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November 16, 1999

SVP-99-205

U. S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

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: Request for Technical Specifications Change
Reactor Protection System Instrumentation
Reactor Vessel Steam Dome Pressure - High

In accordance with 10 CFR 50.90 we request a change to the Technical Specifications (TS) of Facility License Nos. DPR-29 and DPR-30 for the Quad Cities Nuclear Power Station, Units 1 and 2 respectively. The proposed change is to TS Section 3/4.1.A, "Reactor Protection System."

The proposed change modifies the Surveillance Requirements for Reactor Protection System (RPS) Functional Unit 3, "Reactor Vessel Steam Dome Pressure-High." This change supports a planned upgrade to the Reactor Vessel Steam Dome Pressure-High instrumentation from pressure switches (Barksdale) to analog trip units (Rosemount). Analog trip units are a proven technology that are more reliable than the existing pressure switches. Analog trip units are used in various applications at Quad Cities Nuclear Power Station, including the RPS low water level trip function. The plant design changes are scheduled to be implemented during the next refueling outage on Unit 2; therefore, ComEd requests approval of this amendment by January 20, 2000. A similar design change will be implemented on Unit 1 during the 16th refueling outage scheduled to begin in October 2000.

This request is subdivided as follows:

1. Attachment A gives a description and safety analysis of the proposed changes,
2. Attachment B includes the marked-up TS pages with the requested changes indicated,
3. Attachment C provides information supporting a finding of no significant hazards consideration in accordance with 10 CFR 50.92(c),
4. Attachment D provides information supporting and Environmental Assessment.

PDL A100014 0500254
A Unicom Company

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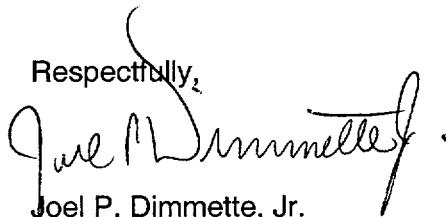
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Page 2

These proposed changes have been reviewed by the Plant Operations Review Committee and the Nuclear Safety Review Board in accordance with the Quality Assurance program.

ComEd is notifying the State of Illinois of this application request for changes to the TS by transmitting a copy of this letter and its attachments to the designated State Official.

Should you have any questions concerning his letter, please contact Mr. C.C. Peterson at (309) 654-2241, extension 3609.

Respectfully,



Joel P. Dimmette, Jr.
Site Vice President
Quad Cities Nuclear Power Station

Attachments

Affidavit

Attachment A: Description and Safety Analysis for Proposed Changes

Attachment B: Marked-Up TS Pages for Proposed Changes

Attachment C: Information Supporting a Finding of No Significant Hazards
Consideration

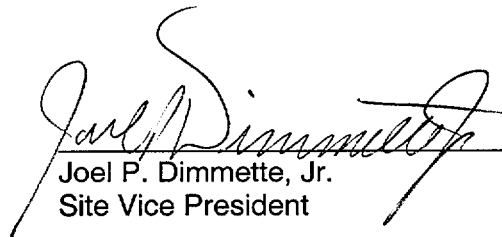
Attachment D: Information Supporting an Environmental Assessment

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

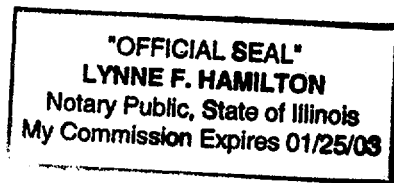
STATE OF ILLINOIS)
COUNTY OF ROCK ISLAND)
IN THE MATTER OF)
COMMONWEALTH EDISON (COMED) COMPANY) Docket Numbers
QUAD CITIES NUCLEAR POWER STATION UNITS 1 and 2) 50-254 and 50-265
SUBJECT: Request for Technical Specifications Change
Reactor Protection System Instrumentation
Reactor Vessel Steam Dome Pressure - High


AFFIDAVIT

I affirm that the content of this transmittal is true and correct to the best of my knowledge, information and belief.


Joel P. Dimmette, Jr.
Site Vice President

Subscribed and sworn to before me, a Notary Public in and
for the State above named, this 16th day of
November, 1999.




