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 50-287 Oconee Nuclear Station, Unit 3, Duke Power Co. 05000287  
 AUTH. NAME AUTHOR AFFILIATION  
 TUCKER, H.B. Duke Power Co.  
 RECIP. NAME RECIPIENT AFFILIATION  
 GRACE, J.N. Region 2, Office of Director

SUBJECT: Forwards "Environ Radiological Monitoring Program Annual  
 Operating Rept, 1984."

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DUKE POWER COMPANY  
P.O. BOX 33189  
CHARLOTTE, N.C. 28242

HAL B. TUCKER  
VICE PRESIDENT  
NUCLEAR PRODUCTION

July 30, 1985

TELEPHONE  
(704) 373-4531

Dr. J. Nelson Grace, Regional Administrator  
U. S. Nuclear Regulatory Commission  
Region II  
101 Marietta Street, NW, Suite 2900  
Atlanta, Georgia 30323

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

Dear Dr. Grace:

Pursuant to Oconee Nuclear Station Technical Specification 6.6.1.5, please find attached the Oconee Nuclear Station 1984 Annual Environmental Radiological Monitoring Report.

Very truly yours,

*H. B. Tucker*  
Hal B. Tucker

PFG:slb

Attachment

cc: ✓ Mr. Harold R. Denton, Director  
Office of Nuclear Reactor Regulation  
U. S. Nuclear Regulatory Commission  
Washington, D. C. 20555

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DUKE POWER COMPANY  
OCONEE NUCLEAR STATION  
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM  
ANNUAL OPERATING REPORT

January 1, 1984 - December 31, 1984

~~8565828/28~~ 28 RB

Oconee Nuclear Station  
Annual Radiological Environmental Monitoring Program  
Operating Report for 1984

Exhibit 1 summarizes the results of the Environmental Radiological Monitoring Program for 1984.

Duke Power Company's Environmental Radiological Laboratory (ERL) performs the program analyses with the exception of H-3 analyses which are performed by Teledyne Isotopes. Both the ERL and Teledyne Isotopes participate in the EPA Cross-Check Program; the cross-check code designations are CP and CJ respectively.

Some unavoidable deviations from the required analysis schedule occurred during the year. These deviations are tabulated below.

Unavailable Analyses

| <u>Sample<br/>(Location #), Date</u> | <u>Reason</u>   |
|--------------------------------------|---|
| A. <u>Air Filter/Cartridge</u>       |   |
| 1. (061), (074), 3/27-4/03/84        | Sampler was not operating at time of sample collection. ERL was unable to calculate sample volume.  |
| B. <u>Air Filter</u>                 |   |
| 1. (061), 4/03-4/10/84               | Sampler had stopped prior to sample collection. Due to unavailability of stop flow rate total volume could not be calculated.             |
| 2. (061), (074), 4/17-4/24/84        | Samples were packed in cooler containing milk sample packed in ice and the filters were saturated with water upon receipt at the ERL.     |
| C. <u>Air Cartridge</u>              |   |
| 1. (061), 4/03-4/10/84               | Sampler had stopped prior to sample collection. Due to unavailability of stop flow rate total volume could not be calculated.             |
| 2. (061), (074), 4/17-4/24/84        | Samples were packed in cooler containing milk samples packed in ice and the cartridges were saturated with water upon receipt at the ERL. |
| 3. (073), 4/08-5/15/84               | Sampler running but no air flow at time of collection.  |

D. Milk

1. (071), 10/09/84

Sample backlog delayed analysis until 11/09/84. A power failure the evening of 11/09/84 caused counts to be lost. Repeat analysis would have delayed other analyses jeopardizing several more LLD's for other samples.

E. Broadleaf Vegetation

1. (028), 10/09/84
- 
- (073)

The routine Tech Spec samples were stored with 17 special broadleaf samples collected by Oconee on 9/28/84 and were inadvertently discarded with the special samples prior to analysis.

F. TLD

- |   |         |
|---|---------|
| 1. (024) (051), 1/01-3/31/84<br>(054) (056) | Missing |
| 2. (024) (042), 4/01-6/30/84<br>(054) (056) | Missing |
| 3. (046) (048), 7/01-9/30/84<br>(054)       | Missing |

Deviations from Required Sampling Schedule

Sample  
(Location #), Date

Reason

A. Milk

1. (066), 2/28/84

Required sample volume not available. Collected about 1500 ml instead of the required 3500 ml.

B. Air Filter/Cartridge

1. (060), 1/10/84 - 1/17/84

Sampler turned off on 1/12/84 from 1400 to 1405 hrs. for maintenance on sampler housing.

2. (072), 3/13/84 - 3/20/84

Sampler had no flow when sample collected. Sample collection period 168.9 hrs.

3. (072), 3/20/84 - 3/27/84

Sampler had to be replaced during sampling period on 3/20/84 from 0928 to 1145 hrs.

C. Drinking Water

1. (064), 3/27/84 - 4/24/84

Sample line clogged during 4/10/84 to 4/17/84. Grab sample collected on 4/17/84. Collection of grab sample affected quarterly composite as it is not representative of entire collection period.

