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ComEd

March 5, 1997

JSPLTR: 97-0044

U. S. Nuclear Regulatory Commission
Attn.: Document Control Desk
Washington, DC 20555

SUBJECT: Dresden Nuclear Power Station Units 2 and 3
Request for Amendment to Facility Operating Licenses DPR-19 and DPR-25, Appendix A, Technical Specifications (TS),
Elimination of Main Steam Line Valve Closure and Scram Function Related to Main Steam Line Radiation Monitor Changes to TS Tables 2.2.A - 1, 3.1.A - 1, 3.2.A - 1, 4.1.A - 1, 4.2.A - 1, and the Limiting Safety Systems Settings Bases
NRC Docket Nos. 50 - 237/249

References:
a) General Electric Report NEDO - 31400 "Safety Evaluation for Eliminating The Boiling Water Reactor Main Steam Line Isolation Valve Closure Function and Scram Function of the Main Steam Line Radiation Monitor" dated May, 1987.

b) Letter dated May 15, 1991, from Ashok C. Thadani, Nuclear Regulatory Commission, to George J. Beck, BWR Owners Group, Acceptance For Referencing Topical Report NEDO-31400 "Safety Evaluation for Eliminating The Boiling Water Reactor Main Steam Line Isolation Valve Closure Function and Scram Function of the Main Steam Line Radiation Monitor."

c) Bechtel Calculation for Dresden Station, DR - 357 - M - 004, dated March 1, 1996.

Pursuant to 10 CFR 50.90, ComEd proposes to amend Appendix A, Technical Specifications Tables 2.2.A - 1, 3.1.A - 1, 3.2.A - 1, 4.1.A - 1, 4.2.A - 1, and the Limiting Safety Systems Settings Bases of Facility Operating Licenses DPR - 19 and DPR - 25. The purpose of this amendment request is to amend the aforementioned requirements to remove the Main Steam Line Radiation Monitor High scram and the Main Steam Line Tunnel Radiation High input to the Main Steam Line Isolation function. The proposed changes are a result of a Boiling Water Reactor Owners Group (BWROG) initiative to minimize inadvertent scrams and Main Steam Isolation Valve closures due to erroneous radiation monitor actuation.

A001

By reference (b) the NRC accepted the safety analysis of reference (a). The Boiling Water Reactors Owners Group (BWROG), subsequent to reference (b), published reference (a) as NEDO - 31400A "Safety Evaluation for Eliminating the Boiling Water Reactor Main Steam Line Valve Closure Function and Scram Function of Main Steam Line Radiation Monitor" dated October, 1992. As shown in our Attachment A evaluations, ComEd has determined that the proposed changes satisfy the criteria delineated in reference (b).

The proposed Technical Specification Amendment is subdivided as follows:

1. Attachment A gives a description and safety analysis of the proposed changes.

2. Attachment B includes the proposed changes to the Technical Specifications pages, including marked - up versions of the current pages.

3. Attachment C describes ComEd's evaluation performed in accordance with 10 CFR 50.92 (c), which confirms that no significant hazards consideration is involved. In addition, ComEd's Environmental Assessment Applicability Review is included.

This proposed Technical Specification amendment has been reviewed and approved by ComEd On - Site and Off - Site Review in accordance with ComEd procedures.

ComEd requests NRC approval of this request by June 30, 1997, with the amendment to be effective no later than 60 days following approval. Approval of this amendment allows Dresden to remove the Main Steam Line Radiation Monitor High input to the Main Steam Line Isolation Valve Closure function thus reducing vulnerability to inadvertent and false scrams and isolation signals.

To the best of my knowledge and belief, the statements contained above are true and correct. In some respect these statements are not based on my personal knowledge, but obtained information furnished by other Commonwealth Edison employees, contractor employees, and consultants. Such information has been reviewed in accordance with company practice, and I believe it to be reliable.

ComEd is notifying the State of Illinois of this application for amendment by transmitting a copy of this letter and its attachments to the designated state official.

Please direct any questions you may have concerning this submittal to this office.