Lynne F. Hamilton
Notary Public

**ATTACHMENT A, Proposed Change to Technical Specifications
Quad Cities Nuclear Power Station Units 1 and 2, Page 1 of 5**

**DESCRIPTION AND SAFETY ANALYSIS
FOR PROPOSED CHANGES**

A. SUMMARY OF PROPOSED CHANGES

In accordance with 10 CFR 50.90, ComEd is proposing a change to the Technical Specifications (TS) of Facility License Nos. DPR-29 and DPR-30 for the Quad Cities Nuclear Power Station, Units 1 and 2 respectively. The proposed change is to TS Section 3/4.1.A, "Reactor Protection System."

The proposed change modifies the Surveillance Requirements for Reactor Protection System (RPS) Functional Unit 3, "Reactor Vessel Steam Dome Pressure – High." This change adds a CHANNEL CHECK requirement to support a planned upgrade to the Reactor Vessel Steam Dome Pressure – High instrumentation from pressure switches (Barksdale) to analog trip units (Rosemount). The change also adds a 31-day trip unit calibration consistent with other installed analog trip unit devices. The plant design changes are scheduled to be implemented during the next refueling outages on Unit 1 and Unit 2. Therefore, ComEd requests approval of this amendment by January 20, 2000.

The proposed changes are described in detail in Section E of this Attachment. The marked up TS pages are shown in Attachment B.

B. DESCRIPTION OF THE CURRENT REQUIREMENTS

TS Section 3/4.1.A, "Reactor Protection System," provides the requirements for RPS instrumentation. TS Table 4.1.A-1, "Reactor Protection System Instrumentation Surveillance Requirements," establishes the Surveillance Requirements for the RPS Functional Units, including Functional Unit 3, "Reactor Vessel Steam Dome Pressure – High" trip function. The surveillance requirements include applicable OPERATIONAL MODES and the surveillance frequencies for CHANNEL CHECK, CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION. The specific requirements for Functional Unit 3 are as follows:

Functional Unit	Applicable OPERATIONAL MODES	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION
<i>3. Reactor Vessel Steam Dome Pressure – High</i>	1, 2 ⁽¹⁾	NA	M	Q

**ATTACHMENT A, Proposed Change to Technical Specifications
Quad Cities Nuclear Power Station Units 1 and 2, Page 2 of 5**

Note that the operational modes requirement is modified by Table 4.1.A-1, footnote (i) such that the function is not required to be OPERABLE when the reactor head is unbolted or removed. In addition, the CHANNEL CHECK requirements are not applicable because the current instrumentation (Barksdale pressure switches) are non-indicating and does not provide for a CHANNEL CHECK.

C. BASES FOR THE CURRENT REQUIREMENT

The protection and monitoring functions of the RPS have been designed to ensure safe operation of the reactor. The RPS initiates a reactor scram when one or more monitored parameters exceed their specified limits, to preserve the integrity of the fuel cladding and the Reactor Coolant System (RCS) and minimize the energy that must be absorbed following a loss of coolant accident (LOCA).

The TS require instrumentation important to safety, including RPS, to be tested at a specified interval to ensure a high degree of safety system reliability. A CHANNEL CHECK is defined as a qualitative assessment, by observation, of channel behavior during operation. This determination shall include, where possible, comparison of the channel indication and status to other indications or status derived from independent instrument channels measuring the same parameter. A periodic CHANNEL CALIBRATION is also required to ensure the instrument is operating in accordance with design basis requirements.

The current instrumentation for Functional Unit 3 utilizes Barksdale pressure switches. The Barksdale pressure switches do not provide the necessary indication output to observe channel behavior during operation. For this reason, the current TS do not provide a CHANNEL CHECK requirement. In addition, a periodic calibration of the trip units is not required because the Barksdale pressure switches provide direct input into the RPS and do not utilize analog trip unit devices.

D. NEED FOR REVISION OF THE REQUIREMENT

The current Reactor Vessel Steam Dome – High trip function instrumentation employs Barksdale pressure switches, which are extremely sensitive to vibration. They are also difficult to calibrate and have a tendency to drift. Since the pressure switches provide the logic actuation contacts for a RPS trip, any false indication may initiate a spurious half scram.

The existing Barksdale Reactor Vessel Steam Dome Pressure - High scram switches will be replaced with Rosemount pressure transmitters that will utilize an analog trip unit and a Master Trip relay to interface with the existing Reactor Protection System (RPS) logic. The replacement Rosemount pressure transmitter trip units have a higher reliability and thus will give a more accurate indication of reactor vessel pressure. (Note that ComEd has completed a setpoint calculation for the upgraded instrumentation to ensure the TS calibration intervals are appropriate for the upgraded instrumentation).

