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U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Dresden Nuclear Power Station, Units 2 and 3
Facility Operating License Nos. DPR-19 and DPR-25
NRC Docket Nos. 50-237 and 50-249

Quad Cities Nuclear Power Station, Units 1 and 2
Facility Operating License Nos. DPR-29 and DPR-30
NRC Docket Nos. 50-254 and 50-265

Subject: Transmittal of Technical Specifications Pages for GE14 License
Amendment Request

References: (1) Letter from R. M. Krich (Commonwealth Edison Company) to U. S.
NRC, "Request for Technical Specifications Changes, Transition to
General Electric Fuel," dated September 29, 2000

(2) Letter from R. M. Krich (Exelon Generation Company, LLC) to U. S.
NRC, "Supplement to GE14 Fuel License Amendment Request," dated
March 1, 2001

(3) Letter from K. A. Ainger (Exelon Generation Company, LLC) to U. S.
NRC, "Supplement to GE14 Fuel License Amendment Request," dated
August 13, 2001

In Reference 1, Commonwealth Edison (ComEd) Company, now Exelon Generation Company (EGC), LLC, submitted a Technical Specifications (TS) amendment request for Dresden Nuclear Power Station (DNPS), Units 2 and 3, and Quad Cities Nuclear Power Station (QCNPS), Units 1 and 2, to support a change in fuel vendors from Siemens Power Corporation (SPC), now Framatome, to General Electric (GE) Company, and a transition to GE14 fuel. This amendment request was supplemented in References 2 and 3. The purpose of this letter is to confirm implementation dates for this amendment request and to provide TS pages which support these implementation dates.

EGC requests the following implementation dates for this amendment request.

DNPS, Unit 2 – Prior to reaching Startup (i.e., Mode 2) following refueling outage
17, scheduled for completion in November 2001

AD001

DNPS, Unit 3 – Prior to reaching Startup (i.e., Mode 2) following refueling outage 17, scheduled for completion in October 2002

QCNPS, Unit 2 – Prior to reaching Startup (i.e., Mode 2) following refueling outage 16, scheduled for completion in February 2002

QCNPS, Unit 1 – Prior to reaching Startup (i.e., Mode 2) following refueling outage 17, scheduled for completion in November 2002

The typed TS pages supporting these implementation dates are provided in Attachments A and B for DNPS and QCNPS, respectively.

Should you have any questions related to this request, please contact Mr. Allan R. Haeger at (630) 657-2807.

Respectfully,



K. A. Ainger
Director – Licensing
Mid-West Regional Operating Group

Attachments:

Attachment A: Dresden Nuclear Power Station Technical Specification Pages
Attachment B: Quad Cities Nuclear Power Station Technical Specification Pages

cc: Regional Administrator – NRC Region III
 NRC Senior Resident Inspector – Dresden Nuclear Power Station
 NRC Senior Resident Inspector – Quad Cities Nuclear Power Station
 Office of Nuclear Facility Safety – Illinois Department of Nuclear Safety

ATTACHMENT A
Transmittal of Technical Specifications Pages for GE14 License Amendment
Request

Dresden Nuclear Power Station Technical Specification Pages

Common pages to be used with implementation of Unit 2 amendment

1.1-4
1.1-5
3.3.5.1.-9
3.3.5.1-10
5.6-4

Unit 2 pages to be used for Unit 2 implementation

3.1.4-3
3.2.4-1
3.2.4-2
3.5.1-1
3.5.1-2
3.5.1-3
3.5.1-4
3.5.1-5 (no changes – page unitized for
continuity)
3.5.1-6

Unit 3 pages to be used prior to Unit 3 implementation

3.1.4-3
3.2.4-1
3.2.4-2
3.5.1-1
3.5.1-2
3.5.1-3
3.5.1-4
3.5.1-5 (page unitized for continuity)
3.5.1-6

Common pages to be used following Unit 3 implementation

3.1.4-3
3.2.4-1
3.2.4-2
3.5.1-1
3.5.1-2
3.5.1-3
3.5.1-4
3.5.1-5
3.5.1-6

1.1 Definitions (continued)

LINEAR HEAT GENERATION RATE (LHGR)	The LHGR shall be the heat generation rate per unit length of fuel rod. It is the integral of the heat flux over the heat transfer area associated with the unit length.
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.
MAXIMUM FRACTION OF LIMITING DENSITY (MFLPD)	The MFLPD shall be the largest value of the fraction of limiting power density (FLPD) in the core. The FLPD shall be the LHGR existing at a given location divided by the specified LHGR limit for that bundle type.
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 boiling transition, divided by the actual assembly operating power.
MODE	A MODE shall correspond to any one inclusive combination of mode switch position, average reactor coolant temperature, and reactor vessel head closure bolt tensioning specified in Table 1.1-1 with fuel in the reactor vessel.
OPERABLE — OPERABILITY	A system, subsystem, division, component, or device shall be OPERABLE or have OPERABILITY when it is capable of performing its specified safety function(s) and when all necessary attendant instrumentation, controls, normal or emergency electrical power, cooling and seal water, lubrication, and other auxiliary equipment that are required for the system, subsystem, division, component, or device to perform its specified safety function(s) are also capable of performing their related support function(s).