2. (066), 4/24/84 - 5/22/84

Sampler was out-of-service from 5/8/84 to 5/15/84. Grab sample taken 5/15/84. Collection of grab sample affected quarterly composite as it is not representative of entire collection period.

D. Surface Water

1. (062), 1/1/84 - 1/3/84

Sampler inadvertently left off. Turned on 1/3/84. Quarterly composite affected as it is not representative of entire collection period.

2. (062), 1/3/84 - 1/31/84

Sampler out-of-service: 1/3/84 to 1/9/84; 1/12/84 to 1/13/84; 1/20/84 to 1/31/84. Quarterly composite affected as it is not representative of entire collection period.

3. (063), 1/31/84 - 2/28/84

Sampler out-of-service: 1/31/84 to 2/2/84; 2/2/84 to 2/10/84. Grab samples collected daily while sampler not working. Quarterly composite affected as it is not representative of entire collection period.

4. (062), 4/24/84 - 5/22/84

Sampler out-of-service 5/1/84 to 5/2/84. Grab sample taken both days. Quarterly composite affected as it is not representative of entire collection period.

5. (062), 5/22/84 - 6/19/84

Sampler not pumping due to worn tubing on 5/25/84, 6/8/84, 6/9/84 and 6/10/84. Grab samples taken each day sampler not working. Quarterly composite affected as it is not representative of entire collection period.

6. (062), 5/25/84 - 6/19/84

Sampler blew fuse 5/29/84. Time out-of-service unknown. Quarterly composite affected as it is not representative of entire collection period.

7. (063), 6/19/84 - 7/17/84  
Sample inadvertently dropped. Only 1 liter of sample collected. Quarterly composite affected as it is not representative of entire collection period.
8. (062), 6/19/84 - 7/17/84  
Sampler out-of-service due to pumping problem. Grab samples taken on 7/14/84 and 7/15/84. Quarterly composite affected as it is not representative of entire collection period.
9. (062), 7/17/84 - 8/14/84  
Sampler out-of-service due to shaft slipping on 7/18/84. Quarterly composite affected as it is not representative of entire collection period.
10. (062), 8/14/84 - 9/11/84  
Sampler volume control malfunctioning 8/14/84 to 8/23/84. Quarter composite affected as it is not representative of entire collection period.
11. (062), 9/11/84 - 10/9/84  
New sampler installed. No sample collected 9/11/84 to 9/13/84. Quarterly composite affected as it is not representative of entire collection period.

To reduce the number of sample deviations due to equipment failure, all composite water samplers and cartridge air samplers were replaced in 1984. Also, air sampling filters and cartridges are now bagged and sealed to prevent them from becoming wet during transport to the Environmental Radiological Laboratory.

Lower Limits of Detection Not Met

| <u>Sample<br/>(Location #), Date</u> | <u>Radionuclide</u> | <u>Reason</u>   |
|--------------------------------------|---------------------|---|
| A. <u>Drinking Water Comp.</u>       |                     |   |
| 1. (066), 2/07-2/28/84               | BaLa-140            | LLD not met due to background contributions from other radionuclides in sample. |
| B. <u>Milk</u>                       |                     |   |
| 1. (066), 2/28/84                    | Cs-134              | LLD not met for Cs-134 because of bad computer memory board.                    |

- |                   |        |   |
|-------------------|--------|---|
| 2. (071), 2/28/84 | Cs-137 | LLD not met for Cs-137 because of bad computer memory board.                              |
| 3. (069), 9/25/84 | I-131  | Large sample backlog caused too much decay time between sample collection and count date. |

To lessen the incidence of missed LLD's due to sample backlog, the ERL purchased two (2) additional Alpha/Beta Counters in 1984.

On January 1, 1984 the location for sampling fish in ONS liquid effluent pathway changed from location number 013 (7 miles downstream) to number 063, a few hundred yards downstream of the effluent release point. Catfish collected at 063 in May of 1984 indicated Cs-137 and Cs-134 concentrations higher than had been typical for old location number 013. The System Health Physicist requested that the station collect fish from old location 013 as well as location 063 for a two-year period to determine how much of the increase in radiocesium concentration observed at the new location could be due to proximity to the nuclear station. In June and December 1984, the NRC was notified that reporting levels in Table 4.11-3 of the Radiological Effluent Technical Specifications had been exceeded.

Page 10 of Exhibit 1 contains a summary of the regular Tech Spec samples plus additional samples collected at locations 013 and 063.

Fish samples collected during 1984 showed a significant increase in radiocesium activity over 1983 samples. This increase can be attributed to the change in sampling locations mentioned above since the old location (013) is not showing an increase of radiocesium levels in 1984 over 1984.

Based on recommendations from Analytics, Inc. and guidance from the system health physics group, the ERL modified the counting technique for air particulates beginning second quarter 1984. Subsequent to April 3, 1984 all air filter and cartridge samples were counted separately instead of being counted as a composite as had been previously practiced. Pages 1-3 of Exhibit 1 contain composite results for the period January 1, 1984 - April 3, 1984 and separate filter and cartridge results for the period April 3, 1984 - December 31, 1984.

