ATTACHMENT

PROPOSED TECHNICAL SPECIFICATION

AND

RESPECTIVE SAFETY ANALYSES

IN THE MATTER OF AMENDING

LICENSE NO. NFP-6

ENTERGY OPERATIONS, INC.

ARKANSAS NUCLEAR ONE, UNIT TWO

DOCKET NO. 50-368

DESCRIPTION OF PROPOSED CHANGES

The proposed Technical Specifications (TS) changes revise TS Table 2.2-1 Reactor Protective Instrumentation Trip Setpoint Limits and TS Table 3.3-4 Engineered Safety Feature Actuation System Instrumentation Trip Values as follows:

1) TS Table 2.2-1

   a) change Containment Pressure - High Trip Setpoint from $\leq$ 18.4 psia to read $\leq$ 18.3 psia,

   b) change Containment Pressure - High Allowable Value from $\leq$ 19.024 psia to read $\leq$ 18.490 psia,

2) TS Table 3.3-4

   a) change Safety Injection (SIAS) Containment Pressure - High Trip Setpoint from $\leq$ 18.4 psia to read $\leq$ 18.3 psia,

   b) change Safety Injection (SIAS) Containment Pressure - High Allowable Value from $\leq$ 19.024 psia to read $\leq$ 18.490 psia,

   c) change Containment Spray (CSAS) Containment Pressure-High-High Allowable Value from $\leq$ 23.624 psia to read $\leq$ 23.490 psia,

   d) change Containment Isolation (CIAS) Containment Pressure - High Trip Setpoint from $\leq$ 18.4 psia to read $\leq$ 18.3 psia,

   e) change Containment Isolation (CIAS) Containment Pressure - High Allowable Value from $\leq$ 19.024 psia to read $\leq$ 18.490 psia,

   f) change Containment Cooling (CCAS) Containment Pressure - High Trip Value from $\leq$ 18.4 psia to read $\leq$ 18.3 psia, and

   g) change Containment Cooling (CCAS) Containment Pressure - High Allowable Value from $\leq$ 19.024 psia to read $\leq$ 18.490 psia.

BACKGROUND

The four (4) transmitters for narrow range containment building pressure provide input signals to the Reactor Protection System (RPS) and Engineered Safety Feature Actuation System (ESFAS) portions of the Plant Protective System (PPS), and are used in the generation of the following trips and actuations:

1) RPS High Containment Pressure Trip,

2) Initiation of the Safety Injection Actuation Signal (SIAS) portion of ESFAS on High Containment Pressure,

3) Initiation of the Containment Isolation Actuation Signal (CIAS) portion of ESFAS on High Containment Pressure,

4) Initiation of the Containment Cooling Actuation Signal (CCAS) portion of ESFAS on High Containment Pressure, and

5) Initiation of the Containment Spray Actuation Signal (CSAS) portion of ESFAS on High-High Containment Pressure.

The narrow range containment pressure transmitters are also used as one of the inputs necessary for ensuring compliance with TS 3.6.1.4 requirements for containment building pressure, temperature, and humidity as determined from TS Figure 3.6-1 Containment Internal Pressure vs. Containment Average Air Temperature.

In addition to the four (4) narrow range containment building pressure transmitters, the ANO-2 containment building is also equipped with two (2) NRC Reg Guide 1.97 wide range (0 to 210 psia) containment building pressure transmitters.

The existing narrow range containment building pressure transmitters require replacement due to transmitter obsolescence, spare parts unavailability, and end of environmental qualified life. The existing Rosemount 1153 series A range code 6 pressure transmitters will be replaced with Rosemount 1153 series D range code 5 pressure transmitters.

DISCUSSION OF CHANGES

The existing Rosemount 1153 series A range code 6 narrow range containment building pressure transmitters have a calibrated range of 0-70 psia. Using the Rosemount 1153 series D range code 6 pressure transmitters with a 0-70 psia range would have resulted in a large apparent reduction in operating margin with regard to TS related RPS and ESFAS High and High-High containment building pressure trip/actuation setpoints. This reduction in operating margin with regard to the TS setpoints was attributed to an increase in instrument loop errors caused by the use of currently accepted loop error methodology and calculation assumptions. The statistical method of the square root of the sum of squares was used to determine the random error on a component level and for the loop. Non-random errors were combined algebraically with the random error term to establish total error. Although ANO has not committed to strict compliance with the requirements of ISA-S67.04-1988 "Setpoints for Nuclear Safety-Related Instrumentation Used in Nuclear Power Plants," these guidelines were considered in calculating the loop errors, periodic test errors (PTE), and allowable values associated with the narrow range containment building pressure transmitters.