(continued)

1.1 Definitions (continued)

RATED THERMAL POWER (RTP)	RTP shall be a total reactor core heat transfer rate to the reactor coolant of 2527 MWt.
REACTOR PROTECTION SYSTEM (RPS) RESPONSE TIME	The RPS RESPONSE TIME shall be that time interval from the opening of the sensor contact until the opening of the trip actuator. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.
SHUTDOWN MARGIN (SDM)	<p>SDM shall be the amount of reactivity by which the reactor is subcritical or would be subcritical assuming that:</p> <ol style="list-style-type: none">The reactor is xenon free;The moderator temperature is 68°F; andAll control rods are fully inserted except for the single control rod of highest reactivity worth, which is assumed to be fully withdrawn. <p>With control rods not capable of being fully inserted, the reactivity worth of these control rods must be accounted for in the determination of SDM.</p>
STAGGERED TEST BASIS	A STAGGERED TEST BASIS shall consist of the testing of one of the systems, subsystems, channels, or other designated components during the interval specified by the Surveillance Frequency, so that all systems, subsystems, channels, or other designated components are tested during <i>n</i> Surveillance Frequency intervals, where <i>n</i> is the total number of systems, subsystems, channels, or other designated components in the associated function.
THERMAL POWER	THERMAL POWER shall be the total reactor core heat transfer rate to the reactor coolant.
TURBINE BYPASS SYSTEM RESPONSE TIME	The TURBINE BYPASS SYSTEM RESPONSE TIME shall be that time interval from when the turbine bypass control unit generates a turbine bypass valve flow signal until the turbine bypass valves travel to their required positions. The response time may be measured by means of any series of sequential, overlapping, or total steps so that the entire response time is measured.

Table 3.3.5.1-1 (page 1 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
1. Core Spray System					
a. Reactor Vessel Water Level - Low Low	1,2,3, 4(a), 5(a)	4(b)	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	\geq -54.15 inches
b. Drywell Pressure - High	1,2,3	4(b)	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	\leq 1.81 psig
c. Reactor Steam Dome Pressure - Low (Permissive)	1,2,3 4(a), 5(a)	2 2	C B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	\geq 308.5 psig and \leq 341.7 psig \geq 308.5 psig and \leq 341.7 psig
d. Core Spray Pump Discharge Flow - Low (Bypass)	1,2,3, 4(a), 5(a)	1 per pump	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	\geq 802 gpm and \leq 992 gpm
e. Core Spray Pump Start-Time Delay Relay	1, 2, 3 4(a), 5(a)	1 per pump	C	SR 3.3.5.1.5 SR 3.3.5.1.6	\leq 11.0 seconds
2. Low Pressure Coolant Injection (LPCI) System					
a. Reactor Vessel Water Level - Low Low	1,2,3, 4(a), 5(a)	4	B	SR 3.3.5.1.1 SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	\geq -54.15 inches
b. Drywell Pressure - High	1,2,3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	\leq 1.81 psig
c. Reactor Steam Dome Pressure - Low (Permissive)	1,2,3 4(a), 5(a)	2 2	C B	SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6 SR 3.3.5.1.2 SR 3.3.5.1.4 SR 3.3.5.1.6	\geq 308.5 psig and \leq 341.7 psig \geq 308.5 psig and \leq 341.7 psig
(continued)					

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2, "ECCS - Shutdown."

(b) Also required to initiate the associated diesel generator (DG).

Table 3.3.5.1-1 (page 2 of 5)
Emergency Core Cooling System Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER FUNCTION	CONDITIONS REFERENCED FROM REQUIRED ACTION A.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
2. LPCI System (continued)					
d. Reactor Steam Dome Pressure - Low (Break Detection)	1,2,3	4	B	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 802 psig and ≤ 898 psig
e. Low Pressure Coolant Injection Pump Start - Time Delay Relay Pumps B and D	1,2,3, 4(a), 5(a)	1 per pump	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 5.5 seconds
f. Low Pressure Coolant Injection Pump Discharge Flow - Low (Bypass)	1,2,3, 4(a), 5(a)	1 per loop	E	SR 3.3.5.1.2 SR 3.3.5.1.3 SR 3.3.5.1.5 SR 3.3.5.1.6	≥ 1107 gpm
g. Recirculation Pump Differential Pressure - High (Break Detection)	1,2,3	4 per pump	C	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 5.9 psid
h. Recirculation Riser Differential Pressure - High (Break Detection)	1,2,3	4	C	SR 3.3.5.1.2 SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.0 psid
i. Recirculation Pump Differential Pressure Time Delay - Relay (Break Detection)	1,2,3	2	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 0.53 seconds
j. Reactor Steam Dome Pressure Time Delay - Relay (Break Detection)	1,2,3	2	B	SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 2.12 seconds
k. Recirculation Riser Differential Pressure Time Delay - Relay (Break Detection)	1,2,3	2	C	SR 3.3.5.1.5 SR 3.3.5.1.6	≤ 0.53 seconds

(continued)

(a) When associated ECCS subsystem(s) are required to be OPERABLE per LCO 3.5.2.

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

9. ANF-89-98(P)(A), Generic Mechanical Design Criteria for BWR Fuel Designs.
10. ANF-91-048(P)(A), Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model.
11. Commonwealth Edison Company Topical Report NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods."
12. EMF-85-74(P), RODEX2A (BWR) Fuel Rod Thermal Mechanical Evaluation Model.
13. NEDE-24011-P-A, "General Electric Standard Application for Reactor Fuel (GESTAR)."
14. NEDC-32981P, "GEXL96 Correlation for ATRIUM 9B Fuel," September 2000.

The COLR will contain the complete identification for each of the TS referenced topical reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements).