#### Comparison of Environmental and Liquid Waste Release Data

The annual summary sheets (Exhibit 1) identify fish (Cs-134, Cs-137) and drinking water (H-3) as the two pathways having significant activity in the environment.

Dose calculations were performed per Reg. Guide 1.109 using the Exhibit 1 data for Cs-134 and Cs-137. The results of these calculations show a liver dose of 3.7 mrem/yr for teens and adults. The same calculations were also done using Liquid Waste Release data for 1984 with a result of 0.37 mrem/yr. The reason for the difference between these two doses is demonstrated by Exhibit 2 which



shows release of radiocesium by year and also by accumulation over the operating life of the station. This graph shows that the majority of radiocesium released by Oconee was released prior to 1978. This suggests that much of the activity found in fish may be due to old radiocesium released prior to 1984. The calculation based on liquid releases does not take account of old releases.

Calculations performed for H-3 activity in drinking water show a dose of 0.077 mrem/yr for both actual environmental data and Liquid Waste Release data.

Exhibit 1  
ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 1 OF 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 58-269,-270,-287  
JANUARY 1, 1984 - APRIL 3, 1984

| MEDIUM<br>SAMPLED<br>UNITS                                       | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD) | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN<br>NAME<br>DIST/<br>DIRECTION | MEAN (F)<br>RANGE                        | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>073<br>9.0 mi./N W | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|--|--|-------|--|---|--|--|--|
| AIR FILTER +<br>CARTRIDGE COMP<br>PC1/CUBIC METER<br>5 LOCATIONS |  |       |  |   |  |  |  |
| MN-54  | 68   | 0.00  | 1.47E-03( 2/ 54)                                 | 061   | 2.75E-03( 1/ 13)                         | 1.88E-03( 2/ 14)   |  |
| FE-59  | 68   | 0.00  | 1.33E-02-- 1.34E-02<br>1.87E-03( 4/ 54)          | 1.5 mi./SSW<br>060  | 1.34E-02-- 1.34E-02<br>4.84E-03( 1/ 14)  | 8.15E-03-- 9.03E-03<br>1.78E-03( 0/ 14)                      |  |
| CO-58  | 68   | 0.00  | 1.34E-02-- 2.20E-02<br>7.91E-04( 2/ 54)          | 2.5 mi./NNE<br>061  | 1.81E-02-- 1.81E-02<br>2.40E-03( 1/ 13)  | 0.00E-01-- 0.00E-01<br>5.61E-04( 0/ 14)                      |  |
| CO-60  | 68   | 0.00  | 7.06E-03-- 1.78E-02<br>2.31E-03( 5/ 54)          | 061   | 1.78E-02-- 1.78E-02<br>3.10E-03( 2/ 13)  | 0.00E-01-- 0.00E-01<br>9.54E-04( 1/ 14)                      |  |
| ZN-65  | 68   | 0.00  | 6.83E-03-- 2.20E-02<br>-2.30E-03( 0/ 54)         | 061   | 8.53E-03-- 1.37E-02<br>-1.25E-03( 0/ 13) | 9.24E-03-- 9.24E-03<br>-3.03E-03( 0/ 14)                     |  |
| ZR-95  | 68   | 0.00  | 0.00E-01-- 0.00E-01<br>3.00E-04( 2/ 54)          | 060   | 0.00E-01-- 0.00E-01<br>1.76E-03( 0/ 14)  | 0.00E-01-- 0.00E-01<br>2.12E-03( 1/ 14)                      |  |
| NB-95  | 68   | 0.00  | 1.55E-02-- 2.49E-02<br>1.27E-03( 3/ 54)          | 061   | 0.00E-01-- 0.00E-01<br>2.23E-03( 2/ 13)  | 2.10E-02-- 2.10E-02<br>1.11E-03( 1/ 14)                      |  |
| I-131  | 68   | 0.07  | 7.64E-03-- 1.42E-02<br>1.05E-03( 2/ 54)          | 074   | 9.37E-03-- 1.42E-02<br>1.79E-03( 0/ 13)  | 9.88E-03-- 9.88E-03<br>7.52E-04( 1/ 14)                      |  |
| CS-134   | 68   | 0.05  | 5.82E-03-- 9.58E-03<br>-4.62E-03( 1/ 54)         | 1.7 mi./NNW<br>074  | 0.00E-01-- 0.00E-01<br>9.93E-04( 1/ 13)  | 7.51E-03-- 7.51E-03<br>-1.75E-03( 0/ 14)                     |  |
| CS-137   | 68   | 0.06  | 1.69E-02-- 1.69E-02<br>3.08E-03( 5/ 54)          | 072   | 1.69E-02-- 1.69E-02<br>4.18E-03( 2/ 14)  | 0.00E-01-- 0.00E-01<br>2.47E-03( 2/ 14)                      |  |
| BALA-140   | 68   | 0.00  | 6.99E-03-- 2.95E-02<br>1.35E-03( 6/ 54)          | 1.7 mi./S<br>061  | 7.66E-03-- 2.95E-02<br>3.38E-03( 1/ 13)  | 8.82E-03-- 1.52E-02<br>1.24E-03( 1/ 14)                      |  |
|  |  |       | 0.00E-01-- 1.80E-02                              |   | 1.77E-02-- 1.77E-02                      | 2.00E-02-- 2.00E-02  |  |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS  
RANGE BASED UPON DETECTAB

