

50-264/270/287

NRC DISTRIBUTION FOR PART 50 DOCKET MATERIAL

FILE NUMBER

INCIDENT REPORT

TO:

N. R. C.

FROM:

Duke Power Company
Charlotte, North Carolina
William O. Parker, Jr.

DATE OF DOCUMENT

5/17/77

DATE RECEIVED

5/23/77

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DESCRIPTION

PLANT NAME:

Oconee Units 1-2-3

RJL

(1-P)

ENCLOSURE

Consists of corrections to previously
submitted reports concerning radioactive
effluents released for the first six months
of 1976 & the last six months of 1976.....ACKNOWLEDGED
DO NOT REMOVE

(2-P)

NOTE: IF PERSONNEL EXPOSURE IS INVOLVED
SEND DIRECTLY TO KREGER/J. COLLINS

FOR ACTION/INFORMATION

BRANCH CHIEF:

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EXTERNAL DISTRIBUTION

LPDR: WABHALLA SC.

TIC:

NSIC:

CONTROL NUMBER

771450091

DUKE POWER COMPANY

POWER BUILDING

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

WILLIAM O. PARKER, JR.
VICE PRESIDENT
STEAM PRODUCTION

May 17, 1977

TELEPHONE: AREA 704
373-4083

Director
U. S. Nuclear Regulatory Commission
Suite 818
230 Peachtree Street, Northwest
Atlanta, Georgia 30303

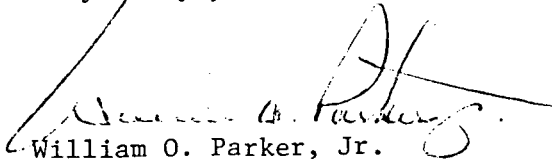
Re: Oconee Nuclear Station
Docket Nos. 50-269, -270, -287

Dear Sir:

Pursuant to 10CFR50.36a and Oconee Technical Specifications 6.6.1.2(c), reports were submitted on August 19, 1976 and February 23, 1977 concerning radioactive effluents released from Oconee Nuclear Station for the first six months of 1976 and the last six months of 1976, respectively. During review of this data, certain errors in isotope identification have been discovered. Please find attached copies of the following sheets which correct these errors.

1. Summary of liquid radioactive effluent releases for the first six month period transmitted by our letter of August 19, 1976. Under item 7, the isotope designated as Ag198m is corrected to read Ag108m.
2. Summary of liquid radioactive effluent releases for the first and second six month period transmitted by our letter of February 23, 1977. Under item 7, the isotope designated as Kr87 is corrected to read Ag108m.

Very truly yours,


William O. Parker, Jr.