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

5.6.6 Post Accident Monitoring (PAM) Instrumentation Report

When a report is required by Condition B or F of LCO 3.3.3.1, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

9. ANF-89-98(P)(A), Generic Mechanical Design Criteria for BWR Fuel Designs.
10. ANF-91-048(P)(A), Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model.
11. Commonwealth Edison Company Topical Report NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods."
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Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

-----NOTES-----

1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
 2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to 90% insertion. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."
-

PERCENT INSERTION	SCRAM TIMES(a)(b) (seconds) when REACTOR STEAM DOME PRESSURE \geq 800 psig for GE analyzed cores
5	0.48
20	0.89
50	1.98
90	3.44

(a) Maximum scram time from fully withdrawn position based on de-energization of scram pilot valve solenoids at time zero.

(b) Scram times as a function of reactor steam dome pressure when < 800 psig are within established limits.

3.2 POWER DISTRIBUTION LIMITS

3.2.4 Average Power Range Monitor (APRM) Gain and Setpoint

- LCO 3.2.4
- a. FDLRC and the ratio of MFLPD to Fraction of RTP (F RTP) shall be less than or equal to 1.0; or
 - b. Each required APRM Flow Biased Neutron Flux-High Function Allowable Value shall be modified by the lesser of 1/FDLRC or F RTP/MFLPD; or
 - c. Each required APRM gain shall be adjusted such that the APRM readings are $\geq 100\%$ times the higher of F RTP times FDLRC or of MFLPD.

APPLICABILITY: THERMAL POWER $\geq 25\%$ RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	6 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $< 25\%$ RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.4.1 -----NOTE----- Not required to be met if SR 3.2.4.2 is satisfied for LCO 3.2.4.b or LCO 3.2.4.c requirements. -----</p> <p>Verify FDLRC and the ratio of MFLPD to F RTP are within limits.</p>	<p>Once within 12 hours after ≥ 25% RTP</p> <p><u>AND</u></p> <p>24 hours thereafter</p>
<p>SR 3.2.4.2 -----NOTE----- Not required to be met if SR 3.2.4.1 is satisfied for LCO 3.2.4.a requirements. -----</p> <p>Verify each required:</p> <p>a. APRM Flow Biased Neutron Flux—High Function Allowable Value is modified by less than or equal to the lesser of 1/FDLRC or F RTP/MFLPD; or</p> <p>b. APRM gain is adjusted such that the APRM reading is ≥ 100% times the higher of F RTP times FDLRC or of MFLPD.</p>	<p>12 hours</p>

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND ISOLATION CONDENSER (IC) SYSTEM

3.5.1 ECCS — Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of five relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI)
and ADS valves are not required to be OPERABLE with
reactor steam dome pressure \leq 150 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Low Pressure Coolant Injection (LPCI) pump inoperable.	A.1 Restore LPCI pump to OPERABLE status.	30 days
B. One LPCI subsystem inoperable for reasons other than Condition A. <u>OR</u> One Core Spray subsystem inoperable.	B.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
C. One LPCI pump in each subsystem inoperable.	C.1 Restore one LPCI pump to OPERABLE status.	7 days
D. Two LPCI subsystems inoperable for reasons other than Condition C.	D.1 Restore one LPCI subsystem to OPERABLE status.	72 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	36 hours
F. HPCI System inoperable.	F.1 Verify by administrative means IC System is OPERABLE.	Immediately
	<u>AND</u> F.2 Restore HPCI System to OPERABLE status.	14 days
G. One ADS valve inoperable.	G.1 Restore ADS valve to OPERABLE status.	14 days
H. Required Action and associated Completion Time of Condition F or G not met. <u>OR</u> Two or more ADS valves inoperable.	H.1 Be in MODE 3.	12 hours
	<u>AND</u> H.2 Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

(Continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition C or D.</p> <p><u>OR</u></p> <p>HPCI System and one or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>One or more low pressure ECCS injection/spray subsystems inoperable and one or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>HPCI System inoperable and either one low pressure ECCS injection/spray subsystem is inoperable or Condition C entered.</p>	<p>I.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE				FREQUENCY
SR	3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.		31 days
SR	3.5.1.2	Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.		31 days
SR	3.5.1.3	Verify correct breaker alignment to the LPCI swing bus.		31 days
SR	3.5.1.4	Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.		In accordance with the Inservice Testing Program
SR	3.5.1.5	Verify the following ECCS pumps develop the specified flow rate against a test line pressure corresponding to the specified reactor pressure.		In accordance with the Inservice Testing Program
	</			

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.6 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 1005 and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.</p>	<p>In accordance with the Inservice Testing Program</p>
<p>SR 3.5.1.7 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 180 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.</p>	<p>24 months</p>
<p>SR 3.5.1.8 -----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.9 -----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>
<p>SR 3.5.1.10 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each ADS valve opens when manually actuated.</p>	<p>24 months</p>
<p>SR 3.5.1.11 Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.</p>	<p>24 months</p>
<p>SR 3.5.1.12 Verify ADS pneumatic supply header pressure is \geq 80 psig.</p>	<p>31 days</p>

Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

- NOTES-----
1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
 2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to 90% insertion. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."
-

PERCENT INSERTION	SCRAM TIMES(a)(b) (seconds) when REACTOR STEAM DOME PRESSURE \geq 800 psig for SPC analyzed cores
5	0.36
20	0.84
50	1.86
90	3.25

- (a) Maximum scram time from fully withdrawn position based on de-energization of scram pilot valve solenoids at time zero.
- (b) Scram times as a function of reactor steam dome pressure when < 800 psig are within established limits.