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

Page 2 of 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269,-270,-287  
APRIL 3, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS                                   | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD) | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN             |                     | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>073<br>9.0 mi./N W | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|--|--|-------|--|---|---------------------|--|--|
|  |  |       |  | NAME<br>DIST/<br>DIRECTION                | MEAN (F)<br>RANGE   |  |  |
| AIR CARTRIDGE<br>COMPOSITE<br>PC1/CUBIC METER<br>5 LOCATIONS |  |       |  |   |                     |  |  |
|  | MN-54  | 192   | 0.00   | 3.03E-04( 5/ 153)                         | 072                 | 8.57E-04( 3/ 39)   | 9.08E-04( 2/ 39)                             |
|  | FE-59  | 192   | 0.00   | 2.60E-03-- 1.09E-02<br>7.55E-04( 3/ 153)  | 1.7 mi./S<br>061    | 7.10E-03-- 1.09E-02<br>1.55E-03( 1/ 37)                      | 2.01E-03-- 2.90E-03                          |
|  | CO-58  | 192   | 0.00   | 5.79E-03-- 1.97E-02<br>3.64E-04( 5/ 153)  | 5 mi./SSW<br>072    | 1.55E-02-- 1.55E-02<br>5.66E-04( 1/ 39)                      | 1.55E-03( 3/ 39)<br>3.94E-03-- 1.20E-02      |
|  | CO-60  | 192   | 0.00   | 2.46E-03-- 6.92E-03<br>4.63E-04( 10/ 153) | 074                 | 6.92E-03-- 6.92E-03<br>6.77E-04( 3/ 38)                      | 2.46E-04( 2/ 39)<br>2.99E-03-- 5.95E-03      |
|  | ZN-65  | 192   | 0.00   | 2.05E-03-- 2.32E-02<br>-5.26E-04( 0/ 153) | 1.7 mi./NNW<br>072  | 3.74E-03-- 2.32E-02<br>5.47E-04( 0/ 39)                      | 7.37E-03-- 2.56E-02<br>6.20E-04( 1/ 39)      |
|  | ZR-95  | 192   | 0.00   | 0.00E-01-- 0.00E-01<br>6.63E-04( 6/ 153)  | 060                 | 0.00E-01-- 0.00E-01<br>1.10E-03( 3/ 39)                      | 0.01E-03-- 0.01E-03<br>2.12E-03( 1/ 39)      |
|  | NB-95  | 192   | 0.00   | 4.94E-03-- 1.47E-02<br>4.01E-04( 8/ 153)  | 12.5 mi./NNE<br>060 | 6.47E-03-- 1.07E-02<br>5.66E-04( 2/ 39)                      | 9.25E-03-- 9.25E-03<br>1.07E-03( 3/ 39)      |
|  | I-131  | 192   | 0.07   | 1.69E-03-- 4.30E-03<br>6.43E-04( 5/ 153)  | 072                 | 3.17E-03-- 3.31E-03<br>0.11E-04( 2/ 39)                      | 5.92E-03-- 1.54E-02<br>-2.30E-05( 1/ 39)     |
|  | CS-134                                       | 192   | 0.05   | 3.22E-03-- 1.02E-02<br>3.79E-04( 5/ 153)  | 074                 | 3.22E-03-- 7.39E-03<br>6.47E-04( 2/ 38)                      | 7.91E-03-- 7.91E-03<br>3.85E-04( 2/ 39)      |
|  | CS-137                                       | 192   | 0.06   | 4.31E-03-- 1.47E-02<br>1.95E-03( 28/ 153) | 074                 | 4.45E-03-- 0.01E-03<br>2.06E-03( 9/ 38)                      | 7.00E-03-- 1.11E-02<br>2.30E-03( 5/ 39)      |
|  | BALA-140                                     | 192   | 0.00   | 2.58E-03-- 2.45E-02<br>2.18E-03( 7/ 153)  | 074                 | 4.53E-03-- 2.45E-02<br>7.96E-03( 3/ 38)                      | 2.93E-03-- 3.62E-02<br>-3.07E-04( 0/ 39)     |
|  |  |       |  | 2.22E-03-- 9.67E-03                       |                     | 2.22E-03-- 4.99E-03  | 0.00E-01-- 0.00E-01                          |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS

RANGE BASED UPON DETECTABLE ACTIVITY MEASUREMENTS ONLY

ZERO RANGE INDICATES NO DETECTABLE ACTIVITY MEASUREMENTS

FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 3 OF 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269,-270,-287  
APRIL 3, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS                               | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD) | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN<br>NAME<br>DIST/<br>DIRECTION | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>073<br>9.0 mi./N W | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|--|--|-------|--|---|--|--|
| AIR FILTER<br>COMPOSITE<br>PCI/CUBIC METE<br>5 LOCATIONS |  |       |  |   |  |  |
| MN-54  | 192  | 0.00  | 1.41E-04( 6/ 153)                                | 074   | 4.30E-04( 1/ 38)   | 9.60E-04( 4/ 39)                             |
| FE-59  | 192  | 0.00  | 1.79E-03-- 6.48E-03<br>4.37E-04( 3/ 153)         | 1.7 mi./NNW<br>072  | 1.95E-03-- 1.95E-03<br>6.66E-04( 1/ 39)                      | 2.48E-03-- 1.43E-02<br>6.11E-04( 2/ 39)      |
| CO-58  | 192  | 0.00  | 3.90E-03-- 6.34E-03<br>-3.99E-05( 3/ 153)        | 1.7 mi./S<br>074  | 3.90E-03-- 3.90E-03<br>1.30E-04( 0/ 38)                      | 2.22E-03-- 1.65E-02<br>-3.12E-04( 0/ 39)     |
| CO-60  | 192  | 0.00  | 1.30E-03-- 5.24E-03<br>6.71E-07( 4/ 153)         | 074   | 0.00E-01-- 0.00E-01<br>2.80E-04( 1/ 38)                      | 0.00E-01-- 0.00E-01<br>1.44E-04( 2/ 39)      |
| ZN-65  | 192  | 0.00  | 1.81E-03-- 5.82E-03<br>-3.49E-04( 2/ 153)        | 072   | 3.44E-03-- 3.44E-03<br>2.34E-04( 1/ 39)                      | 2.44E-03-- 4.57E-03<br>-1.54E-03( 0/ 39)     |
| ZR-95  | 192  | 0.00  | 7.48E-03-- 2.07E-02<br>7.53E-04( 7/ 153)         | 074   | 2.07E-02-- 2.07E-02<br>1.50E-03( 1/ 38)                      | 0.00E-01-- 0.00E-01<br>1.10E-03( 1/ 39)      |
| NB-95  | 192  | 0.00  | 3.32E-03-- 3.67E-02<br>3.03E-04( 7/ 153)         | 074   | 3.67E-02-- 3.67E-02<br>5.89E-04( 3/ 38)                      | 7.33E-03-- 7.33E-03<br>-3.28E-04( 0/ 39)     |
| I-131  | 192  | 0.07  | 2.10E-03-- 9.11E-03<br>6.23E-04( 10/ 153)        | 060   | 2.20E-03-- 9.11E-03<br>9.35E-04( 4/ 39)                      | 0.00E-01-- 0.00E-01<br>1.94E-04( 0/ 39)      |
| CS-134   | 192  | 0.05  | 3.63E-03-- 1.20E-02<br>8.97E-06( 8/ 153)         | 2.5 mi./NNE<br>072  | 3.95E-03-- 8.49E-03<br>7.18E-05( 2/ 39)                      | 0.00E-01-- 0.00E-01<br>-6.12E-04( 0/ 39)     |
| CS-137   | 192  | 0.06  | 1.87E-03-- 7.88E-03<br>4.95E-04( 3/ 153)         | 074   | 1.87E-03-- 7.88E-03<br>6.63E-04( 1/ 38)                      | 0.00E-01-- 0.00E-01<br>3.37E-04( 1/ 39)      |
| BALA-140   | 192  | 0.00  | 2.40E-03-- 5.09E-03<br>1.53E-04( 6/ 153)         | 061   | 2.40E-03-- 2.40E-03<br>5.34E-04( 3/ 37)                      | 4.41E-03-- 4.41E-03<br>3.98E-04( 1/ 39)      |
|  |  |       | 1.46E-03-- 9.71E-03                              | 1.5 mi./SSW   | 3.54E-03-- 9.71E-03  | 9.71E-03-- 9.71E-03                          |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS  
RANGE BASED UPON DETECTABLE ACTIVITY MEASUREMENTS ONLY  
ZERO RANGE INDICATES NO DETECTABLE ACTIVITY MEASUREMENTS  
FRACTION OF DETECTABLE ACTIVITY MEASUREMENT