As part of a coordinated effort to reduce instrument uncertainty, it was determined that the calculated loop error magnitudes for the replacement pressure transmitters could be reduced by using a smaller calibrated range span and by using a lower range code. As a result, the replacement Rosemount transmitters (1153 series D) will use a range code 5 instead of a range code 6, and will be calibrated for a 0-27 psia range instead of a 0-70 psia range.

This smaller range presents no conflict for the existing High or High-High setpoints after subtracting the calculated errors from the actual pressure limits. The narrow range containment building pressure transmitters are not used for integrated leak rate testing (ILRT) and, therefore are not required to read containment building pressure at the test pressure for the ILRT. The 0-27 psia range remains above all associated setpoints and higher pressure monitoring (in excess of 27 psia) of the containment building pressure is still available by way of the two (2) NRC Reg Guide 1.97 wide range containment building pressure transmitters.

In order to account for the slightly larger loop error magnitudes calculated for the replacement containment building pressure transmitters (the Rosemount 1153 series D range code 5) as compared to the existing transmitters' (the Rosemount 1153 series A range code 6), it is necessary to reduce the TS setpoints listed in TS Table 2.2-1 and TS Table 3.3-4 for the following setpoints:

1) RPS Trip on High Containment Pressure,

2) ESFAS actuation of SIAS on High Containment Pressure,

3) ESFAS actuation of CIAS on High Containment Pressure, and

4) ESFAS actuation of CCAS on High Containment Pressure.

In addition, the Allowable Values listed in TS Table 2.2-1 and TS Table 3.3-4 will be revised to reflect the effects of the new calculated instrument loop errors for the replacement transmitters and the PTE for the following signals:

1) RPS Trip on High Containment Pressure

2) ESFAS actuation of SIAS on High Containment Pressure,

3) ESFAS actuation of CIAS on High Containment Pressure,

4) ESFAS actuation of CCAS on High Containment Pressure, and

5) ESFAS actuation of CSAS on High-High Containment Pressure.

The measurement channel information and actions listed in TS Table 3.3-1 Reactor Protective Instrumentation and TS Table 3.3-3 Engineered Safety Feature Actuation System Instrumentation are not affected by this change. In addition, the response times listed in TS Table 3.3-2 Reactor Protective Instrumentation Response Times and TS Table 3.3-5 Engineered Safety Features Response Times will remain unchanged as the response times for the new transmitters are equal to the response times for the existing transmitters.

DETERMINATION OF SIGNIFICANT HAZARDS

An evaluation of the proposed change has been performed in accordance with 10CFR50.91(a)(1) regarding no significant hazards considerations using the standards in 10CFR50.92(c). A discussion of these standards as they relate to this amendment request follows:

Criterion 1 - Does Not Involve a Significant Increase in the Probability or Consequences of an Accident Previously Evaluated

The containment building pressure parameter is used to mitigate the effects of an accident that causes a release of energy into the containment building such as a secondary line break (Main Steam line or Main Feedwater line) or a primary loss of coolant (LOCA). The purpose of the containment building narrow range pressure transmitters is to provide an input signal to the Containment Pressure - High trip bistable in the RPS and to the Containment Pressure - High and High-High trip bistables in the ESFAS. The generation of the RPS trip function and the ESFAS functions (SIAS, CIAS, CCAS,and CSAS) is dependent upon the setpoint values for the High and/or High-High containment building pressure bistables. The setpoints are revised to account for the slightly larger calculated instrument loop errors associated with the replacement transmitters. Currently accepted loop error methodology and calculation assumptions were used and resulted in the larger instrument loop errors. In addition, the Allowable Values associated with these functions are being revised to account for the effect of the loop errors upon the PTE and the lowered setpoints. The reduction of the setpoint values maintains the analytical limits used in determining the existing trip/actuation values.

Therefore, this change does not involve a significant increase in the probability or consequences of an accident previously evaluated.

Criterion 2 - Does Not Create the Possibility of a New or Different Kind of Accident from Any Previously Evaluated

This change deals with changing the Containment Pressure High and High-High setpoints and allowable values for the associated functions of the RPS and ESFAS due to the replacement of the existing containment building pressure transmitters. No modifications to the instrument loop configurations will be made, and no additional electrical or physical interfaces with equipment whose malfunction or failure could initiate an accident will be created. The purpose of the instrument loops to provide input to the systems used to mitigate the consequences of previously evaluated accidents is unchanged. The existing evaluations and failure analyses in the ANO-2 SAR are unchanged.

Therefore, this change does not create the possibility of a new or different kind of accident from any previously evaluated.