3.2 POWER DISTRIBUTION LIMITS

3.2.4 Average Power Range Monitor (APRM) Gain and Setpoint

- LCO 3.2.4
- a. FDLRC shall be less than or equal to 1.0; or
 - b. Each required APRM Flow Biased Neutron Flux-High Function Allowable Value shall be modified by $1/\text{FDLRC}$; or
 - c. Each required APRM gain shall be adjusted such that the APRM readings are $\geq 100\%$ times the Fraction of RTP (F RTP) times FDLRC.

APPLICABILITY: THERMAL POWER $\geq 25\%$ RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	6 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $< 25\%$ RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.4.1 -----NOTE----- Not required to be met if SR 3.2.4.2 is satisfied for LCO 3.2.4.b or LCO 3.2.4.c requirements. ----- Verify FDLRC is within limits.</p>	<p>Once within 12 hours after $\geq 25\%$ RTP <u>AND</u> 24 hours thereafter</p>
<p>SR 3.2.4.2 -----NOTE----- Not required to be met if SR 3.2.4.1 is satisfied for LCO 3.2.4.a requirements. ----- Verify each required:</p> <ul style="list-style-type: none"> a. APRM Flow Biased Neutron Flux-High Function Allowable Value is modified by 1/FDLRC; or b. APRM gain is adjusted such that the APRM reading is $\geq 100\%$ times the F RTP times FDLRC. 	<p>12 hours</p>

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND ISOLATION CONDENSER (IC) SYSTEM

3.5.1 ECCS — Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of four relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI)
and ADS valves are not required to be OPERABLE with
reactor steam dome pressure \leq 150 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Low Pressure Coolant Injection (LPCI) pump inoperable.	A.1 Restore LPCI pump to OPERABLE status.	30 days
B. One LPCI subsystem inoperable for reasons other than Condition A. <u>OR</u> One Core Spray subsystem inoperable.	B.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
C. One LPCI pump in each subsystem inoperable.	C.1 Restore one LPCI pump to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two LPCI subsystems inoperable for reasons other than Condition C.	D.1 Restore one LPCI subsystem to OPERABLE status.	72 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3. <u>AND</u>	12 hours
	E.2 Be in MODE 4.	36 hours
F. HPCI System inoperable.	F.1 Verify by administrative means IC System is OPERABLE. <u>AND</u>	Immediately
	F.2 Restore HPCI System to OPERABLE status.	14 days
G. HPCI System inoperable. <u>AND</u> One low pressure ECCS injection/spray subsystem is inoperable or Condition C entered.	G.1 Restore HPCI System to OPERABLE status.	72 hours
	<u>OR</u> G.2 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	72 hours
H. One required ADS valve inoperable.	H.1 Restore ADS valve to OPERABLE status.	14 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. Required Action and associated Completion Time of Condition F, G, or H not met.</p> <p><u>OR</u></p> <p>Two or more required ADS valves inoperable.</p>	<p>I.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>I.2 Reduce reactor steam dome pressure to ≤ 150 psig.</p>	<p>12 hours</p> <p>36 hours</p>
<p>J. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition C or D.</p> <p><u>OR</u></p> <p>HPCI System and one or more required ADS valves inoperable.</p> <p><u>OR</u></p> <p>One or more low pressure ECCS injection/spray subsystems inoperable and one or more required ADS valves inoperable.</p>	<p>J.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE				FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.			31 days
SR 3.5.1.2	Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.			31 days
SR 3.5.1.3	Verify correct breaker alignment to the LPCI swing bus.			31 days
SR 3.5.1.4	Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.			In accordance with the Inservice Testing Program
SR 3.5.1.5	Verify the following ECCS pumps develop the specified flow rate against a test line pressure corresponding to the specified reactor pressure.			In accordance with the Inservice Testing Program
	<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>NO. OF PUMPS</u>	<u>TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF</u>
	Core			
	Spray	≥ 4500 gpm	1	≥ 90 psig
	LPCI	≥ 14,500 gpm	3	≥ 20 psig

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.6 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 1005 and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.</p>	<p>In accordance with the Inservice Testing Program</p>
<p>SR 3.5.1.7 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 180 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.</p>	<p>24 months</p>
<p>SR 3.5.1.8 -----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.9 -----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>
<p>SR 3.5.1.10 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each required ADS valve opens when manually actuated.</p>	<p>24 months</p>
<p>SR 3.5.1.11 Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.</p>	<p>24 months</p>

Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

-----NOTES-----

1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
 2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to 90% insertion. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."
-

PERCENT INSERTION	SCRAM TIMES ^{(a)(b)} (seconds) when REACTOR STEAM DOME PRESSURE \geq 800 psig for GE analyzed cores
5	0.48
20	0.89
50	1.98
90	3.44

- (a) Maximum scram time from fully withdrawn position based on de-energization of scram pilot valve solenoids at time zero.
- (b) Scram times as a function of reactor steam dome pressure when < 800 psig are within established limits.

3.2 POWER DISTRIBUTION LIMITS

3.2.4 Average Power Range Monitor (APRM) Gain and Setpoint

- LCO 3.2.4
- a. FDLRC and the ratio of MFLPD to Fraction of RTP (F RTP) shall be less than or equal to 1.0; or
 - b. Each required APRM Flow Biased Neutron Flux-High Function Allowable Value shall be modified by the lesser of 1/FDLRC or F RTP/MFLPD; or
 - c. Each required APRM gain shall be adjusted such that the APRM readings are $\geq 100\%$ times the higher of F RTP times FDLRC or of MFLPD.