Sincerely,

J. Stephen Perry
Site Vice President
Dresden Station

Subscribed and Sworn to before me
on this 5 day of
March, 1997.
Sherry L. Butterfield
Notary Public

OFFICIAL SEAL
SHERRY L BUTTERFIELD
NOTARY PUBLIC, STATE OF ILLINOIS
MY COMMISSION EXPIRES:05/23/00

Attachments:

A. Description and Safety Analysis of the Proposed Changes
B. Marked - Up Technical Specification Pages
C. Evaluation of Significant Hazards Considerations and Environmental Assessment Applicability Review

cc: A. Bill Beach, Regional Administrator - RIII
Senior Resident Inspector - Dresden
J. F. Stang, Project Manager - NRR
Office of Nuclear Facility Safety - IDNS

bcc: Regulatory Assurance Manager - Dresden
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Dresden Regulatory Assurance CHRON File
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ATTACHMENT A
Description and Safety Analysis of the Proposed Amendment

Description of the Proposed Amendment

The proposed Technical Specification Amendment removes the Main Steam Line Radiation Monitor (MSLRM) Scram and Main Steam Line (MSL) Tunnel Radiation High input to the Main Steam Line (MSL) isolation functions at Dresden Units 2 and 3. This proposed change will:

From TS Table 2.2.A - 1 "Reactor Protection System Instrumentation Setpoints":

- Delete Item 6, "Main Steam Line Radiation - High;"
- Delete note (b).

From the Limiting Safety System Settings Bases, 2.2.A:

- Delete Item 6, " Main Steam Line Radiation - High."

From TS Table 3.1.A - 1 "Reactor Protection System Instrumentation":

- Delete Item 6, "Main Steam Line Radiation - High;"
- Delete Action 15.

From TS Table 4.1.A - 1 "Reactor Protection System Instrumentation Surveillance Requirements":

- Delete Item 6, "Main Steam Line Radiation - High;"
- Delete note (q).

From TS Table 3.2.A - 1 "Isolation Actuation Instrumentation":

- Delete Item 3.b, "MSL Tunnel Radiation - High;"
- Delete note (b);
- Delete note (g).

ATTACHMENT A
Description and Safety Analysis of the Proposed Amendment

From TS Table 4.2.A - 1 "Isolation Actuation Instrumentation Surveillance Requirements":

- Delete Item 3.b, "MSL Tunnel Radiation - High;"
- Delete note (d).

ATTACHMENT A
Description and Safety Analysis of the Proposed Amendment

Description and Bases of the Current Technical Specification Requirement

The MSLRM consists of ionization chambers that monitor for gamma radiation at points external to the main steam lines. In the event of a high radiation level, which is indicative of fuel failure, the MSLRMs provide a scram signal and a close signal to the Main Steam Isolation Valves (MSIVs) and other Group I isolation valves. The MSLRM monitors for large to moderate fuel failures by measuring gross gamma radiation from the main steam lines downstream of the outboard MSIVs. These scram and isolation signals limit releases to the environment and mitigate the radiological effects of a failure of the fuel cladding during a Control Rod Drop Accident to well within the limits of 10 CFR part 100.11. "Well within" is defined in Appendix A of the Standard Review Plan Section 15.4.9 as 25 % of the limits of 10 CFR 100.11 or 75 rem for the thyroid and 6 rem for whole - body doses.

TS Table 2.2.A - 1, "Reactor Protection System Instrumentation Setpoints" currently specifies the Main Steam Line Radiation - High scram setpoint (Item 6) as $\leq$ 3 x normal full power background (without hydrogen addition.) The Main Steam Radiation - High Scram Setpoint requirement in the table is modified by note (b) so that if Unit 2 is operating above 20 % rated thermal power (RTP) and hydrogen is being injected into the primary coolant, then this setpoint can be increased, for Unit 2, to $\leq$ 3 x full power background with hydrogen injection. Although this seems the same, as hydrogen is added to the reactor feedwater system the background levels increase, and the actual scram setpoint is increased accordingly.

