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DUKE POWER

July 28, 1994

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

Subject: Catawba Nuclear Station
Docket No. 50-413 and 50-414
Special Report
Radiation Monitors Inoperable Greater Than 7 Days

Pursuant to Technical Specification 3.3.3.6, find attached a Special Report concerning the inoperability of the Steam Relief Valve Exhaust Radiation Monitor (1EMF-26, 27, 28 and 29 and 2EMF-10, 11, 12 and 13).

Very truly yours,

A handwritten signature in black ink, appearing to read 'D. L. Rehn'.

D. L. Rehn

KEN/EMFS7.94

Attachment

xc: S. D. Ebnetter, Regional Administrator

R. E. Martin, ONRR

R. J. Freudenberger, SRI

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SPECIAL REPORT

CATAWBA NUCLEAR STATION

DOCKET NO. 50-413 and 50-414

Steam Relief Valve Exhaust Radiation Monitors Declared Inoperable Due To Engineering Calculation Concerns

The Main Steam (SM) Relief Valve Exhaust Radiation Monitors (EMFs) for both Units were conservatively declared inoperable on July 11, 1994, at 1730 hours following a review of Engineering Calculation CNC-1229.00-00-0022 and the preliminary results of a re-analysis per Engineering Calculation CNC-1229.00-00-0047. The initial determination was that the EMFs would be overranged with Regulatory Guideline 1.97 source term post-accident due to the as-built location of the EMF detectors, thus in violation of Regulatory Guideline 1.97.

The re-analysis was performed following concerns that the original calculation used a value for distance from the main steamline to the detectors of the EMFs which was incorrect. In addition, there were concerns that the nuclide gamma energy values used to collapse the isotopic mixture into a Xe-133 dose equivalent value were incorrect. The re-analysis was performed using average gamma energies.

On July 19, 1994, after performing an extensive review, System Engineering determined that EPA-400 dose conversion factors should have been used in the re-calculation instead of average gamma energies. EPA-400 dose conversion factors are used for dose assessment in the Station's Technical Support Center and Emergency Operations Facility.

Engineering Calculation CNC-1229.00-00-0047 was re-performed using EPA-400 methodology to collapse (or equivalence) the source term spectrum used in the calculation. This re-performance determined that the Main Steamline Relief Valve Radiation Monitors for both Units were operable in the as-built detector location.

Additionally, it has been determined that the average gamma energy values used in the original calculation (CNC-1229.00-00-0022) were calculated from Regulatory Guideline 1.109 dose conversion factors. The use of either EPA-400 dose conversion factors or Regulatory Guideline 1.109 dose conversion factors yields the conclusion that the radiation monitors are operable in the current detector location and are able to detect the maximum Regulatory Guideline source term without overranging.

On July 22 at 2045 hours the EMFs were declared operable following completion of Engineering Calculation CNC-1229.00-00-0047.