications provided in TSTF-323. The justification provided in TSTF-323 was inadequate to justify the general change and, thus, the proposed change. However, based on the above NRC staff justification, the NRC staff finds that the proposed change conforms to TSTF-323 and is acceptable.

4.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Iowa State official was notified of the proposed issuance of the amendment. The State official had no comments.

5.0 ENVIRONMENTAL CONSIDERATIONS

This amendment changes a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 or changes a surveillance requirement. The NRC staff has determined that the amendment involves no significant increase in the amounts, and no significant change in the types, of any effluent that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendment involves no significant hazards consideration and there has been no public comment on such finding (65 FR 1924). Accordingly, the amendment meets the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendment.

6.0 CONCLUSION

The NRC staff has concluded, based on the considerations discussed above, that: (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendment will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: A. Chu, RTSB

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