Item 6 of the Limiting Safety System Settings Bases provides the bases for the Main Steam Line Radiation - High scram

TS Table 3.1.A - 1 "Reactor Protection System Instrumentation", currently lists Item 6 "Main Steam Line Radiation - High." TS Table 3.1.A - 1 provides the modes for which the MSLRM is applicable, the "Minimum OPERABLE CHANNEL(s) per TRIP SYSTEM" and the actions required in a Limiting Condition for Operation. TS Table 3.1.A - 1, action statement 15, prescribes the required actions when the "Minimum OPERABLE CHANNELS per TRIP SYSTEM" are not met. Similarly, TS Table 4.1.A - 1 "Reactor Protection System Instrumentation," also lists Item 6 "Main Steam Line Radiation - High." The table lists the surveillance requirements for this MSLRM function. Note (q) to TS Table 4.1.A - 1 amplifies the refueling channel calibration requirement by specifying a that on a three month periodicity a channel alignment is performed with a current source.

TS Tables 3.2.A - 1 and 4.2.A - 1 "Isolation Actuation Instrumentation" and "Isolation Actuation Instrumentation Surveillance Requirements," list the MSL Tunnel Radiation - High (Item 3b) input to the Main Steam Line Isolation. TS Table 3.2.A - 1 lists the applicable operating modes, the scram setpoints, the minimum required channels to be operable per TRIP SYSTEM, as well as the required actions in the event the Limiting Condition for Operation are not met. Notes (b) and (g) provide clarification on the

function of the scram and on the scram setpoint for Item 3b in Table 3.2.A - 1. TS Table 4.2.A - 1 lists the surveillance requirements for the MSL Tunnel Radiation - High Instrumentation. Note (d) provides additional information on the required channel calibration.

ATTACHMENT A
Description and Safety Analysis of the Proposed Amendment

Description of the Need and Bases for Amending the Technical Specifications

The amendment request is submitted to utilize a BWROG initiative to reduce inadvertent Reactor Shutdowns. Removal of the MSLRM scram and the MSL Tunnel Radiation input to the MSIV isolation function will reduce Dresden Stations vulnerability to inadvertent scrams and unnecessary plant transients. Removal of these scram and isolation functions will reduce forced shutdowns due to inadvertent scrams and provide an economic benefit by increasing system availability without a corresponding significant increase in radiological consequences of a CRDA. Additionally, removal of these scram and isolation functions will require less surveillances and thus reduce challenges to the reactor protective system during performance of the surveillances associated with these technical specifications.

In reference (a) the BWROG presented a Safety Analysis for removal of the MSLRM scram and MSL Tunnel Radiation input to the MSIV isolation function. By letter dated May 15, 1991, the NRC staff accepted the BWROG safety analysis and concluded that the removal of the MSLRM scrams and MSL Valve closure function from the radiation high signal were acceptable. In the Safety Evaluation Report accompanying the May 15, 1991 letter, the NRC staff stated that licensees submitting license amendment requests could reference NEDO - 31400 in support of their requests provided the following three conditions were satisfied:

1. *The applicant demonstrates that the assumptions with regard to input values (including power per assembly, Chi/Q, and decay times) that are made in the generic analysis bound those for the plant.*

   Two different scenarios were used within NEDO - 31400 in analyzing a Control Rod Drop Accident (CRDA). The first scenario was patterned after the Standard Review Plan (SRP) § 15.4.9. This scenario assumed fission product activity as airborne in the turbine and condenser following an MSIV closure. Leaks to the atmosphere for this scenario occurred through the condenser. The second scenario assumed MSIV closure did not occur and that the fission product activity was transported to the offgas system. ComEd's analyses in reference (c) considered the two scenarios used by NEDO - 31400. The Turbine Gland Seal Condenser release path is specific to Dresden Station and was not considered in the BWROG NEDO - 31400 analysis. Reference (c) analyzed the Turbine Gland Seal Condenser as an additional release path not automatically isolated during a CRDA.

   Reference (c) assumed that the CRDA resulted in damage to 850 fuel rods. The peaking factor for the fuel rods was assumed at 1.5. The assumption of 850 fuel rods in the NEDO - 31400 analysis represents approximately 2 % of the total number fuel rods in a core based on 8X8 assemblies. The current Dresden Core uses 9X9 assemblies. The assumption of 850 rods in the NEDO - 31400 report still envelopes the current core because the number of failed rods following a CRDA is in the same or lower proportion as for the 8X8 assembly case.

