Entergy

Entergy Nuclear Northeast
Entergy Nuclear Operations, Inc.
James A. Fitzpatrick NPP
P.O. Box 110
Lycoming, NY 13093

Pete Dietrich
Site Vice President

JAFP-09-0086
July 31, 2009

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, D.C. 20555

SUBJECT: Application for Amendment to Modify the Technical Specifications Requirements for Testing of the Shutdown Cooling System Isolation, Reactor Pressure – High Function
James A. FitzPatrick Nuclear Power Plant
Docket No. 50-333
License No. DPR-59

Dear Sir or Madam:

Pursuant to 10 CFR 50.90, Entergy Nuclear Operations, Inc. (Entergy) hereby requests an amendment to the Technical Specifications (TS) for the James A. FitzPatrick Nuclear Power Plant (JAF).

This license amendment submittal requests modifying the TS Surveillance Requirements (SR) for testing of the Residual Heat Removal (RHR) System Shutdown Cooling (SDC) mode Containment Isolation, Reactor Pressure – High Function by replacing the current requirement to perform TS SR 3.3.6.1.3, perform Channel Calibration, with TS SRs 3.3.6.1.1 perform Channel Check, 3.3.6.1.2, perform Channel Functional Test, 3.3.6.1.4, Calibrate the trip units, and 3.3.6.1.5, Perform Channel Calibration. This change in SRs is to support a proposed plant modification to increase the reliability of SDC isolation logic by changing the source of the reactor high pressure input signal.

Attachment 1 provides the Application for Amendment to Modify the Technical Specifications Requirements for Testing of the Shutdown Cooling System Isolation, Reactor Pressure – High Function.
Attachment 2 provides the proposed TS changes as marked up pages.
Attachment 3 provides the proposed TS changes in final typed format with change bars.
Attachment 4 provides the proposed TS Bases changes as marked up pages.

The Bases changes are provided for NRC information only. The final TS Bases pages will be submitted with a future update in accordance with TS 5.5.11, "Technical Specifications (TS) Bases Control Program."

Entergy requests NRC approval of the proposed TS amendment by July 31, 2010, with the amendment being implemented within 60 days from approval.

A001
NRR

In accordance with 10 CFR 50.91, a copy of this application, with the associated attachments, is being provided to the designated New York State official.

There are no new commitments made in this letter.

Questions concerning this report may be addressed to Mr. Joseph Pechacek, Licensing Manager, at (315) 349-6766.

I declare under penalty of perjury that the foregoing is true and correct.

Executed on the 31st day of July 2009.

Sincerely,

Pete Dietrich
Site Vice President

PD/JP/ed

Attachments:
1. Application for Amendment to Modify the Technical Specifications Requirements for Testing of the Shutdown Cooling System Isolation, Reactor Pressure – High Function
2. Proposed TS changes, on current marked up pages
3. Proposed TS changes, on typed final format pages
4. Proposed TS Bases change, as marked up pages (Info Only)

cc: next page

cc:

Regional Administrator, Region I
U. S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406-1415

Resident Inspector's Office
U.S. Nuclear Regulatory Commission
James A. FitzPatrick Nuclear Power Plant
P.O. Box 136
Lycoming, NY 13093

Mr. Bhalchandra Vaidya, Project Manager
Plant Licensing Branch I-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Mail Stop O-8-C2A
Washington, DC 20555-0001

Mr. Paul Eddy
New York State Department of Public Service
3 Empire State Plaza, 10th Floor
Albany, NY 12223

Mr. Francis J. Murray Jr., President
NYSERDA
17 Columbia Circle
Albany, NY 12203-6399

JAFP-09-0086

Attachment 1

Application for Amendment to Modify the Technical Specifications Requirements for Testing of the Shutdown Cooling System Isolation, Reactor Pressure – High Function