APPLICABILITY: THERMAL POWER $\geq 25\%$ RTP.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. Requirements of the LCO not met.	A.1 Satisfy the requirements of the LCO.	6 hours
B. Required Action and associated Completion Time not met.	B.1 Reduce THERMAL POWER to $< 25\%$ RTP.	4 hours

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.2.4.1 -----NOTE----- Not required to be met if SR 3.2.4.2 is satisfied for LCO 3.2.4.b or LCO 3.2.4.c requirements. -----</p> <p>Verify FDLRC and the ratio of MFLPD to F RTP are within limits.</p>	<p>Once within 12 hours after $\geq 25\%$ RTP</p> <p><u>AND</u></p> <p>24 hours thereafter</p>
<p>SR 3.2.4.2 -----NOTE----- Not required to be met if SR 3.2.4.1 is satisfied for LCO 3.2.4.a requirements. -----</p> <p>Verify each required:</p> <p>a. APRM Flow Biased Neutron Flux—High Function Allowable Value is modified by less than or equal to the lesser of 1/FDLRC or F RTP/MFLPD; or</p> <p>b. APRM gain is adjusted such that the APRM reading is $\geq 100\%$ times the higher of F RTP times FDLRC or of MFLPD.</p>	<p>12 hours</p>

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND ISOLATION CONDENSER (IC) SYSTEM

3.5.1 ECCS - Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of five relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI)
and ADS valves are not required to be OPERABLE with
reactor steam dome pressure \leq 150 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Low Pressure Coolant Injection (LPCI) pump inoperable.	A.1 Restore LPCI pump to OPERABLE status.	30 days
B. One LPCI subsystem inoperable for reasons other than Condition A. <u>OR</u> One Core Spray subsystem inoperable.	B.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
C. One LPCI pump in each subsystem inoperable.	C.1 Restore one LPCI pump to OPERABLE status.	7 days
D. Two LPCI subsystems inoperable for reasons other than Condition C.	D.1 Restore one LPCI subsystem to OPERABLE status.	72 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3.	12 hours
	<u>AND</u> E.2 Be in MODE 4.	36 hours
F. HPCI System inoperable.	F.1 Verify by administrative means IC System is OPERABLE.	Immediately
	<u>AND</u> F.2 Restore HPCI System to OPERABLE status.	14 days
G. One ADS valve inoperable.	G.1 Restore ADS valve to OPERABLE status.	14 days
H. Required Action and associated Completion Time of Condition F or G not met. <u>OR</u> Two or more ADS valves inoperable.	H.1 Be in MODE 3.	12 hours
	<u>AND</u> H.2 Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

(Continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition C or D.</p> <p><u>OR</u></p> <p>HPCI System and one or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>One or more low pressure ECCS injection/spray subsystems inoperable and one or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>HPCI System inoperable and either one low pressure ECCS injection/spray subsystem is inoperable or Condition C entered.</p>	<p>I.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE				FREQUENCY															
SR	3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.		31 days															
SR	3.5.1.2	Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.		31 days															
SR	3.5.1.3	Verify correct breaker alignment to the LPCI swing bus.		31 days															
SR	3.5.1.4	Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.		In accordance with the Inservice Testing Program															
SR	3.5.1.5	Verify the following ECCS pumps develop the specified flow rate against a test line pressure corresponding to the specified reactor pressure.		In accordance with the Inservice Testing Program															
		<table><tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF</th></tr><tr><td>Core</td><td></td><td></td><td></td></tr><tr><td>Spray</td><td>≥ 4500 gpm</td><td>1</td><td>≥ 90 psig</td></tr><tr><td>LPCI</td><td>≥ 9000 gpm</td><td>2</td><td>≥ 20 psig</td></tr></table>	SYSTEM	FLOW RATE	NO. OF PUMPS	TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF	Core				Spray	≥ 4500 gpm	1	≥ 90 psig	LPCI	≥ 9000 gpm	2	≥ 20 psig	
SYSTEM	FLOW RATE	NO. OF PUMPS	TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF																
Core																			
Spray	≥ 4500 gpm	1	≥ 90 psig																
LPCI	≥ 9000 gpm	2	≥ 20 psig																

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.6 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 1005 and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.</p>	<p>In accordance with the Inservice Testing Program</p>
<p>SR 3.5.1.7 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 180 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.</p>	<p>24 months</p>
<p>SR 3.5.1.8 -----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
<p>SR 3.5.1.9 -----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	<p>24 months</p>
<p>SR 3.5.1.10 -----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each ADS valve opens when manually actuated.</p>	<p>24 months</p>
<p>SR 3.5.1.11 Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.</p>	<p>24 months</p>
<p>SR 3.5.1.12 Verify ADS pneumatic supply header pressure is \geq 80 psig.</p>	<p>31 days</p>

ATTACHMENT B

Transmittal of Technical Specifications Pages for GE14 License Amendment Request

Quad Cities Nuclear Power Station Technical Specification Pages

Common pages to be used with implementation of Unit 2 amendment

5.6-4

5.6-5

Unit 2 pages to be used for Unit 2 implementation

3.1.4-3

3.5.1-1

3.5.1-2

3.5.1-3

3.5.1-4 (no changes – page unitized for continuity)

3.5.1-5 (no changes – page unitized for continuity)

3.5.1-6

Unit 1 pages to be used prior to Unit 1 implementation

3.1.4-3

3.5.1-1

3.5.1-2

3.5.1-3

3.5.1-4 (page unitized for continuity)