NEDO - 31400 analysis assumed 0.0077 of the fuel melted as a result of the postulated scenarios. At Dresden there would be no fuel melt during a CRDA and the only release would be a gap release. Because no fuel rods would melt, 10% of the noble gas inventory and 10% of the radioiodine inventory is assumed released from the damaged fuel to the reactor coolant during the gap release in accordance with Standard Review Plan 15.4.9. As in the NEDO analysis, reference (c) assumes that 100 % of the noble gasses and 10 % of the iodine released to the coolant are carried over into the condenser. Similarly, as in the NEDO analysis, reference (c) assumes that all the noble gasses and 10 % of the iodine reaching the condenser are available for leakage into the environment.

For the Turbine Gland Seal condenser path, which is a Dresden specific release path not included in the NEDO - 31400 analysis, all the noble gasses and iodine reaching the gland seal condenser are assumed to be released to the environment. This assumption is conservative with respect to the iodine since no washout and plate out is assumed. The release from the Turbine Gland Seal Condenser is conservatively treated as a ground level release, even though it discharges through the plant stack. The calculated doses from the Turbine Gland Seal Condenser were added to the Thyroid and whole body doses calculated for each of the two scenarios.

In reference (c), Dresden Site specific Atmospheric Dispersion Parameters (Chi/Q) were used to calculate expected doses at the Exclusion Area Boundary (EAB). These site specific Chi/Q were scaled against the value used in the NEDO analysis. Because the NEDO Chi/Q values enveloped the site specific values of BWROG member utilities; the calculated doses at the EAB and the Low Population Zone (LPZ) boundary were less than the BWROG calculated dose for whole body and Thyroid.

The results of the ComEd's analyses for the two scenarios in the BWROG NEDO - 31400 analyses as applicable to Dresden are tabulated below.

		Calculated Dose (REM)		
Location	Organ	Condenser	Gland Seal	Total
EAB	Thyroid	0.91	11.4	12.3
	Whole Body	6.6 E - 02	4.0 E - 01	4.7 E - 01
LPZ	Thyroid	2.3 E - 01	6.0 E - 01	8.3 E - 01
	Whole Body	1.7 E - 02	2.1 E - 02	3.8 E - 02

USNRC SRP 15.4.9 Approach to CRDA
Analysis Scenario 1

		Calculated Dose (REM)		
Location	Organ	Offgas System	Gland Seal	Total
EAB	Thyroid	0	11.4	11.4
	Whole Body	3.1 E - 01	4.0 E - 01	7.1 E - 01
LPZ	Thyroid	0	6.0 E - 01	6.0 E - 01
	Whole Body	5.5 E - 02	2.1 E - 02	7.6 E - 02

Release via Augmented Offgas System
Analysis Scenario 2

The calculated total doses tabulated above are well within 25 % of the guideline values in 10 CFR part 100.11 or 75 rem for the thyroid and 6 rem for whole - body doses.

2 *The applicant includes sufficient evidence (implemented or proposed operating procedures or equivalent commitments) to provide reasonable assurance that increased significant levels of radioactivity in the main steam lines will be controlled expeditiously to limit both occupational doses and environmental releases.*

ComEd commits to review the Dresden Operations Annunciator and General Abnormal Conditions Procedures and revise them as required to ensure operator action to limit occupational doses and environmental releases prior to implementation of the proposed TS amendment.

3 *The applicant standardizes the MSLRM and offgas radiation monitor alarm setpoint at 1.5 times the nominal nitrogen - 16 background dose rate at the monitor locations, and commits to promptly sample the reactor coolant to determine possible contamination levels in the reactor coolant and the need for additional corrective actions if the MSLRM or offgas radiation monitors or both exceed their alarm setpoints.*

ComEd Dresden will, as part of the implementation of this approved amendment, reset the MSLRM and offgas radiation monitor alarms to 1.5 times the normal full power N - 16 background (with hydrogen addition) as well as amend General Abnormal Conditions Procedures to promptly sample the reactor coolant to determine possible sources of the contamination as well as to determine the need for further corrective action.