1.0 DESCRIPTION

The proposed amendment would revise the Technical Specifications (TS) Surveillance Requirements (SRs) for testing the Residual Heat Removal (RHR) System, Shutdown Cooling (SDC) Isolation Reactor Pressure – High function. This change is necessary to support a plant modification to the SDC isolation logic. The current design uses pressure switches to provide reactor pressure input to the SDC isolation logic. Experience has shown that the pressure switches, due to their location in the system are susceptible to hydraulic pressure transients during system startup that can cause spurious inadvertent system isolations. The plant modification will replace the pressure switch inputs with inputs from existing reactor steam dome pressure transmitters that due to their location are not sensitive to hydraulic pressure transients during system start-up. In order to support this modification, the current 92-day Channel Calibration SR for the pressure switches would be replaced with the SRs associated with the existing plant transmitters that will be modified to supply the reactor pressure input to the SDC isolation logic. The use of alternative instrumentation to supply the reactor pressure input will make the system less susceptible to hydraulic pressure transients and therefore, more reliable.

2.0 PROPOSED CHANGES

Since the proposed modification to the SDC isolation logic consists of changing the source of the reactor pressure inputs to the isolation logic, the TS change is to revise the SRs associated with the SDC Isolation Reactor Pressure - High function. The SDC isolation logic is part of the Primary Containment Isolation System (PCIS) Instrumentation. TS Table 3.3.6.1-1 lists each primary containment isolation function, the Modes of applicability, number of channels required to be operable, applicable conditions if required action times are not met, applicable SRs, and allowable values. Currently TS Table 3.3.6.1-1, Function 6a, Shutdown Cooling System Isolation, Reactor Pressure – High contains the following SRs:
SR 3.3.6.1.3 "Perform Channel Calibration" at a frequency of 92 days
SR 3.3.6.1.7 "Perform Logic System Functional Test" at a frequency of 24 months.

SR 3.3.6.1.3, Channel Calibration, is imposed based on the source of the reactor pressure input to the isolation logic. Since the source of the reactor pressure input is being changed from the current pressure switches to existing pressure transmitters associated with the Analog Transmitter Trip System (ATTS) the required surveillances should be revised to reflect the SRs for the transmitters. Therefore, the proposed change would replace SR 3.3.6.1.3 for the subject function with the four (4) SRs associated with the transmitters. The replacement SRs would be:
SR 3.3.6.1.1"Perform Channel Check" at a frequency of 12 hours
SR 3.3.6.1.2 "Perform Channel Functional Test" at a frequency of 92 days
SR 3.3.6.1.4 "Calibrate the trip units" at a frequency of 184 days
SR 3.3.6.1.5 "Perform Channel Calibration" at a frequency of 24 months

The existing logic system function test requirement SR 3.3.6.1.7 is unaffected by the proposed change.

The TS Bases associated with the SRs are not affected because existing SRs will be used. The TS Bases for primary containment isolation instrumentation function 6a will be revised to reflect the changes in the source of the reactor pressure inputs to the isolation logic.

3.0 BACKGROUND

The shutdown cooling system reactor high pressure isolation function is currently provided by two pressure switches that monitor reactor pressure at the "B" reactor water recirculation piping. The switch logic is arranged such that actuation of one of the two switches will cause the SDC mode of RHR to isolate.

During James A. Fitzpatrick (JAF) plant shutdown conditions, the spurious inadvertent isolation of the SDC mode of RHR, due to hydraulic transients, has randomly occurred during system startup. This has been a longstanding issue at JAF that has resulted in Licensee Event Reports. The most recent inadvertent isolation occurred during refuel outage 18 in the fall of 2008.

The condition was analyzed in late 2008 and it was determined that the sensing location of the existing pressure switches is susceptible to hydraulic pressure transients. The pressure transients occur with the initiation of RHR in the SDC mode of operation. The switches are susceptible to the pressure transients because they sense reactor pressure from the same point that the RHR SDC mode draws suction from the reactor vessel ("B" reactor water recirculation). To resolve this condition, it has been determined that the reactor pressure input for the SDC isolation function must be relocated to a reactor pressure sensing point that is not susceptible to hydraulic pressure transients.

Various alternatives were researched to identify a suitable location for the SDC isolation function. Similar to the Entergy Nuclear Pilgrim Station, JAF will relocate the SDC function to measure reactor pressure through a reactor steam dome pressure measurement. The steam dome pressure analog signal and bistable functions will be provided by transmitters and trip units within the ATTS.