**ATTACHMENT A, Proposed Change to Technical Specifications
Quad Cities Nuclear Power Station Units 1 and 2, Page 3 of 5**

The overall effect of this activity is to provide an identical function as the previous Reactor Vessel Steam Dome Pressure - High RPS Trip. The design will maintain compliance with the commitments identified in the UFSAR for RPS and Analog Trip system instrumentation. The change will provide increased reliability and better overall performance of the trip function.

In order to accommodate the design change, a TS change is required to add a CHANNEL CHECK requirement. The original Barksdale pressure switch design does not provide an output indication suitable for a CHANNEL CHECK. Therefore, the TS CHANNEL CHECK requirement is NA. The Rosemount design will provide an output indication that is used to perform a CHANNEL CHECK similar to other analog trip devices (for example, Functional Unit 4, "Reactor Vessel Water Level – Low"). In addition, to maintain consistency with other analog trip devices, the trip units will be calibrated every 31-days. These proposed changes align the Surveillance Requirements for Functional Unit 3 with other instruments with similar design features.

E. DESCRIPTION OF THE PROPOSED CHANGES

The following TS changes are proposed:

Current Requirements:

Functional Unit	Applicable OPERATIONAL MODES	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION
<i>3. Reactor Vessel Steam Dome Pressure – High</i>	1,2 ⁽ⁱ⁾	NA	M	Q

Proposed Requirements:

Functional Unit	Applicable OPERATIONAL MODES	CHANNEL CHECK	CHANNEL FUNCTIONAL TEST	CHANNEL CALIBRATION
<i>3. Reactor Vessel Steam Dome Pressure – High</i>	1,2 ⁽ⁱ⁾	D ^(q)	M	Q ^{(h)(q)}

Note that Table 4.1.A-1, Note (h), is added to Functional Unit 3, Reactor Vessel Steam Dome Pressure – High. This note requires that trip units be calibrated at least once per 31 days and transmitters be calibrated at the frequency identified in the table.

**ATTACHMENT A, Proposed Change to Technical Specifications
Quad Cities Nuclear Power Station Units 1 and 2, Page 4 of 5**

A footnote has been added to Table 4.1.A-1 which states:

- (q) The CHANNEL CHECK frequency will remain NA and the CHANNEL CALIBRATION frequency will remain Q for Functional Unit 3 until instrument upgrades are completed (Design Change Package Nos. 9900090 for Unit 1 and 9900091 for Unit 2).

F. SAFETY ANALYSIS OF THE PROPOSED CHANGES

The Reactor Protection System (RPS) monitors reactor operation and initiates protective action in the event of an unsafe condition that may cause reactor pressure vessel (RPV) damage or subject personnel to a potentially hazardous environment. Monitoring is performed by two separately powered RPS trip systems, each having a minimum of two channels of tripping devices. The outputs of the channels are combined in a one-out-of-two-taken-twice logic.

High reactor pressure is one of the reactor operating parameters monitored by the RPS. The purpose of the reactor high pressure trip is to limit the positive pressure effect on reactor power. This reactor scram trip is established to reduce the heat generation within the reactor whenever the high pressure setpoint (1060 psig) is reached. This scram trip is required to be functional in operational modes 1 and 2.

Currently, four locally mounted, non-indicating pressure switches monitor reactor pressure. The switches are arranged so that each pair provides an input to trip systems A and B. The existing Barksdale Reactor Vessel Steam Dome Pressure - High scram switches will be replaced with Rosemount pressure transmitters that will utilize an analog trip unit and a master trip relay to interface with the existing Reactor Protection System logic. The Rosemount pressure transmitter trip units are a proven technology, highly reliable, and are being used in a number of applications at Quad Cities Nuclear Power Station (e.g., this arrangement is similar to RPS Functional Unit 4, "Reactor Vessel Water Level – Low"). The modification has been successfully evaluated under ComEd's design change process and does not introduce any new failure modes.

The addition of a CHANNEL CHECK and 31-day trip unit calibration for Functional Unit 3 provides Surveillance Requirements not possible on the original design, but appropriate for this design change. For these reasons, the proposed change is acceptable and does not involve a reduction in plant safety.

G. IMPACT ON PREVIOUS SUBMITTALS

ComEd has reviewed the proposed Operating License amendment request regarding impact on any previous submittals, and has determined that there is no impact on any outstanding previous submittals.