LJB:ge
Attachment

cc: Mr. Ernst Volgenau



Regulatory Docket File

771450091

Radioactive Effluent Releases

Year 1976

I. Liquid Releases

| | Units | January | February | March | April | May | June | Sub-Total |
|--|-------------------|------------------------|-----------------------|-----------------------|-----------------------|------------------------|------------------------|-----------------------|
| 1. Gross radioactivity (Bq) | | | | | | | | |
| a. total release | Curies | 1.89 | 1.64 | 1.34 | 1.40×10^{-1} | 1.23×10^{-1} | 1.03×10^{-1} | 5.24 |
| b. average concentration released | $\mu\text{Ci/ml}$ | 1.67×10^{-8} | 1.59×10^{-8} | 1.09×10^{-8} | 1.29×10^{-9} | 8.55×10^{-10} | 6.71×10^{-10} | 7.72×10^{-9} |
| c. maximum concentration released | $\mu\text{Ci/ml}$ | 2.94×10^{-6} | 3.79×10^{-6} | 2.07×10^{-6} | 2.50×10^{-7} | 2.80×10^{-7} | 3.22×10^{-6} | 2.09×10^{-5} |
| 2. Tritium | | | | | | | | |
| a. total release | Curies | 3.60×10^2 | 3.00×10^2 | 3.30×10^2 | 1.49×10^2 | 8.25×10 | 5.12×10 | 1.27×10^3 |
| b. average concentration released | $\mu\text{Ci/ml}$ | 3.17×10^{-6} | 2.89×10^{-6} | 2.69×10^{-6} | 1.38×10^{-6} | 5.73×10^{-7} | 3.35×10^{-7} | 1.84×10^{-6} |
| 3. Dissolved noble gases | | | | | | | | |
| a. total release | Curies | 5.01×10^{-2} | 4.64×10^{-1} | 4.26×10^{-1} | 1.31×10^{-1} | 2.32×10^{-3} | 5.43×10^{-3} | 1.08 |
| b. average concentration released | $\mu\text{Ci/ml}$ | 4.41×10^{-10} | 4.47×10^{-9} | 3.47×10^{-9} | 1.21×10^{-9} | 1.61×10^{-11} | 3.56×10^{-11} | 1.61×10^{-9} |
| 4. Gross alpha radioactivity | | | | | | | | |
| a. total release | Curies | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| b. average concentration released | $\mu\text{Ci/ml}$ | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 5. Volume of liquid waste to discharge canal | Liters | 1.79×10^6 | 1.20×10^6 | 1.79×10^6 | 1.55×10^6 | 1.22×10^6 | 1.83×10^6 | 9.38×10^6 |
| 6. Volume of dilution water | Liters | 1.14×10^{11} | 1.04×10^{11} | 1.23×10^{11} | 1.08×10^{11} | 1.44×10^{11} | 1.53×10^{11} | 7.46×10^{11} |
| 7. Isotopes released | Curies | | | | | | | |
| Ba-La-140 | | | 1.49×10^{-2} | 6.70×10^{-5} | 8.86×10^{-6} | 4.52×10^{-5} | 7.50×10^{-5} | 1.51×10^{-2} |
| Sr-89 | | 2.26×10^{-3} | 3.13×10^{-3} | 1.96×10^{-3} | 0 | 1.17×10^{-4} | 2.93×10^{-5} | 7.76×10^{-3} |
| I-131 | | 6.35×10^{-1} | 5.14×10^{-1} | 1.44×10^{-1} | 2.05×10^{-2} | 1.48×10^{-2} | 5.00×10^{-3} | 1.33 |
| I-133 | | 3.52×10^{-2} | 2.21×10^{-2} | 8.25×10^{-4} | 1.59×10^{-3} | 0 | 4.90×10^{-4} | 6.02×10^{-2} |
| Xe-133 | | 5.01×10^{-2} | 4.62×10^{-1} | 4.23×10^{-1} | 1.03×10^{-1} | 2.32×10^{-3} | 5.11×10^{-3} | 1.05 |
| Xe-135 | | 0 | 1.16×10^{-3} | 1.50×10^{-3} | 2.65×10^{-2} | 0 | 2.81×10^{-4} | 2.94×10^{-2} |
| Cs-137 | | 4.71×10^{-1} | 3.39×10^{-1} | 7.56×10^{-2} | 5.50×10^{-3} | 9.48×10^{-3} | 3.86×10^{-3} | 9.04×10^{-1} |