4.0 TECHNICAL ANALYSIS

The steam dome pressure transmitters that will be used to provide the reactor pressure input for the SDC isolation function currently provide a Reactor Protection System (RPS) scram function at JAF. Because the sensing point for these transmitters is not on the recirculation piping, the transmitters are not susceptible to the hydraulic transients that can adversely affect the pressure switches currently used to provide the reactor pressure input to the isolation logic, during system startup. However, the transmitters share process lines with other process sensitive Primary Containment Isolation System (PCIS) and Emergency Core Cooling System (ECCS) instruments. Any pressure perturbation potentially imposed on the shared process lines during calibration could put the plant at risk for an unanticipated logic actuation. As such, the steam dome pressure transmitters are considered high-risk instruments and are routinely scheduled for

calibration when the plant is shutdown.

Technical Specification 3.3.6.1, Primary Containment Isolation Instrumentation, provides the Operability, Required Actions, Completion Times and Surveillance Requirements for the instrumentation. Table 3.3.6.1-1 provides the requirements by function. The SDC Isolation, Reactor Pressure – High, is function 6a. The current SRs associated with this function are Channel Calibration, on a 92-day frequency, and Logic System Functional Test, on a 24-month frequency. Imposition of the existing quarterly channel calibration on the ATTS transmitters, that will be used to provide reactor pressure input to the SDC isolation logic, could result in undue risk on plant safety and operations.

The ATTS is utilized at JAF for many other RPS, PCIS and ECCS functions. These ATTS functions have a typical set of surveillance requirements that are based on the type of equipment. Therefore, the SDC Isolation, Reactor Pressure - High function surveillance requirements should be updated to reflect the type of equipment that will be used to provide the function.

The requested license amendment will apply typical ATTS equipment surveillance requirements to the ATTS equipment that will provide the reactor pressure input to the SDC isolation logic. The typical ATTS surveillance requirements in the TSs are:

- Perform a channel check every 12 hours
- Perform a channel functional test every 92 days
- Calibrate the trip units every 184 days
- Perform a channel calibration every 24 months
- Perform a logic system functional test every 24 months

Two steam dome pressure transmitters and two slave trip units will provide the SDC Isolation, Reactor Pressure - High function. The steam dome pressure transmitters that will be used currently provide the reactor high pressure scram function through master trip units. This function is required per TS Table 3.3.1.1-1 Function 3. The surveillance requirements for the reactor high pressure scram function are:

SR 3.3.1.1.1 – "Perform Channel Check" at a frequency of 12 hours
SR 3.3.1.1.4 – "Perform a functional test of each RPS automatic scram contactor" at a frequency of 7 days
SR 3.3.1.1.8 – "Perform Channel Functional Test" at a frequency of 92 days
SR 3.3.1.1.10 – "Calibrate the trip units" at a frequency of 184 days
SR 3.3.1.1.12 – "Perform Channel Calibration" at a frequency of 24 months
SR 3.3.1.1.13 – "Perform Logic System Functional Test" at a frequency of 24 months
SR 3.3.1.1.15 – "Verify the RPS response time is within limits" at a frequency of 24 months on a staggered test basis

Of the seven SRs imposed on the reactor high pressure scram function, all SRs will be applied to the SDC Isolation, Reactor Pressure - High function except those that are RPS specific. Application of RPS specific SRs 3.3.1.1.4 and 3.3.1.15 to the SDC Isolation, Reactor Pressure - High function is not required due to their inherent association with RPS.

The TS surveillance requirements associated with the ATTS were originally based on Licensing Topical Report NEDO-21617-A, Analog Transmitter / Trip Unit System for Engineered Safeguard Sensor Trip Inputs. This Topical Report has been reviewed and

accepted by the Commission. JAF license Amendment 89 added the ATTS to the JAF license and used NEDO-21617-A as technical basis. Subsequent Amendment 227 was issued and revised the ATTS channel functional test frequency from every 30 days to every 92 days. With Amendment 274, Fitzpatrick converted from Custom Technical Specifications (CTS) to Improved Technical Specifications (ITS). The conversion to ITS maintained the ATTS surveillance requirements consistent with those that were in the CTS. JAF's Technical Specifications are formatted in accordance with the BWR/4 Standard Technical Specifications NUREG-1433. The proposed amendment request will impose SRs on PCIS function 6a consistent with those that have been previously reviewed and approved by the commission, for the transmitters that will be used to provide the input to the isolation logic.

