



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
230 PEACHTREE STREET, N.W. SUITE 1217
ATLANTA, GEORGIA 30303

MAR 27 1978

✓ MEMORANDUM FOR: Leo B. Higginbotham, Acting Director, FFMSI

FROM: James P. O'Reilly, Director, Office of Inspection
and Enforcement, RII

SUBJECT: RADIOCHEMICAL LOWER LIMITS OF DETECTION (LLD)

Two Region II licensees, Crystal River Unit 3 and Hatch Units 1 and 2, have applied to NRR for an amendment change to the Technical Specifications to revise the LLD limits on liquid radwaste. The proposed change would define a Sensitivity Limit of $5.0 \times 10^{-7}/I$ uCi/ml (where I equals the gamma intensity).

The proposed change was a result of our inspector determining that for selected nuclides (i.e., Cr-51 and Cu-64) the licensees were unable to meet their Technical Specifications limit of 5×10^{-7} uCi/ml. As you are aware, Cu-64 is an expected effluent nuclide from a BWR and is a significant fraction of a BWR's gross gamma liquid waste. Cr-51 is a normal LWR effluent nuclide. However, as specified in Regulatory Guide 1.21, if the 5×10^{-7} uCi/ml LLD cannot be met for Cr-51, a ratio method may be utilized.

Our staff does not concur with the proposed Technical Specifications change. In the case of Cu-64, the licensee's proposed LLD would be $(5 \times 10^{-7}/.005) 1.0 \times 10^{-4}$ uCi/ml or 50% of the 10 CFR 20 limit. In addition, the licensee's proposed 1.0×10^{-4} uCi/ml is an LLD based upon the theoretical minimum spectral background (appriori). Therefore, under actual conditions (postpriori) the LLD could exceed MPC, resulting in effluent releases.

We recommend a Technical Specifications change to read:

"LLD: 5.0×10^{-7} uCi/ml for nuclides with a half-life greater than 24 hours; 10% of MPC for nuclides with a half-life less than 24 hours. (A half-life of less than 24 hours precludes a "ratio method", as described in USNRC Regulatory Guide 1.21)"

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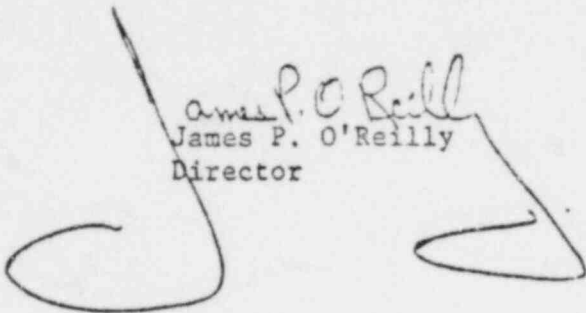
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MAR 27 1978

-2-

Please convey our assessment of the Technical Specifications change to NRR.


James P. O'Reilly
Director