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JUL 26 1984

Mr. A. Schwencer, Chief
Licensing Branch No. 2
Division of Licensing
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Docket Nos.: 50-352
50-353

Subject: Limerick Generating Station, Units 1 and 2
Information for CSB/ASB/AEB Regarding Standby Gas Treatment System (SGTS) Connection to Refueling Floor

References: (1) Telecon Between D. Helwig/J. Arhar (PECO) and NRC (ASB/AEB) on 7/19/84.
(2) June 6, 1984 Meeting in Bethesda between J. T. Robb (PECO) and NRC (ASB/CSB).

Attachment: (1) Justification for Removal of Containment and RPV Heads Prior to Connecting SGTS to the Refueling Floor.

File: GOVT 1-1 (NRC)

Dear Mr. Schwencer:

Pursuant to our Reference (1) telecon, Attachment (1) provides our justification for removal of containment and RPV heads prior to connecting the SGTS to the refueling floor. The SGTS will be connected to the refueling floor prior to the first refueling outage (FSAR Section 6.5.1(a)). The attached justification is provided in order to:

a) identify appropriate limitations on and potential consequences of removing the containment and RPV heads prior to the completion of the required SGTS modifications, and

b) Provide a framework for the resolution of a proposed license condition originating from the reference (2) meeting which would prohibit removal of the containment and RPV heads without specific, prior NRC approval until such time as SGTS is operable for the refueling floor.

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Should any additional information be required, please do not hesitate to contact us.

Sincerely,

John S. Kemper

JHA/gra/07128401

cc: See Attached Service List

cc: Judge Lawrence Brenner (w/enclosure)
Judge Peter A. Morris (w/enclosure)
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Atomic Safety & Licensing Board Panel (w/enclosure)
Docket & Service Section (w/enclosure - 3 copies))
James Wiggins (w/enclosure)
Timothy R. S. Campbell (w/enclosure)

ATTACHMENT (1)

Justification for Removal of Containment and RPV Heads Prior to Connecting SGTS to the Refueling Floor

Limerick FSAR Section 6.5.1(a) provides a commitment to connect the SGTS to the refueling floor prior to the first refueling outage. The SGTS will be dedicated to serving the Unit 1 Reactor Enclosure during the interim period.

A license condition has been proposed which would prohibit removal of the Primary Containment and RPV heads without specific, prior NRC approval until such time as SGTS is operable for the refueling floor. There is some likelihood that the heads will need to be removed subsequent to initial criticality and prior to SGTS connection for such unanticipated activities as investigation of internals vibration, instrument problems, retrieval of loose parts, etc. Operations involving handling of irradiated fuel will not be undertaken. The potential consequences of removing the heads prior to completion of the required SGTS modifications have been considered in order to identify appropriate limitations on such activities. The following limitations are proposed:

1) Releases from Coolant

Some amount of the radioactivity present in the primary coolant will be released during activities which involve removal of these heads. Most of the coolant activity potentially available for release will have been discharged to the main condenser and/or suppression pool during RPV depressurization. Activity discharged to the main condenser will be retained in the condensate, plated-out on condenser surfaces, or processed by the offgas system as described in FSAR Section 11.3. Activity discharged to the suppression pool will be retained in the suppression pool water, plated-out in the primary containment, or processed by SGTS during containment purging as described in FSAR Section 6.4.

Acceptable limits on primary coolant activity during operations with the heads removed can be determined based on consideration of Appendix I guidelines. Conservative calculations indicate that a coolant activity limit of 40 Ci or .23 uCi/cc (I-131 equivalent) will ensure that offsite doses will remain below Appendix I guidelines. A summary of the calculation on which this limit is based is attached.

2) Releases from Fuel

There is some potential that doses in excess of Appendix I guidelines could result from fuel damage during equipment or fuel handling operations. As stated in the Limerick heavy loads report (reference 1), a drop of the RPV head, dryer, or separator will not cause any fuel damage. The handling of any other loads over irradiated fuel will be in accordance with the single failure criteria of NUREG-0612 until SGTS is made operable for the refueling floor in order to preclude the potential for fuel damage. Irradiated fuel will not be handled prior to connecting SGTS to the refueling floor.

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Calculation Summary

Dose = Activity Release Rate x Dispersion Factor x Breathing Rate x Dose Conversion Factor x Exposure Duration

D = (Ci/sec) (x/Q) (BR) (DF) (Time)

= Ci(x/Q) (BR) (DF), assuming an 8 hr. release

Where: $x/Q = 7.3 \times 10^{-5}$ sec/m^3 per EROL Table 7.1-6 (8 hr. ave.)
BR = 1.17×10^{-4} m^3/sec per R.G. 1.109
DF = 4.39×10^{9} mrem/Ci per R.G. 1.109
D = 15 mrem per Appendix I

Ci = (Coolant Activity) x (Release Fraction)

= CA (RF)

Where: RF = 0.01 per R.G. 1.25 and ref. 2

$$CA = \frac{D}{(RF)(x/Q)(BR)(DF)} = \frac{15}{(0.01)(1.17 \times 10^{-4})(7.3 \times 10^{-5})(4.39 \times 10^{9})}$$

= 40 Ci

= .23 uCi/cc

DRH/cmv/07108403

REFERENCES

1. J. S. Kemper (PECo) letter to D. G. Eisenhut (NRC). Subject: LGS Overhead Handling System Review Final Report, dated 6/13/83.

2. "Design Considerations of Reactor Containment Spray Systems-Part IV Calculation of Iodine-Water Partition Coefficients, L. F. Parsly ,ORNL-TM-2412 Part IV, January 1970.

DRH/cmv/07108402