5.0 REGULATORY SAFETY ANALYSIS

5.1 No Significant Hazards Consideration

1. Will operation of the facility in accordance with this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

Response: No.

The proposed change modifies the SRs that demonstrate the operability of the SDC Isolation, Reactor Pressure - High function. The current surveillance requirements include a 92-day calibration and a 24-month logic system functional test. These surveillance requirements are typical for pressure switches installed on dedicated process measurement lines. The proposed change in surveillance requirements is consistent with the use of ATTS transmitters installed on shared process measurement lines. The proposed surveillance requirements include the standard requirements applied to all ATTS equipment and thus will result in acceptable demonstration of the operability of the SDC Isolation Reactor Pressure - High function.

The ATTS equipment that will be used for the SDC Isolation, Reactor Pressure - High function is classified as safety related and is environmentally qualified. The logic input configuration of the ATTS equipment will be the same as the configuration of the pressure switches. This will assure the same functionality currently performed by the pressure switches currently used for the SDC Isolation Reactor Pressure - High function. The reliability of the ATTS has been proven in other RPS, PCIS and ECCS functions and is comparable to the reliability of the pressure switches that currently perform the SDC Isolation, Reactor Pressure - High function. Therefore, the consequences of any accident mitigated by the SDC Isolation, Reactor Pressure - High function will not increase.

Based on these considerations, the proposed surveillance requirement changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

2. Will operation of the facility in accordance with this proposed change create the possibility of a new or different kind of accident from any accident previously evaluated?

Response: No.

The proposed change aligns the TS surveillance requirements with the type of equipment that will be used to supply the reactor pressure input to the SDC Isolation Reactor Pressure - High logic. Since the transmitters that will be used to supply the reactor pressure input are currently installed equipment there are no new accidents introduced by the equipment. The proposed change in SRs aligns the requirements with the requirements currently imposed on the equipment in other JAF TS applications. The performance of the SDC Isolation, Reactor Pressure - High function, is not altered by changing the input source for reactor pressure parameter. Redundant power sources within the ATTS assure the functionality of the system during all plant operating modes that require the SDC Isolation, Reactor Pressure - High function. The proposed change will not introduce any new failure modes and, therefore, does not create the possibility of a new or different kind of accident from any accident previously evaluated.

3. Will operation of the facility in accordance with this proposed change involve a significant reduction in a margin of safety?

Response: No.

The TS surveillance requirements that will be imposed on the SDC Isolation, Reactor Pressure - High function reflect the equipment that will perform that function. The proposed change in surveillance requirements will appropriately demonstrate the operability of the SDC Isolation, Reactor Pressure - High function.

Since the proposed changes to the SRs are consistent with the SRs for ATTS transmitters in other RPS, PCIS, and ECCS applications the proposed requirements have been demonstrated to provide an adequate margin of safety. Therefore, the proposed change does not involve a significant reduction in any margin of safety.

5.2 Applicable Regulatory Requirements / Criteria

10 CFR 50.36 requires in part that the operating license of a nuclear production facility include technical specifications. Paragraph (c)(2)(ii) of that part requires that a limiting condition for operation of a nuclear reactor must be established for each item meeting one or more of four criteria; the SDC Isolation, Reactor Pressure - High function identified in LCO 3.3.6.1 meets Criterion 3, "A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier." Paragraph (c)(3) further requires the establishment of surveillance requirements, "relating to test, calibration, or inspection to assure...that the limiting conditions for operation will be met." As discussed above, the proposed changes in the surveillance requirements for the SDC Isolation, Reactor

Pressure - High function are sufficient to demonstrate the operability of the function and are, therefore, sufficient to assure that the limiting conditions for operation will be met.