**ATTACHMENT A, Proposed Change to Technical Specifications
Quad Cities Nuclear Power Station Units 1 and 2, Page 5 of 5**

H. SCHEDULE REQUIREMENTS

We request approval of this amendment prior to January 20, 2000, to support activities in the Unit 2 cycle 15 refueling outage.

I. REFERENCES

None

**ATTACHMENT B, Proposed Change to Technical Specifications
Quad Cities Nuclear Power Station Units 1 and 2, Page 1 of 1**

MARKED-UP TS PAGES FOR PROPOSED CHANGES

QUAD CITIES - UNITS 1 & 2

3/4.1-7

Amendment Nos.

3/4/1971

TABLE 4.1.A-1

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

REACTOR PROTECTION SYSTEM

<u>Functional Unit</u>	<u>Applicable OPERATIONAL MODES</u>	<u>CHANNEL CHECK</u>	<u>CHANNEL FUNCTIONAL TEST</u>	<u>CHANNEL^(a) CALIBRATION</u>
1. Intermediate Range Monitor:				
a. Neutron Flux - High	2 3, 4, 5	S ^(b) S	S/U ^(c) , W ^(d) W ^(d)	E ^(e) E ^(e)
b. Inoperative	2, 3, 4, 5	NA	W ^(d)	NA
2. Average Power Range Monitor^(f):				
a. Setdown Neutron Flux - High	2 3, 5 ^(m)	S ^(b) S	S/U ^(c) , W ^(d) W ^(d)	SA ^(o) SA ^(o)
b. Flow Biased Neutron Flux - High	1	S, D	W	W ^(d,e) , SA
c. Fixed Neutron Flux - High	1	S	W	W ^(d) , SA
d. Inoperative	1, 2, 3, 5 ^(m)	NA	W	NA
3. Reactor Vessel Steam Dome Pressure - High	1, 2 ⁽ⁿ⁾	NA D ^(s)	M	Q ^{(h)(g)}
4. Reactor Vessel Water Level - Low	1, 2	D	M	E ⁽ⁿ⁾
5. Main Steam Line Isolation Valve - Closure	1	NA	M	E
6. Main Steam Line Radiation - High	1, 2 ⁽ⁿ⁾	S	M	E ^(p)
7. Drywell Pressure - High	1, 2 ⁽ⁿ⁾	NA	M	Q

RPS 3/4.1.A

TABLE 4.1.A-1 (Continued)

REACTOR PROTECTION SYSTEM INSTRUMENTATION SURVEILLANCE REQUIREMENTS

- (l) With THERMAL POWER greater than or equal to 45% of RATED THERMAL POWER.
- (m) Required to be OPERABLE only prior to and during required SHUTDOWN MARGIN demonstrations performed per Specification 3.12.B.
- (n) This function is not required to be OPERABLE when PRIMARY CONTAINMENT INTEGRITY is not required.
- (o) The provisions of Specification 4.0.D are not applicable to the CHANNEL FUNCTIONAL TEST and CHANNEL CALIBRATION surveillances for a period of 24 hours after entering OPERATIONAL MODE 2 or 3 when shutting down from OPERATIONAL MODE 1.
- (p) A current source provides an instrument channel alignment every 3 months.

(q) The CHANNEL CHECK frequency will remain NA and the CHANNEL CALIBRATION frequency will remain Q for Functional Unit 3 until instrument upgrades are completed (Design Change Package Nos. 9900090 for Unit 1 and 9900091 for Unit 2).

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**ATTACHMENT C, Proposed Change to Technical Specifications
Quad Cities Nuclear Power Station Units 1 and 2, Page 1 of 2**

**INFORMATION SUPPORTING A FINDING OF NO
SIGNIFICANT HAZARDS CONSIDERATION**

ComEd has evaluated this proposed amendment and determined that it involves no significant hazards consideration. According to 10 CFR 50.92(c), a proposed amendment to an operating license involves a no significant hazards consideration if operation of the facility in accordance with the proposed amendment would not:

Involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated;

Create the possibility of a new or different kind of accident from any previously analyzed; or

Involve a significant reduction in a margin of safety.

The proposed change modifies the Surveillance Requirements for Reactor Protection System (RPS) Functional Unit 3, "Reactor Vessel Steam Dome Pressure – High." This change adds a CHANNEL CHECK and 31-day trip unit calibration requirement to support a planned upgrade to the Reactor Vessel Steam Dome Pressure – High instrumentation from pressure switches (Barksdale) to analog trip units (Rosemount).