3.5.1-5 (page unitized for continuity)

3.5.1-6

Common pages to be used following Unit 1 implementation

3.1.4-3

3.5.1-1

3.5.1-2

3.5.1-3

3.5.1-4

3.5.1-5

3.5.1-6

5.6 Reporting Requirements

5.6.5 CORE OPERATING LIMITS REPORT (COLR) (continued)

10. Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors/Advanced Nuclear Fuels Corporation Critical Power Methodology for Boiling Water Reactors: Methodology for Analysis of Assembly Channel Bowing Effects/NRC Correspondence, ANF-524(P)(A).
11. COTRANSA 2: A Computer Program for Boiling Water Reactor Transient Analyses, ANF-913(P)(A).
12. Advanced Nuclear Fuels Corporation Methodology for Boiling Water Reactors EXEM BWR Evaluation Model, ANF-91-048(P)(A).
13. Commonwealth Edison Topical Report NFSR-0091, "Benchmark of CASMO/MICROBURN BWR Nuclear Design Methods."
14. ANFB Critical Power Correlation Application for Coresident Fuel, EMF-1125(P)(A).
15. EMF-85-74(P), RODEX2A(BWR) Fuel Rod Thermal Mechanical Evaluation Model, Supplement 1(P)(A) and Supplement 2 (P)(A), Siemens Power Corporation, February 1998.
16. NEDC-3298IP, "GEXL96 Correction for ATRIUM 9B Fuel."

The COLR will contain the complete identification for each of the TS referenced topical reports used to prepare the COLR (i.e., report number, title, revision, date, and any supplements).

- c. The core operating limits shall be determined such that all applicable limits (e.g., fuel thermal mechanical limits, core thermal hydraulic limits, Emergency Core Cooling Systems (ECCS) limits, nuclear limits such as SDM, transient analysis limits, and accident analysis limits) of the safety analysis are met.
- d. The COLR, including any midcycle revisions or supplements, shall be provided upon issuance for each reload cycle to the NRC.

(continued)

5.6 Reporting Requirements

5.6.6 Post Accident Monitoring (PAM) Instrumentation Report

When a report is required by Condition B or F of LCO 3.3.3.1, "Post Accident Monitoring (PAM) Instrumentation," a report shall be submitted within the following 14 days. The report shall outline the preplanned alternate method of monitoring, the cause of the inoperability, and the plans and schedule for restoring the instrumentation channels of the Function to OPERABLE status.

Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

-----NOTES-----

1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
 2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to 90% insertion. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."
-

PERCENT INSERTION	SCRAM TIMES(a)(b) (seconds) when REACTOR STEAM DOME PRESSURE \geq 800 psig for GE analyzed cores
5	0.48
20	0.89
50	1.98
90	3.44

- (a) Maximum scram time from fully withdrawn position based on de-energization of scram pilot valve solenoids at time zero.
- (b) Scram times as a function of reactor steam dome pressure when < 800 psig are within established limits.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS — Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of five relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI)
and ADS valves are not required to be OPERABLE with
reactor steam dome pressure \leq 150 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Low Pressure Coolant Injection (LPCI) pump inoperable.	A.1 Restore LPCI pump to OPERABLE status.	30 days
B. One LPCI subsystem inoperable for reasons other than Condition A. <u>OR</u> One Core Spray subsystem inoperable.	B.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
C. One LPCI pump in each subsystem inoperable.	C.1 Restore one LPCI pump to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two LPCI subsystems inoperable for reasons other than Condition C.	D.1 Restore one LPCI subsystem to OPERABLE status.	72 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3. <u>AND</u>	12 hours
	E.2 Be in MODE 4.	36 hours
F. HPCI System inoperable.	F.1 Verify by administrative means RCIC System is OPERABLE. <u>AND</u>	Immediately
	F.2 Restore HPCI System to OPERABLE status.	14 days
G. One ADS valve inoperable.	G.1 Restore ADS valve to OPERABLE status.	14 days
H. Required Action and associated Completion Time of Condition F, or G, not met. <u>OR</u> Two or more ADS valves inoperable.	H.1 Be in MODE 3. <u>AND</u>	12 hours
	H.2 Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition C or D.</p> <p><u>OR</u></p> <p>HPCI System and one or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>One or more low pressure ECCS injection/spray subsystems inoperable and one or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>HPCI System inoperable and either one low pressure ECCS injection/spray subsystem is inoperable or Condition C entered.</p>	<p>I.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.1	Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.1.2	<p>-----NOTE-----</p> <p>Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) cut-in permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable.</p> <p>-----</p> <p>Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.</p>	31 days
SR 3.5.1.3	Verify correct breaker alignment to the LPCI swing bus.	31 days
SR 3.5.1.4	Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE					FREQUENCY
SR 3.5.1.5	Verify the following ECCS pumps develop the specified flow rate against a test line pressure corresponding to the specified reactor pressure.				In accordance with the Inservice Testing Program
			TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF		
	<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>NO. OF PUMPS</u>	<u>PRESSURE OF</u>	
	Core				
	Spray	≥ 4500 gpm	1	≥ 90 psig	
	LPCI	≥ 9000 gpm	2	≥ 20 psig	
SR 3.5.1.6	-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----- Verify, with reactor pressure ≤ 1005 and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.				In accordance with the Inservice Testing Program
SR 3.5.1.7	-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----- Verify, with reactor pressure ≤ 180 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.				24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.8	<p>-----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	24 months
SR 3.5.1.9	<p>-----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	24 months
SR 3.5.1.10	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each ADS valve opens when manually actuated.</p>	24 months
SR 3.5.1.11	Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.	24 months
SR 3.5.1.12	Verify ADS pneumatic supply header pressure is ≥ 80 psig.	31 days

Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

-----NOTES-----

1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
 2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to 90% insertion. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."
-

PERCENT INSERTION	SCRAM TIMES ^{(a)(b)} (seconds) when REACTOR STEAM DOME PRESSURE \geq 800 psig for SPC analyzed cores
5	0.36
20	0.84
50	1.86
90	3.25

(a) Maximum scram time from fully withdrawn position based on de-energization of scram pilot valve solenoids at time zero.