Criterion 3 - Does Not Involve a Significant Reduction in the Margin of Safety

The safety functions of the RPS and ESFAS setpoints associated with containment building pressure are not altered as a result of the setpoint and allowable value changes. The setpoints and allowable values are revised to account for slightly larger calculated instrument loop errors associated with the replacement transmitters. Currently accepted loop error methodology and calculation assumptions were used and resulted in the larger instrument loop errors. The existing analytical limits used in determining the trip/actuation values are maintained with the new setpoint values.

The measurement channel information and actions listed in TS Table 3.3-1 Reactor Protective Instrumentation and TS Table 3.3-3 Engineered Safety Feature Actuation System Instrumentation are not affected by this change. In addition, the response times listed in TS Table 3.3-2 Reactor Protective Instrumentation Response Times and TS Table 3.3-5 Engineered Safety Features Response Times will remain unchanged as the response times for the new pressure transmitters are equal to the response times for the existing pressure transmitters.

Therefore, this change does not involve a significant reduction in the margin of safety.

Based upon the reasoning presented above and the previous discussion of the amendment request, Entergy Operations has determined that the requested change does not involve a significant hazards consideration.

PROPOSED TECHNICAL SPECIFICATION CHANGES

TABLE 2.2-1

REACTOR PROTECTIVE INSTRUMENTATION TRIP SETPOINT LIMITS

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. Manual Reactor Trip	Not Applicable	Not Applicable
2. Linear Power Level - High		
a. Four Reactor Coolant Pumps Operating	≤ 110% of RATED THERMAL POWER	≤ 110.712% of RATED THERMAL POWER
b. Three Reactor Coolant Pumps Operating	*	*
c. Two Reactor Coolant Pumps Operating - Same Loop	*	*
d. Two Reactor Coolant Pumps Operating - Opposite Loops	*	*
3. Logarithmic Power Level - High (1)	≤0.75% of RATED THERMAL POWER	≤ 0.819% of RATED THERMAL POWER
4. Pressurizer Pressure - High	≤ 2362 psia	≤ 2370.887 psia
5. Pressurizer Pressure - Low	≥ 1766 psia (2)	≥ 1712.757 psia (2)
6. Containment Pressure - High	≤ 18.3 psia	≤ 18.490 psia
7. Steam Generator Pressure - Low	≥ 751 psia (3)	≥ 729.613 psia (3)
8. Steam Generator Level - Low	≥ 23% (4)	≥ 22.111 (4)

* These values left blank pending NRC approval of safety analyses for operation with less than four reactor coolant pumps operating.

TABLE 3.3-4

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

FUNCTIONAL UNIT	TRIP SETPOINT	ALLOWABLE VALUES
1. SAFETY INJECTION (SIAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 18.3 psia	≤ 18.490 psia
c. Pressurizer Pressure -Low	≥1766 psia (1)	≥1712.757 psia (1)
2. CONTAINMENT SPRAY (CSAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure -- High-High	≤ 23.3 psia	≤ 23.490 psia
3. CONTAINMENT ISOLATION (CIAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Containment Pressure - High	≤ 18.3 psia	≤ 18.490 psia

TABLE 3.3-4 (Continued)

ENGINEERED SAFETY FEATURE ACTUATION SYSTEM INSTRUMENTATION TRIP VALUES

FUNCTIONAL UNIT	TRIP VALUE	ALLOWABLE VALUES
4. MAIN STREAM AND FEEDWATER ISOLATION (MSIS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Steam Generator Pressure - Low	≥ 751 psia (2)	≥ 729.613 psia (2)
5. CONTAINMENT COOLING (CCAS)		
a. Manual (Trip Buttons)	Not Applicable	Not applicable
b. Containment Pressure - High	≤ 18.3 psia	≤ 18.490 psia
c. Pressurizer Pressure - Low	≥ 1766 psia (1)	≥1712.757 psia (1)
6. RECIRCULATION (RAS)		
a. Manual (Trip Buttons)	Not Applicable	Not Applicable
b. Refueling Water Tank - Low	54,400 ± 2,370 gallons (equivalent to 6.0 ± 0.5% indicated level)	between 51,050 and 58,600 gallons (equivalent to between 5.111% and 6.889% indicated level)
7. LOSS OF POWER		
a. 4.16 kv Emergency Bus Undervoltage (Loss of Voltage)	3120 volts (4)	3120 volts (4)
b. 460 volt Emergency Bus Undervoltage (Degraded Voltage)	423 ± 2.0 volts with an 8.0 ± 0.5 second time delay	423 ± 4.0 volts with an 8.0 ± 0.8 second time delay