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FEB 04 1985

Carolina Power and Light Company
ATTN: Mr. E. E. Utley
Executive Vice President
Power Supply and Engineering
and Construction
411 Fayetteville Street
Raleigh, NC 27602

Gentlemen:

SUBJECT: P. W. HOWE LETTER TO JAMES P. O'REILLY DATED MAY 25, 1984

The subject letter requested our review of a proposed "a priori" lower limit of detection (LLD) of 1E-7 microcuries/ml for surveys of certain material such as oil, paint, etc., prior to unconditional release as nonradioactive material. Subsequent to your letter, we discussed this issue with members of the Brunswick Plant staff and informed them that we were requesting guidance from the Office of Nuclear Reactor Regulation (NRR) regarding surveys necessary to determine compliance with NRC regulations. Based on our discussions with NRR, the following information is provided.

As you are aware, the regulations do not provide for the unrestricted release of materials known to be contaminated at any level, viz, there is no de minimus quantity. Authorization for disposal of radioactive material by means other than those specifically authorized by the regulations may be requested in accordance with 10 CFR 20.302. Surveys associated with material disposed under 10 CFR 20.302 would have to demonstrate that concentrations did not exceed those for which specific authorization had been granted.

If there is some doubt whether the material in question is contaminated and a survey is necessary for this determination, then the appropriate LLD value is the "operational state of the art" value for the measurement system. In the case of analysis of liquids by gamma spectroscopy which you referenced, the appropriate LLD values are those specified in the Standard Radiological Effluent Technical Specifications (RETS), NUREG 0473 for environmental samples. Typical LLDs for environmental water samples are 1.5E-8 microcuries/ml. Based on these considerations, your proposed LLD of 1E-7 microcuries/ml would not be appropriate for surveying material to determine if it is radioactive.

We recognize that the referenced environmental LLDs would require the analysis of large volume samples (\approx 1 liter), long counting times (\approx 1000 minutes), and a low background environment. It is therefore important to segregate waste materials with no potential for contamination from potentially contaminated material to minimize the number of samples analyzed.

You are probably aware of ongoing activities related to this issue, including a petition for rulemaking from a nuclear industry group concerning the disposal of contaminated material. Additional guidance regarding acceptable criteria for residual contamination of oil under 10 CFR 20.302 requests is also being developed by the NRC.

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If you should have any further questions, please contact Dr. D. M. Montgomery of my staff at (404) 221-2600.

Sincerely,

Original Signed by
Roger D. Walker /for

John A. Olshinski, Director
Division of Reactor Projects

cc: P. W. Howe, Vice President
Brunswick Nuclear Project
C. R. Dietz
Plant General Manager

bcc: Senior Resident Inspector
Document Control Desk
State of North Carolina

RII
DMontgomery
1/24/85

RII
DCollins
1/24/85

RII
JPStohr
1/25/85

RII
DVerrelli
1/25/85

NAF
F Conzel
1-22-85
Telephone with Ed Pranyk