(b) Scram times as a function of reactor steam dome pressure when < 800 psig are within established limits.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS – Operating

LCO 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of four relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI)
and ADS valves are not required to be OPERABLE with
reactor steam dome pressure \leq 150 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Low Pressure Coolant Injection (LPCI) pump inoperable.	A.1 Restore LPCI pump to OPERABLE status.	30 days
B. One LPCI subsystem inoperable for reasons other than Condition A. <u>OR</u> One Core Spray subsystem inoperable.	B.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
C. One LPCI pump in each subsystem inoperable.	C.1 Restore one LPCI pump to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two LPCI subsystems inoperable for reasons other than Condition C.	D.1 Restore one LPCI subsystem to OPERABLE status.	72 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3. <u>AND</u>	12 hours
	E.2 Be in MODE 4.	36 hours
F. HPCI System inoperable.	F.1 Verify by administrative means RCIC System is OPERABLE. <u>AND</u>	Immediately
	F.2 Restore HPCI System to OPERABLE status.	14 days
G. HPCI System inoperable. <u>AND</u> One low pressure ECCS injection/spray subsystem is inoperable or Condition C entered.	G.1 Restore HPCI System to OPERABLE status.	72 hours
	<u>OR</u> G.2 Restore low pressure ECCS injection/spray subsystem(s) to OPERABLE status.	72 hours
H. One required ADS valve inoperable.	H.1 Restore ADS valve to OPERABLE status.	14 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. Required Action and associated Completion Time of Condition F, G, or H not met.</p> <p><u>OR</u></p> <p>Two or more required ADS valves inoperable.</p>	<p>I.1 Be in MODE 3.</p> <p><u>AND</u></p> <p>I.2 Reduce reactor steam dome pressure to ≤ 150 psig.</p>	<p>12 hours</p> <p>36 hours</p>
<p>J. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition C or D.</p> <p><u>OR</u></p> <p>HPCI System and one or more required ADS valves inoperable.</p> <p><u>OR</u></p> <p>One or more low pressure ECCS injection/spray subsystems inoperable and one or more required ADS valves inoperable.</p>	<p>J.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.1.1 Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.1.2 -----NOTE----- Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) cut-in permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. ----- Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.1.3 Verify correct breaker alignment to the LPCI swing bus.	31 days
SR 3.5.1.4 Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE					FREQUENCY
SR 3.5.1.5	Verify the following ECCS pumps develop the specified flow rate against a test line pressure corresponding to the specified reactor pressure.				In accordance with the Inservice Testing Program
			TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF		
	<u>SYSTEM</u>	<u>FLOW RATE</u>	<u>NO. OF PUMPS</u>	<u>PRESSURE OF</u>	
	Core				
	Spray	≥ 4500 gpm	1	≥ 90 psig	
	LPCI	≥ 9000 gpm	2	≥ 20 psig	
SR 3.5.1.6	-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----- Verify, with reactor pressure ≤ 1005 and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.				In accordance with the Inservice Testing Program
SR 3.5.1.7	-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. ----- Verify, with reactor pressure ≤ 180 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.				24 months

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.8	<p>-----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	24 months
SR 3.5.1.9	<p>-----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	24 months
SR 3.5.1.10	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each required ADS valve opens when manually actuated.</p>	24 months
SR 3.5.1.11	Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.	24 months

Table 3.1.4-1 (page 1 of 1)
Control Rod Scram Times

- NOTES-----
1. OPERABLE control rods with scram times not within the limits of this Table are considered "slow."
 2. Enter applicable Conditions and Required Actions of LCO 3.1.3, "Control Rod OPERABILITY," for control rods with scram times > 7 seconds to 90% insertion. These control rods are inoperable, in accordance with SR 3.1.3.4, and are not considered "slow."
-

PERCENT INSERTION	SCRAM TIMES ^{(a)(b)} (seconds) when REACTOR STEAM DOME PRESSURE \geq 800 psig for GE analyzed cores
5	0.48
20	0.89
50	1.98
90	3.44

- (a) Maximum scram time from fully withdrawn position based on de-energization of scram pilot valve solenoids at time zero.
- (b) Scram times as a function of reactor steam dome pressure when < 800 psig are within established limits.

3.5 EMERGENCY CORE COOLING SYSTEMS (ECCS) AND REACTOR CORE ISOLATION COOLING (RCIC) SYSTEM

3.5.1 ECCS – Operating

LC0 3.5.1 Each ECCS injection/spray subsystem and the Automatic Depressurization System (ADS) function of five relief valves shall be OPERABLE.

APPLICABILITY: MODE 1,
MODES 2 and 3, except high pressure coolant injection (HPCI)
and ADS valves are not required to be OPERABLE with
reactor steam dome pressure \leq 150 psig.