The determination that the criteria set forth in 10 CFR 50.92 is met for this amendment request is indicated below:

Does the change involve a significant increase in the probability of occurrence or consequences of an accident previously evaluated?

During the upcoming refueling outages at Quad Cities Nuclear Power Station, Unit 1 and Unit 2, a design change will be implemented that upgrades the existing Reactor Vessel Steam Dome-High instrumentation from a pressure switch to an analog trip unit device. Analog trip units are a proven technology that are more reliable than existing equipment. Analog trip units are used in various applications of Quad Cities Nuclear Power Station, including the Reactor Protection System (RPS) low water level trip function.

The proposed change adds a CHANNEL CHECK and 31-day trip unit calibration requirement for the Reactor Vessel Steam Dome Pressure – High RPS trip function. This requirement is not applicable to the existing instrumentation because the Barksdale pressure switches are non-indicating and do not employ trip units.

**ATTACHMENT C, Proposed Change to Technical Specifications
Quad Cities Nuclear Power Station Units 1 and 2, Page 2 of 2**

Technical Specification (TS) requirements that govern operability or routine testing of plant instruments are not assumed to be initiators of any analyzed event because these instruments are intended to prevent, detect, or mitigate accidents. Therefore, these changes will not involve an increase in the probability of occurrence of an accident previously evaluated. Additionally, these changes will not increase the consequences of an accident previously evaluated because the proposed change does not adversely impact structures, systems, or components (SSCs). The planned instrument upgrade is a more reliable design than existing equipment. The proposed change establishes requirements that ensures components are operable when necessary for the prevention or mitigation of accidents or transients. Furthermore, there will be no change in the types or significant increase in the amounts of any effluents released offsite. For these reasons, the proposed changes do not involve a significant increase in the probability or consequences of an accident previously evaluated.

Does the change create the possibility of a new or different kind of accident from any accident previously evaluated?

The proposed changes support a planned instrumentation upgrade by incorporating Surveillance Requirements required to ensure operability. The change does not adversely impact the manner in which the instrument will operate under normal and abnormal operating conditions. Therefore, these changes provide an equivalent level of safety and will not create the possibility of a new or different kind of accident from any accident previously evaluated. The changes in methods governing normal plant operation are consistent with the current safety analysis assumptions. Therefore, these changes will not create the possibility of a new or different kind of accident from any accident previously evaluated

Does the change involve a significant reduction in a margin of safety?

The proposed change supports a planned instrumentation upgrade. The proposed change does not affect the probability of failure or availability of the affected instrumentation. The addition of a CHANNEL CHECK and 31-day trip unit calibration for RPS Functional Unit 3 (Reactor Vessel Steam Dome Pressure – High) is a conservative change that aligns the surveillance requirements for a planned instrumentation upgrade with that of similar instrumentation. Therefore, it is concluded that the proposed changes will not result in a reduction in the margin of safety.

Therefore, based upon the above evaluation, ComEd has concluded that these changes involve no significant hazards consideration.

**ATTACHMENT D, Proposed Change to Technical Specifications
Quad Cities Nuclear Power Station Units 1 and 2, Page 1 of 1**

INFORMATION SUPPORTING AN ENVIRONMENTAL ASSESSMENT

ComEd has evaluated this proposed operating license amendment request against the criteria for identification of licensing and regulatory actions requiring environmental assessment in accordance with 10 CFR 51.21. ComEd has determined that this proposed license amendment request meets the criteria for a categorical exclusion set forth in 10 CFR 51.22(c)(9) and as such, has determined that no irreversible consequences exist in accordance with 10 CFR 50.92(b). This determination is based on the fact that this change is being proposed as an amendment to a license issued pursuant to 10 CFR 50, that changes a requirement with respect to installation or use of a facility component located within the restricted area, as defined in 10 CFR 20, or that changes an inspection or a surveillance requirement, and the amendment meets the following specific criteria:

- (i) the amendment involves no significant hazards consideration.

As demonstrated in Attachment C, this proposed amendment does not involve a significant hazards consideration.

- (ii) there is no significant change in the types or significant increase in the amounts of any effluent that may be released offsite.

As documented in Attachment A, there will be no change in the types or significant increase in the amounts of any effluents released offsite.

- (iii) there is no significant increase in individual or cumulative occupational radiation exposure.

There will be no change in the level of controls or methodology used for processing of radioactive effluents or handling of solid radioactive waste, nor will the proposal result in any change in the normal radiation levels within the plant. Therefore, there will be no increase in individual or cumulative occupational radiation exposure resulting from this change.