In conclusion, based on the considerations discussed above, (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 approval of the proposed change will not be inimical to the common defense and security or to the health and safety of the public.

6.0 ENVIRONMENTAL ASSESSMENT

A review has determined that the proposed changes would change a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or would change an inspection or surveillance requirement. However, the proposed changes do not involve: (i) a significant hazards consideration; (ii) a significant change in the types or significant increase in the amounts of any effluents that may be released offsite; or (iii) a significant increase in individual or cumulative occupational radiation exposure. Accordingly, the proposed changes meet the eligibility criterion for categorical exclusion set forth in 10 CFR 51.22(c)(9). Therefore, pursuant to 10 CFR 51.22(b), no environmental impact statement or environmental assessment need be prepared in connection with the proposed changes.

7.0 PRECEDENT

The NRC has approved typical surveillance requirements for ATTS equipment with previous Amendments to the Fitzpatrick License. The previous Amendments include Amendment 89 dated May 7, 1985, Amendment 227 dated Sept 11, 1995 and Amendment 274 dated July 3, 2002. The proposed changes in surveillance requirements for the SDC Isolation, Reactor Pressure - High function are consistent with those previously approved for ATTS equipment.

JAFP-09-0086

Attachment 2

Proposed Technical Specification Changes (Marked up)

Page

3.3.6.1-10

Table 3.3.6.1-1 (page 5 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. RWCU Suction Line Penetration Area Temperature — High	1,2,3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 144°F
b. RWCU Pump Area Temperature — High	1,2,3	1 per room	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 165°F for Pump Room A and ≤ 175°F for Pump Room B
c. RWCU Heat Exchanger Room Area Temperature — High	1,2,3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 155°F
d. SLC System Initiation	1,2	2(d)	I	SR 3.3.6.1.7	NA
e. Reactor Vessel Water Level — Low (Level 3)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 177 inches
f. Drywell Pressure — High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 2.7 psig
6. Shutdown Cooling System Isolation					
a. Reactor Pressure — High	1,2,3	1	F	~~SR 3.3.6.1.3~~ SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 74 psig
b. Reactor Vessel Water Level — Low (Level 3)	3,4,5	2(e)	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 177 inches

(continued)

(d) SLC System Initiation only inputs into one of the two trip systems and only isolates one valve in the RWCU suction and return line.

(e) Only one trip system required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.

JAFP-09-0086

Attachment 3

Proposed Technical Specification Changes
(Final Typed)

Page

Table 3.3.6.1-10

Table 3.3.6.1-1 (page 5 of 6)
Primary Containment Isolation Instrumentation

FUNCTION	APPLICABLE MODES OR OTHER SPECIFIED CONDITIONS	REQUIRED CHANNELS PER TRIP SYSTEM	CONDITIONS REFERENCED FROM REQUIRED ACTION C.1	SURVEILLANCE REQUIREMENTS	ALLOWABLE VALUE
5. Reactor Water Cleanup (RWCU) System Isolation					
a. RWCU Suction Line Penetration Area Temperature — High	1,2,3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 144°F
b. RWCU Pump Area Temperature — High	1,2,3	1 per room	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 165°F for Pump Room A and ≤ 175°F for Pump Room B
c. RWCU Heat Exchanger Room Area Temperature — High	1,2,3	1	F	SR 3.3.6.1.3 SR 3.3.6.1.7	≤ 155°F
d. SLC System Initiation	1,2	2(d)	I	SR 3.3.6.1.7	NA
e. Reactor Vessel Water Level — Low (Level 3)	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 177 inches
f. Drywell Pressure — High	1,2,3	2	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 2.7 psig
6. Shutdown Cooling System Isolation					
a. Reactor Pressure — High	1,2,3	1	F	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≤ 74 psig
b. Reactor Vessel Water Level — Low (Level 3)	3,4,5	2(e)	J	SR 3.3.6.1.1 SR 3.3.6.1.2 SR 3.3.6.1.4 SR 3.3.6.1.5 SR 3.3.6.1.7	≥ 177 inches

(continued)

(d) SLC System Initiation only inputs into one of the two trip systems and only isolates one valve in the RWCU suction and return line.