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
A. One Low Pressure Coolant Injection (LPCI) pump inoperable.	A.1 Restore LPCI pump to OPERABLE status.	30 days
B. One LPCI subsystem inoperable for reasons other than Condition A. <u>OR</u> One Core Spray subsystem inoperable.	B.1 Restore low pressure ECCS injection/spray subsystem to OPERABLE status.	7 days
C. One LPCI pump in each subsystem inoperable.	C.1 Restore one LPCI pump to OPERABLE status.	7 days

(continued)

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
D. Two LPCI subsystems inoperable for reasons other than Condition C.	D.1 Restore one LPCI subsystem to OPERABLE status.	72 hours
E. Required Action and associated Completion Time of Condition A, B, C, or D not met.	E.1 Be in MODE 3. <u>AND</u>	12 hours
	E.2 Be in MODE 4.	36 hours
F. HPCI System inoperable.	F.1 Verify by administrative means RCIC System is OPERABLE. <u>AND</u>	Immediately
	F.2 Restore HPCI System to OPERABLE status.	14 days
G. One ADS valve inoperable.	G.1 Restore ADS valve to OPERABLE status.	14 days
H. Required Action and associated Completion Time of Condition F or G not met. <u>OR</u> Two or more ADS valves inoperable.	H.1 Be in MODE 3. <u>AND</u>	12 hours
	H.2 Reduce reactor steam dome pressure to ≤ 150 psig.	36 hours

ACTIONS

CONDITION	REQUIRED ACTION	COMPLETION TIME
<p>I. Two or more low pressure ECCS injection/spray subsystems inoperable for reasons other than Condition C or D.</p> <p><u>OR</u></p> <p>HPCI System and one or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>One or more low pressure ECCS injection/spray subsystems inoperable and one or more ADS valves inoperable.</p> <p><u>OR</u></p> <p>HPCI System inoperable and either one low pressure ECCS injection/spray subsystem is inoperable or Condition C entered.</p>	<p>I.1 Enter LCO 3.0.3.</p>	<p>Immediately</p>

SURVEILLANCE REQUIREMENTS

SURVEILLANCE	FREQUENCY
SR 3.5.1.1 Verify, for each ECCS injection/spray subsystem, the piping is filled with water from the pump discharge valve to the injection valve.	31 days
SR 3.5.1.2 -----NOTE----- Low pressure coolant injection (LPCI) subsystems may be considered OPERABLE during alignment and operation for decay heat removal with reactor steam dome pressure less than the Residual Heat Removal (RHR) cut-in permissive pressure in MODE 3, if capable of being manually realigned and not otherwise inoperable. ----- Verify each ECCS injection/spray subsystem manual, power operated, and automatic valve in the flow path, that is not locked, sealed, or otherwise secured in position, is in the correct position.	31 days
SR 3.5.1.3 Verify correct breaker alignment to the LPCI swing bus.	31 days
SR 3.5.1.4 Verify each recirculation pump discharge valve cycles through one complete cycle of full travel or is de-energized in the closed position.	In accordance with the Inservice Testing Program

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE				FREQUENCY													
SR 3.5.1.5	Verify the following ECCS pumps develop the specified flow rate against a test line pressure corresponding to the specified reactor pressure.			In accordance with the Inservice Testing Program													
	<table><thead><tr><th>SYSTEM</th><th>FLOW RATE</th><th>NO. OF PUMPS</th><th>TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF</th></tr></thead><tbody><tr><td>Core</td><td></td><td></td><td></td></tr><tr><td>Spray</td><td>≥ 4500 gpm</td><td>1</td><td>≥ 90 psig</td></tr><tr><td>LPCI</td><td>≥ 9000 gpm</td><td>2</td><td>≥ 20 psig</td></tr></tbody></table>	SYSTEM	FLOW RATE		NO. OF PUMPS	TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF	Core				Spray	≥ 4500 gpm	1	≥ 90 psig	LPCI	≥ 9000 gpm	2
SYSTEM	FLOW RATE	NO. OF PUMPS	TEST LINE PRESSURE CORRESPONDING TO A REACTOR PRESSURE OF														
Core																	
Spray	≥ 4500 gpm	1	≥ 90 psig														
LPCI	≥ 9000 gpm	2	≥ 20 psig														
SR 3.5.1.6	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 1005 and ≥ 920 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.</p>			In accordance with the Inservice Testing Program													
SR 3.5.1.7	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify, with reactor pressure ≤ 180 psig, the HPCI pump can develop a flow rate ≥ 5000 gpm against a system head corresponding to reactor pressure.</p>			24 months													

(continued)

SURVEILLANCE REQUIREMENTS

SURVEILLANCE		FREQUENCY
SR 3.5.1.8	<p>-----NOTE----- Vessel injection/spray may be excluded. -----</p> <p>Verify each ECCS injection/spray subsystem actuates on an actual or simulated automatic initiation signal.</p>	24 months
SR 3.5.1.9	<p>-----NOTE----- Valve actuation may be excluded. -----</p> <p>Verify the ADS actuates on an actual or simulated automatic initiation signal.</p>	24 months
SR 3.5.1.10	<p>-----NOTE----- Not required to be performed until 12 hours after reactor steam pressure and flow are adequate to perform the test. -----</p> <p>Verify each ADS valve opens when manually actuated.</p>	24 months
SR 3.5.1.11	Verify automatic transfer capability of the LPCI swing bus power supply from the normal source to the backup source.	24 months
SR 3.5.1.12	Verify ADS pneumatic supply header pressure is \geq 80 psig.	31 days