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 4 OF 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269,-270,-287  
JANUARY 1, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD) | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN<br>NAME<br>DIST/<br>DIRECTION | MEAN (F)<br>RANGE                        | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>062<br>0.7 mi./ENE | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|----------------------------|--|-------|--|---|--|--|--|
| SURFACE                    |  |       |  |   |  |  |  |
| WATER                      |  |       |  |   |  |  |  |
| PCI/L                      |  |       |  |   |  |  |  |
| 2 LOCATIONS                |  |       |  |   |  |  |  |
| MN-54                      | 28   | 15.00 | 7.51E-01( 0/ 14)                                 | 063   | 7.51E-01( 0/ 14)                         | -1.29E 00( 0/ 14)  |  |
| FE-59                      | 28   | 30.00 | 0.00E-01-- 0.00E-01<br>2.54E 00( 0/ 14)          | 10.8 mi./ESE<br>063   | 0.00E-01-- 0.00E-01<br>2.54E 00( 0/ 14)  | 0.00E-01-- 0.00E-01<br>1.01E 00( 0/ 14)                      |  |
| CO-58                      | 28   | 15.00 | 0.00E-01-- 0.00E-01<br>9.40E-01( 2/ 14)          | 063   | 0.00E-01-- 0.00E-01<br>9.40E-01( 2/ 14)  | 0.00E-01-- 0.00E-01<br>2.31E-01( 0/ 14)                      |  |
| CO-60                      | 28   | 15.00 | 5.27E 00-- 6.32E 00<br>6.30E-01( 0/ 14)          | 063   | 5.27E 00-- 6.32E 00<br>6.30E-01( 0/ 14)  | 0.00E-01-- 0.00E-01<br>1.76E 00( 3/ 14)                      |  |
| ZN-65                      | 28   | 30.00 | 0.00E-01-- 0.00E-01<br>5.40E-01( 0/ 14)          | 063   | 0.00E-01-- 0.00E-01<br>5.40E-01( 0/ 14)  | 6.08E 00-- 9.30E 00<br>1.95E-02( 0/ 14)                      |  |
| ZR-95                      | 28   | 30.00 | 0.00E-01-- 0.00E-01<br>1.70E 00( 1/ 14)          | 063   | 0.00E-01-- 0.00E-01<br>1.70E 00( 1/ 14)  | 0.00E-01-- 0.00E-01<br>2.45E 00( 1/ 14)                      |  |
| NB-95                      | 28   | 15.00 | 9.80E 00-- 9.80E 00<br>7.90E-01( 0/ 14)          | 063   | 9.80E 00-- 9.80E 00<br>7.90E-01( 0/ 14)  | 1.04E 01-- 1.04E 01<br>8.60E-02( 0/ 14)                      |  |
| I-131                      | 28   | 15.00 | 0.00E-01-- 0.00E-01<br>2.26E 00( 0/ 14)          | 063   | 0.00E-01-- 0.00E-01<br>2.26E 00( 0/ 14)  | 0.00E-01-- 0.00E-01<br>1.89E 00( 1/ 14)                      |  |
| CS-134                     | 28   | 15.00 | 0.00E-01-- 0.00E-01<br>3.03E-01( 0/ 14)          | 063   | 0.00E-01-- 0.00E-01<br>3.03E-01( 0/ 14)  | 9.74E 00-- 9.74E 00<br>8.41E-01( 1/ 14)                      |  |
| CS-137                     | 28   | 18.00 | 0.00E-01-- 0.00E-01<br>4.83E-01( 0/ 14)          | 063   | 0.00E-01-- 0.00E-01<br>4.83E-01( 0/ 14)  | 6.28E 00-- 6.28E 00<br>1.74E 00( 2/ 14)                      |  |
| BALA-140                   | 28   | 15.00 | 0.00E-01-- 0.00E-01<br>-1.25E-01( 0/ 14)         | 063   | 0.00E-01-- 0.00E-01<br>-1.25E-01( 0/ 14) | 4.62E 00-- 6.10E 00<br>6.87E-01( 0/ 14)                      |  |
|                            |  |       | 0.00E-01-- 0.00E-01                              |   | 0.00E-01-- 0.00E-01                      | 0.00E-01-- 0.00E-01  |  |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS

RANGE BASED UPON DETECTABLE ACTIVITY MEASUREMENTS ONLY

ZERO RANGE INDICATES NO DETECTABLE ACTIVITY MEASUREMENTS

FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 5 OF 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269,-270,-287  
JANUARY 1, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS                               | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD) | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN |                   | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>062<br>0.7 mi./ENE | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|--|--|-------|--|-------------------------------|-------------------|--|--|
|  |  |       |  | NAME                          | MEAN (F)<br>RANGE |  |  |
| SURFACE WATER,<br>QUARTER COMPOS<br>PC1/L<br>2 LOCATIONS |  |       |  |                               |                   |  |  |
|  |  |       |  |                               |                   |  |  |
|  |  |       |  |                               |                   |  |  |
|  |  |       |  |                               |                   |  |  |
|  |  |       |  |                               |                   |  |  |
|  |  |       |  |                               |                   |  |  |
|  |  |       |  |                               |                   |  |  |
|  |  |       |  |                               |                   |  |  |
|  |  |       |  |                               |                   |  |  |
|  |  |       |  |                               |                   |  |  |
|  | H-3  | 8     | 2000.00  | 9.93E 03( 4/ 4)               | 063               | 9.93E 03( 4/ 4)  | 1.27E 02( 2/ 4)                              |
|  |  |       |  | 7.80E 03-- 1.21E 04           | 10.8 mi./ESE      | 7.80E 03-- 1.21E 04  | 6.40E 01-- 1.90E 02                          |