| Cs-134 | | 2.94×10^{-1} | 2.29×10^{-1} | 5.96×10^{-2} | 4.37×10^{-3} | 6.35×10^{-3} | 3.28×10^{-3} | 5.97×10^{-1} |
| Co-60 | | 7.48×10^{-2} | 5.78×10^{-2} | 1.25×10^{-1} | 1.41×10^{-2} | 1.34×10^{-2} | 1.93×10^{-2} | 3.04×10^{-1} |
| Co-59 | | 3.15×10^{-1} | 3.89×10^{-1} | 8.71×10^{-1} | 7.37×10^{-2} | 6.17×10^{-2} | 4.75×10^{-2} | 1.74 |
| Cr-51 | | 1.75×10^{-2} | 1.50×10^{-3} | 1.40×10^{-2} | 7.30×10^{-3} | 1.47×10^{-3} | 1.31×10^{-2} | 5.46×10^{-2} |
| Mn-54 | | 1.61×10^{-2} | 2.57×10^{-2} | 1.68×10^{-2} | 3.43×10^{-3} | 1.28×10^{-2} | 5.42×10^{-3} | 9.72×10^{-2} |
| Ag-108m | | | 2.48×10^{-5} | | | | | 2.48×10^{-5} |
| Ni-65 | | | | | 1.84×10^{-5} | | | 1.84×10^{-5} |
| Nb-97 | | | | 4.69×10^{-3} | 6.63×10^{-3} | 3.81×10^{-4} | 3.18×10^{-4} | 1.20×10^{-2} |
| Na-24 | | 3.68×10^{-3} | 2.08×10^{-3} | 1.60×10^{-5} | 2.52×10^{-5} | | 6.19×10^{-6} | 5.86×10^{-3} |
| Xe-133m | | | 1.31×10^{-3} | 1.12×10^{-3} | 6.56×10^{-4} | | 3.82×10^{-5} | 3.12×10^{-3} |
| I-132 | | 1.45×10^{-4} | 9.63×10^{-5} | | 8.24×10^{-5} | | 3.24×10^{-4} | 3.24×10^{-4} |
| Cs-136 | | 1.34×10^{-2} | 1.38×10^{-2} | 8.57×10^{-3} | 1.45×10^{-4} | 1.35×10^{-4} | 2.61×10^{-5} | 3.61×10^{-2} |
| Kr-85m | | | | 3.31×10^{-6} | | | | 3.31×10^{-6} |
| Kr-88 | | | | 2.10×10^{-3} | | | | 2.10×10^{-3} |
| Np-239 | | | | | 1.95×10^{-5} | | | 1.95×10^{-5} |
| Sr-90 | | 1.41×10^{-4} | 1.44×10^{-4} | 8.94×10^{-5} | 4.41×10^{-5} | 1.22×10^{-5} | 5.67×10^{-5} | 4.85×10^{-4} |
| Sr-92 | | | | | | | | |
| Ce-144 | | | | 1.29×10^{-4} | | | | 1.29×10^{-4} |
| Mn-56 | | | | 2.80×10^{-4} | | | | 2.80×10^{-4} |
| Mo-99 | | 2.16×10^{-3} | | | | | | 2.16×10^{-3} |
| Zr-97 | | | | | | 3.81×10^{-5} | | 3.81×10^{-5} |
| Ag-110m | | 3.76×10^{-3} | 4.71×10^{-4} | 8.24×10^{-3} | 2.50×10^{-3} | 2.39×10^{-3} | 2.54×10^{-3} | 1.99×10^{-1} |
| Eu-139 | | | | 3.42×10^{-4} | | | | 3.42×10^{-4} |
| Pb-95 | | 3.69×10^{-4} | | 2.52×10^{-4} | 9.33×10^{-5} | 5.76×10^{-5} | 4.53×10^{-4} | 1.22×10^{-3} |
| Po-59 | | | 6.43×10^{-4} | 1.06×10^{-3} | 3.33×10^{-4} | 9.11×10^{-5} | 5.15×10^{-5} | 2.18×10^{-3} |
| Sr-124 | | | | 5.54×10^{-4} | | | | |
| Co-57 | | | | | 7.16×10^{-5} | 2.56×10^{-5} | 1.31×10^{-4} | 7.82×10^{-4} |
| K-147 | | | | | | | | |
| Cs-135m | | | | | | | | |
| Xe-131m | | | | | 3.97×10^{-4} | | | 3.97×10^{-4} |
| Zr-95 | | 8.69×10^{-6} | | 4.15×10^{-5} | | 2.38×10^{-5} | 1.49×10^{-4} | 2.23×10^{-5} |
| I-134 | | | | 2.44×10^{-5} | | | | 2.44×10^{-5} |
| In-115m | | 1.94×10^{-4} | 2.73×10^{-4} | | 2.15×10^{-6} | | | 4.69×10^{-4} |
| Tc-99m | | 1.11×10^{-2} | 3.24×10^{-2} | 2.93×10^{-3} | 7.31×10^{-5} | | 2.74×10^{-5} | 4.65×10^{-2} |
| Cd-115 | | 1.31×10^{-3} | | 3.74×10^{-4} | | | 6.68×10^{-4} | 2.35×10^{-3} |
| Sn-125 | | 2.98×10^{-3} | | | | | | 2.98×10^{-3} |
| Ru-103 | | | 4.09×10^{-5} | | 6.95×10^{-6} | | | 4.79×10^{-5} |
| 8. Percent of Technical Specifications limit (15 Ci) for total activity released | | 12.65 | 10.93 | 8.93 | 0.93 | 0.82 | 0.68 | 34.94 |

