

B 05/04/78

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)
DISTRIBUTION FOR INCOMING MATERIAL

50-269 270/287

REC: CASE E G
NRC

ORG: PARKER W O
DUKE PWR

DOC DATE: 04/27/78
DATE RCVD: 05/04/78

DOCTYPE: LETTER NOTARIZED: NO

COPIES RECEIVED

SUBJECT:

LTR 1 ENCL 1

FURNISHING INFO CONCERNING LOW LEVEL RADIOACTIVITY FROM SECONDARY POLISHING
DEMINERALIZERS TO THE ONSITE WASTE WATER COLLECTION BASINS AT SUBJECT
FACILITY. W/ATT TABLE OF REVISED ISOTOPIC INVENTORY LIMITS FOR THE WASTE
WATER COLLECTION BASINS.

PLANT NAME: OCONEE - UNIT 1
OCONEE - UNIT 2
OCONEE - UNIT 3

REVIEWER INITIAL: XJM
DISTRIBUTER INITIAL: *ml*

***** DISTRIBUTION OF THIS MATERIAL IS AS FOLLOWS *****

NOTES:

1. M. CUNNINGHAM - ALL AMENDMENTS TO FSAR AND CHANGES TO TECH SPECS

CHANGE REQUESTS FOR ENVIRON TECH SPECS (APPEND B)
(DISTRIBUTION CODE C004)

FOR ACTION: BR CHIEF REID**W/5 ENCL

INTERNAL: REG FILE**W/ENCL
I & E**W/2 ENCL
GOSSICK & STAFF**W/ENCL
EISENHUT**LTR ONLY
J MCGOUGH**W/ENCL
BALLARD**W/ENCL
J COLLINS**W/ENCL

NRC PDR**W/ENCL
OELD**W/ENCL
HELTEMES**W/ENCL
EEB**W/ENCL
DENTON & MULLER**LTR ONLY
VOLLMER**LTR ONLY
KREGER**W/ENCL

EXTERNAL: LPDR'S
WALHALLA, SC**W/ENCL
NATL LAB ORNL**W/3 ENCL
NSIC**W/ENCL
TIC**W/1 ENCL
ACRS CAT B**W/16 ENCL

DISTRIBUTION: LTR 43 ENCL 40
SIZE: 2P+3P

CONTROL NBR: 781240040

***** THE END *****

POWER BUILDING
422 SOUTH CHURCH STREET, CHARLOTTE, N. C. 28242

April 27, 1978

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

TELEPHONE: AREA 704
373-4083

Mr. Edson G. Case, Acting Director
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

RE: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

My letters of December 2, 1976 and August 4, 1977, addressed the disposal of low level radioactivity from secondary polishing demineralizers (the powdex system) to the onsite waste water collection basins at Oconee Nuclear Station. Specific isotopic limits were identified for the collection basins which were based on the following criteria:

- (1) The amount of radioactivity expected to be routinely released as a result of maintaining the inventory should be less than ten percent of the station's 10CFR50, Appendix I limits.
- (2) The release of the entire contents of the waste water collection basins should result in off-site doses below 10CFR20, Appendix B limits.

These dual criteria were specified to assure public health and safety were properly safeguarded and to minimize the impact of resin disposal on the normal operation of the basins for effluent chemical treatment. By establishing isotopic inventory limits based only on criterion (2) above, however, and by applying controls to the basin effluent to comply with radioactive discharge limits, public health and safety would continue to be adequately protected and overall station operating flexibility would be increased.

Accordingly, please find attached a table of revised isotopic inventory limits for the waste water collection basins based on assuring that an incident in which the contents of the basins are released results in off-site doses below 10CFR20 limits. The method of evaluating accident consequences has been revised based on our experience and a description of the method by which the limits were determined is also attached.

RECEIVED DISTRIBUTION SERVICES UNIT
1978 MAY 4 AM 10 2
REGULATORY SERVICES
BRANCH

0004
5/11

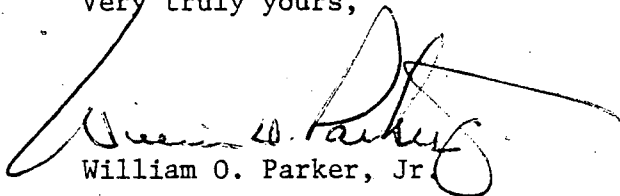
Mr. Edson G. Case, Acting Director

Page Two

April 27, 1978

As stated in our August 4, 1977 letter, inventory of radioactive material retained within the basins at any given time is on Duke Power Company property and ultimate disposal will be addressed at a later date.

Very truly yours,

A handwritten signature in cursive script, appearing to read "William O. Parker, Jr.", is written over the typed name. The signature is fluid and somewhat stylized, with a long horizontal stroke extending to the right.

William O. Parker, Jr.

RLG:ge

Attachment

Case 2

Shown to be less restrictive than case 1.

Case 3

Again, the time for which the receptor is exposed to the spill is 3.47 hours. The allowable release concentration is then

$$\frac{1 \text{ year}}{3.47 \text{ hr}} \times \text{Part 20}$$

then,

$$C_i \times \frac{1 \text{ yr}}{3.47 \text{ hr}} \times \frac{8760 \text{ hr}}{\text{yr}} = \frac{A_i \text{ (curies)}}{3.74 \text{ E}+6 \text{ gal}} \times \frac{10^6 \text{ u } C_i}{C_i} \times \frac{\text{gal}}{3785.7 \text{ ml}}$$

$$A_i = 3.57 \text{ E}+7 C_i$$

This method is obviously not as restrictive as case 1.

Case 4

For this case, a dilution factor was conservatively calculated to be used to dilute the slug spill from Oconee to the Clemson water intake. See attached letter.

$$\text{dilution factor} = 4.6 \text{ E-8/ft}^3$$

$$A_i \text{ (curies)} \times \frac{10^6 \text{ u } C_i}{C_i} \times 4.6 \text{ E-8/ft}^3 \times \frac{\text{ft}^3}{7.48 \text{ gal}} \times \frac{\text{gal}}{3785.7 \text{ ml}} = C_i$$

$$A_i = 6.16 \text{ E}+5 C_i$$

This case is slightly less restrictive than case 1. Case 1, the peaking limit of 2 mrem/hr will then be used as the basis to calculate the new accident inventory limits.

This revised accident analysis results in the isotopic inventory limits listed in the following table.

Note:

This 2 mrem/hr peaking limit is actually a hypothetical limit based on daily average intake factors. It is imposed in order to assure that doses from the subject accident will be on the order of doses that are the intent of 10CFR20 regulations. The only truly accident assumption oriented limit would be Case 4.

Radionuclide Limits
On Waste Water Collection Ponds

<u>Isotope</u>	<u>Accident Inventory Limit (Curies)</u>
Cr 51	9.92 E+2
Mn 54	4.97 E+1
Fe 59	2.48 E+1
Co 57	1.98 E+2
Co 58	4.47 E+1
Co 60	1.49 E+1
Sr 89	1.49
Sr 90	1.49 E-1
Sr 91	2.48 E+1
Zr 95	2.98 E+1
Zr 97	9.92
Nb 95	4.97 E+1
Nb 97	4.47 E+2
Mo 99	1.98 E+1
Ru 103	3.97 E+1
Te 129m	9.92
Te 131m	1.98 E+1
I 130	1.49
I 131	1.49 E-1
I 132	3.97
I 133	4.97 E-1
I 135	1.98
Cs 134	4.47
Cs 136	2.98 E+1
Cs 137	9.92
Ba 140	9.92
La 140	9.92
Ce 143	1.98 E+1
W 187	2.98 E+1