(e) Only one trip system required in MODES 4 and 5 when RHR Shutdown Cooling System integrity maintained.

JAFP-09-0086

Attachment 4

Proposed Technical Specification Bases Changes (Marked up)
(Information Only)

Pages

B 3.3.6.1-21
B 3.3.6.1-22

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

5.e. Reactor Vessel Water Level—Low (Level 3) (continued)

352.56 inches above the lowest point in the inside bottom of the RPV and also corresponds to the top of a 144 inch fuel column (Ref. 13).

This Function isolates both RWCU suction valves and the RWCU return valve.

5.f. Drywell Pressure—High

High drywell pressure can indicate a break in the RCPB inside the primary containment. The isolation of some of the primary containment isolation valves on high drywell pressure supports actions to ensure that offsite dose limits of 10 CFR 100 are not exceeded. The Drywell Pressure—High Function, associated with isolation of the primary containment, is implicitly assumed in the UFSAR accident analysis as these leakage paths are assumed to be isolated post LOCA.

High drywell pressure signals are initiated from pressure transmitters that sense the pressure in the drywell. Four channels of Drywell Pressure—High are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function.

The Allowable value was selected to be as low as possible without inducing spurious trips. The Allowable Value is chosen to be the same as the RPS Drywell Pressure—High Allowable Value (LCO 3.3.1.1), since this may be indicative of a LOCA inside primary containment.

This Function isolates both RWCU suction valves and one RWCU return valve.

6.a. Reactor Pressure—High

The Reactor Pressure—High Function is provided to isolate the shutdown cooling portion of the Residual Heat Removal (RHR) System. This interlock Function is provided only for equipment protection to prevent an intersystem LOCA scenario, and credit for the interlock is not assumed in the accident or transient analysis in the UFSAR.

The Reactor Pressure—High signals are initiated from two ~~pressure switches that are connected to different taps on~~ reactor steam dome pressure transmitters that are connected to different condensing chambers through trip units.

(continued)

BASES

APPLICABLE SAFETY ANALYSES, LCO, and APPLICABILITY

6.a. Reactor Pressure—High (continued)

~~reactor recirculation pump B suction line.~~ Each ~~switch~~ trip unit provides input to each trip system. However, only one channel input is required to be OPERABLE for a trip system to be considered OPERABLE. Two channels of Reactor Pressure—High Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. The Function is only required to be OPERABLE in MODES 1, 2, and 3, since these are the only MODES in which the reactor can be pressurized; thus, equipment protection is needed.

The Allowable Value was chosen to be low enough to protect the system equipment from overpressurization.

This Function isolates both RHR shutdown cooling pump suction valves.

6.b. Reactor Vessel Water Level—Low (Level 3)

Low RPV water level indicates that the capability to cool the fuel may be threatened. Should RPV water level decrease too far, fuel damage could result. Therefore, isolation of some reactor vessel interfaces occurs to begin isolating the potential sources of a break. The Reactor Vessel Water Level—Low (Level 3) Function associated with RHR Shutdown Cooling System isolation is not directly assumed in safety analyses because a break of the RHR Shutdown Cooling System is bounded by breaks of the reactor water recirculation system and MSL. The RHR Shutdown Cooling System isolation on Level 3 supports actions to ensure that the RPV water level does not drop below the top of the active fuel during a vessel draindown event caused by a leak (e.g., pipe break or inadvertent valve opening) in the RHR Shutdown Cooling System.

Reactor Vessel Water Level—Low (Level 3) signals are initiated from four level transmitters that sense the difference between the pressure due to a constant column of water (reference leg) and the pressure due to the actual water level (variable leg) in the vessel. Four channels (two channels per trip system) of the Reactor Vessel Water Level—Low (Level 3) Function are available and are required to be OPERABLE to ensure that no single instrument failure can preclude the isolation function. As noted (footnote (e) to Table 3.3.6.1-1), only one trip system of the Reactor Vessel Water Level—Low (Level 3) Function are required to

(continued)