Radioactive Effluent Releases

1. Liquid Releases

| | Units | Jan.-June | July-Dec. | 1976 |
|---|--------|-----------------------|-----------------------|-----------------------|
| | | 1st 6 months | 2nd 6 months | TOTAL |
| 1. Gross radioactivity (E,y) | | | | |
| a. total release | Curies | 5.24 | 1.43 | 6.67 |
| b. average concentration released | μCi/ml | 7.72×10^{-9} | 9.34×10^{-9} | 8.53×10^{-9} |
| c. maximum concentration released | μCi/ml | 2.09×10^{-6} | 1.27×10^{-3} | 1.28×10^{-3} |
| 2. Tritium | | | | |
| a. total release | Curies | 1.27×10^3 | 9.20×10^2 | 2.19×10^3 |
| b. average concentration released | μCi/ml | 1.84×10^{-6} | 8.03×10^{-6} | 4.94×10^{-6} |
| 3. Dissolved noble gases | | | | |
| a. total release | Curies | 1.08 | 1.88×10^{-1} | 1.27 |
| b. average concentration released | μCi/ml | 1.61×10^{-9} | 1.39×10^{-9} | 1.50×10^{-9} |
| 4. Gross alpha radioactivity | | | | |
| a. total release | Curies | 0 | 0 | 0 |
| b. average concentration released | μCi/ml | 0 | 0 | 0 |
| 5. Volume of liquid waste to discharge canal | Liters | 9.38×10^6 | 1.01×10^7 | 1.95×10^7 |
| 6. Volume of dilution water | Liters | 7.46×10^{11} | 4.62×10^{11} | 1.21×10^{12} |
| 7. Isotopes released | Curies | | | |
| Ba-La-140 | | 1.51×10^{-2} | 3.10×10^{-3} | 1.82×10^{-2} |
| Sr-89 | | 7.76×10^{-3} | 2.64×10^{-3} | 1.04×10^{-2} |
| I-131 | | 1.33 | 5.75×10^{-1} | 1.91 |
| I-133 | | 6.02×10^{-2} | 2.05×10^{-2} | 8.07×10^{-2} |
| Xe-133 | | 1.05 | 1.76×10^{-2} | 1.07 |
| Xe-135 | | 2.94×10^{-2} | 1.02×10^{-2} | 3.96×10^{-2} |
| Cs-137 | | 9.04×10^{-1} | 1.40×10^{-1} | 1.04 |
| Cs-134 | | 5.97×10^{-1} | 3.85×10^{-2} | 6.36×10^{-1} |
| Co-60 | | 3.04×10^{-1} | 6.38×10^{-2} | 3.68×10^{-1} |
| Co-58 | | 1.76 | 2.51×10^{-1} | 2.01 |
| Cr-51 | | 5.46×10^{-2} | 2.18×10^{-2} | 7.64×10^{-2} |
| Mn-54 | | 8.03×10^{-2} | 1.51×10^{-1} | 2.31×10^{-1} |
| Ag-108m | | 2.48×10^{-5} | 0 | 2.48×10^{-5} |
| Zr-97 | | 2.22×10^{-5} | 1.18×10^{-4} | 1.40×10^{-4} |
| Rb-97 | | 1.20×10^{-2} | 9.03×10^{-3} | 2.10×10^{-2} |
| Na-24 | | 5.86×10^{-3} | 1.42×10^{-3} | 7.28×10^{-3} |
| Xe-133m | | 3.12×10^{-3} | 4.71×10^{-4} | 3.59×10^{-3} |
| I-132 | | 3.24×10^{-4} | 0 | 3.24×10^{-4} |
| Cs-136 | | 3.61×10^{-2} | 1.06×10^{-2} | 4.67×10^{-2} |
| Kr-85m | | 3.31×10^{-6} | 3.45×10^{-4} | 3.48×10^{-4} |
| Kr-88 | | 2.10×10^{-3} | 8.63×10^{-4} | 2.96×10^{-3} |
| Zn-65 | | 1.95×10^{-5} | 0 | 1.95×10^{-5} |
| Sr-90 | | 4.85×10^{-4} | 1.65×10^{-4} | 6.50×10^{-4} |
| Sr-92 | | - | 3.28×10^{-4} | 3.28×10^{-4} |
| Ce-144 | | 1.29×10^{-4} | 0 | 1.29×10^{-4} |
| Mn-56 | | 2.80×10^{-4} | 1.91×10^{-5} | 2.99×10^{-4} |
| Mo-99 | | 2.16×10^{-3} | 3.77×10^{-3} | 5.93×10^{-3} |
| Y-92 | | - | 1.18×10^{-6} | 1.18×10^{-6} |
| Ac-110m | | 1.99×10^{-2} | 1.31×10^{-2} | 3.30×10^{-2} |
| Ba-139 | | 3.42×10^{-4} | 0 | 3.42×10^{-4} |
| Rb-95 | | 1.22×10^{-3} | 1.02×10^{-3} | 2.24×10^{-3} |
| Fe-59 | | 2.18×10^{-3} | 3.94×10^{-3} | 6.12×10^{-3} |
| Co-57 | | 7.82×10^{-4} | 4.01×10^{-4} | 1.18×10^{-3} |
| Xe-131m | | 3.97×10^{-4} | 0 | 3.97×10^{-4} |
| Zr-95 | | 2.23×10^{-4} | 1.52×10^{-3} | 1.74×10^{-3} |
| I-134 | | 2.44×10^{-5} | 1.42×10^{-4} | 1.66×10^{-4} |
| In-115m | | 4.69×10^{-4} | 2.79×10^{-5} | 5.00×10^{-4} |
| Tc-99m | | 4.65×10^{-2} | 5.87×10^{-3} | 5.24×10^{-2} |
| Cd-115 | | 2.35×10^{-3} | 1.80×10^{-3} | 4.15×10^{-3} |
| Sn-125m | | 2.98×10^{-3} | 1.21×10^{-2} | 1.51×10^{-2} |
| Ru-103 | | 4.79×10^{-5} | 0 | 4.79×10^{-5} |
| I-135 | | - | 5.45×10^{-4} | 5.45×10^{-4} |
| W-187 | | - | 1.08×10^{-4} | 1.08×10^{-4} |
| Cd-115m | | - | 5.01×10^{-4} | 5.01×10^{-4} |
| Ce-134 | | - | 3.17×10^{-3} | 3.17×10^{-3} |
| Ar-41 | | - | 2.06×10^{-5} | 2.06×10^{-5} |
| Rb-88 | | - | 2.95×10^{-2} | 2.95×10^{-2} |
| 8. Percent of Technical Specifications limit (15 Ci) for total activity released. | | 34.94 | 9.43 | 44.37 |