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FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 6 OF 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269,-270,-287  
JANUARY 1, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS                | I<br>TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | I<br>(LLD) | I<br>ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | I<br>LOCATION W/ HIGHEST ANN. MEAN<br>NAME<br>DIST/<br>DIRECTION | I<br>CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>064<br>6.7 mi./S W | I<br>NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|---|---|------------|---|--|---|---|
|   |   |            |   |  |   |   |
| DRINKING<br>WATER<br>PCI/L<br>3 LOCATIONS |   |            |   |  |   |   |
|   | BETA-T  | 39         | 4.00  | 1.79E 00( 26/ 26)  | 065 1.87E 00( 13/ 13)   | 1.00E 00( 12/ 13)                                 |
|   | MN-54   | 39         | 15.00   | 6.76E-01-- 8.26E 00<br>5.36E-01( 1/ 26)                          | 18.1 mi./SSE 6.76E-01-- 8.26E 00<br>065 6.41E-01( 0/ 13)          | 5.98E-01-- 1.57E 00<br>-3.01E-01( 0/ 13)          |
|   | FE-59   | 39         | 30.00   | 5.50E 00-- 5.50E 00<br>2.07E 00( 2/ 26)                          | 066 0.00E-01-- 0.00E-01<br>3.59E 00( 2/ 13)                       | 0.00E-01-- 0.00E-01<br>1.76E 00( 0/ 13)           |
|   | CO-58   | 39         | 15.00   | 1.13E 01-- 1.20E 01<br>-2.09E-01( 0/ 26)                         | 19.0 mi/SSE 1.13E 01-- 1.20E 01<br>065 1.74E-01( 0/ 13)           | 0.00E-01-- 0.00E-01<br>0.90E-01( 1/ 13)           |
|   | CO-60   | 39         | 15.00   | 0.00E-01-- 0.00E-01<br>1.41E 00( 4/ 26)                          | 065 0.00E-01-- 0.00E-01<br>2.51E 00( 3/ 13)                       | 0.85E 00-- 8.05E 00<br>1.09E 00( 2/ 13)           |
|   | ZN-65   | 39         | 30.00   | 4.55E 00-- 7.23E 00<br>3.11E-01( 0/ 26)                          | 065 4.55E 00-- 7.23E 00<br>1.01E 00( 0/ 13)                       | 4.15E 00-- 4.75E 00<br>2.07E-03( 0/ 13)           |
|   | ZR-95   | 39         | 30.00   | 0.00E-01-- 0.00E-01<br>5.61E-01( 2/ 26)                          | 065 0.00E-01-- 0.00E-01<br>1.29E 00( 2/ 13)                       | 0.00E-01-- 0.00E-01<br>1.98E 00( 1/ 13)           |
|   | NB-95   | 39         | 15.00   | 7.33E 00-- 1.31E 01<br>1.06E 00( 1/ 26)                          | 065 7.33E 00-- 1.31E 01<br>1.66E 00( 0/ 13)                       | 7.74E 00-- 7.74E 00<br>-3.53E-01( 0/ 13)          |
|   | I-131   | 39         | 15.00   | 5.22E 00-- 5.22E 00<br>2.31E-01( 1/ 26)                          | 065 0.00E-01-- 0.00E-01<br>9.45E-01( 1/ 13)                       | 0.00E-01-- 0.00E-01<br>4.20E-02( 0/ 13)           |
|   | CS-134  | 39         | 15.00   | 1.14E 01-- 1.14E 01<br>1.25E-01( 0/ 26)                          | 065 1.14E 01-- 1.14E 01<br>6.13E-01( 0/ 13)                       | 0.00E-01-- 0.00E-01<br>6.74E-01( 1/ 13)           |
|   | CS-137  | 39         | 18.00   | 0.00E-01-- 0.00E-01<br>1.63E-01( 0/ 26)                          | 065 0.00E-01-- 0.00E-01<br>1.81E-01( 0/ 13)                       | 9.01E 00-- 9.01E 00<br>-3.19E-02( 0/ 13)          |
|   | BALA-140  | 39         | 15.00   | 0.00E-01-- 0.00E-01<br>1.50E-01( 0/ 26)                          | 066 0.00E-01-- 0.00E-01<br>4.45E-01( 0/ 13)                       | 0.00E-01-- 0.00E-01<br>-5.37E-01( 0/ 13)          |
|   |   |            |   | 0.00E-01-- 0.00E-01  | 0.00E-01-- 0.00E-01   | 0.00E-01-- 0.00E-01                               |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS

RANGE BASED UPON DETECTABLE ACTIVITY MEASUREMENTS ONLY

ZERO RANGE INDICATES NO DETECTABLE ACTIVITY MEASUREMENTS

FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 7 OF 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269, -270, -287  
JANUARY 1, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD) | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN |                                  | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>064<br>6.7 mi./S W | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|----------------------------|--|-------|--|-------------------------------|----------------------------------|--|--|
|                            |  |       |  | NAME<br>DIST/<br>DIRECTION    | MEAN (F)<br>RANGE                |  |  |
| DRINKING WATER             |  |       |  |                               |                                  |  |  |
| QUARTER COMPOS             |  |       |  |                               |                                  |  |  |
| PCI/L                      |  |       |  |                               |                                  |  |  |
| 3 LOCATIONS                |  |       |  |                               |                                  |  |  |
|                            | H-3  | 12    | 2000.00  | 6.40E 02( 6/ 8)               | 065 7.65E 02( 4/ 4)              | 1.45E 02( 2/ 4)  |  |
|                            |  |       |  | 3.70E 02-- 8.40E 02           | 18.1 mi./SSE 7.20E 02-- 8.40E 02 | 1.10E 02-- 1.03E 02  |  |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS

RANGE BASED UPON DETECTABLE ACTIVITY MEASUREMENTS ONLY

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FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)



| MEDIUM<br>SAMPLED<br>UNITS                           | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD)  | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN<br>NAME<br>DIST/<br>DIRECTION | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>068<br>2.0 mi./W | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|--|--|--------|--|---|--|--|
| SHORELINE<br>SEDIMENT<br>PCI/KG (DRY)<br>2 LOCATIONS |  |        |  |   |  |  |
| MN-54  | 6  | 0.00   | 1.10E 01( 1/ 3)                                  | 067   | 1.10E 01( 1/ 3)  |  |
| FE-59  | 6  | 0.00   | 3.05E 01-- 3.05E 01                              | 4.2 mi/SSE  | 3.05E 01-- 3.05E 01  |  |
| CO-58  | 6  | 0.00   | -3.61E 00( 0/ 3)                                 | 067   | -3.61E 00( 0/ 3)   |  |
| CO-60  | 6  | 0.00   | 0.00E-01-- 0.00E-01                              | 067   | 0.00E-01-- 0.00E-01  |  |
| ZN-65  | 6  | 0.00   | 1.09E 01( 0/ 3)                                  | 067   | 1.09E 01( 0/ 3)  |  |
| ZR-95  | 6  | 0.00   | 0.00E-01-- 0.00E-01                              | 067   | 0.00E-01-- 0.00E-01  |  |
| NB-95  | 6  | 0.00   | 1.19E 01( 1/ 3)                                  | 067   | 1.19E 01( 1/ 3)  |  |
| I-131  | 6  | 0.00   | 4.98E 01-- 4.98E 01                              | 067   | 4.98E 01-- 4.98E 01  |  |
| CS-134   | 6  | 150.00 | -1.39E 01( 0/ 3)                                 | 067   | -1.39E 01( 0/ 3)   |  |
| CS-137   | 6  | 180.00 | 0.00E-01-- 0.00E-01                              | 067   | 0.00E-01-- 0.00E-01  |  |
| BALA-140   | 6  | 0.00   | 6.05E 01( 1/ 3)                                  | 067   | 6.05E 01( 1/ 3)  |  |
|  |  |        | 1.20E 02-- 1.20E 02                              | 067   | 1.20E 02-- 1.20E 02  |  |
|  |  |        | 3.11E 01( 1/ 3)                                  | 067   | 3.11E 01( 1/ 3)  |  |
|  |  |        | 9.32E 01-- 9.32E 01                              | 067   | 9.32E 01-- 9.32E 01  |  |
|  |  |        | 3.66E 01( 0/ 3)                                  | 067   | 3.66E 01( 0/ 3)  |  |
|  |  |        | 0.00E-01-- 0.00E-01                              | 067   | 0.00E-01-- 0.00E-01  |  |
|  |  |        | 7.77E 01( 2/ 3)                                  | 067   | 7.77E 01( 2/ 3)  |  |
|  |  |        | 5.93E 01-- 1.41E 02                              | 067   | 5.93E 01-- 1.41E 02  |  |
|  |  |        | 5.16E 01( 2/ 3)                                  | 067   | 5.16E 01( 2/ 3)  |  |
|  |  |        | 5.54E 01-- 8.28E 01                              | 067   | 5.54E 01-- 8.28E 01  |  |
|  |  |        | -3.66E 00( 0/ 3)                                 | 067   | -3.66E 00( 0/ 3)   |  |
|  |  |        | 0.00E-01-- 0.00E-01                              | 067   | 0.00E-01-- 0.00E-01  |  |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS

RANGE BASED UPON DETECTABLE ACTIVITY MEASUREMENTS ONLY

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FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 9 OF 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269,-270,-287  
JANUARY 1, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD) | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN<br>NAME<br>DIST/<br>DIRECTION | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>066<br>19.0 mi./SSE | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|----------------------------|--|-------|--|---|---|--|
| MILK                       |  |       |  |   |   |  |
| PCIA/L                     |  |       |  |   |   |  |
| 3 LOCATIONS                |  |       |  |   |   |  |
| I-131/LL                   | 76   | 1.00  | -4.81E-02( 5/ 51)                                | 069   | 9.62E-04( 3/ 26)  | -1.03E-01( 3/ 25)                            |
| MN-54                      | 77   | 0.00  | 2.50E-01-- 8.59E-01                              | 4.5 mi./WNW   | 2.76E-01-- 8.59E-01   | 2.36E-01-- 6.51E-01                          |
| FE-59                      | 77   | 0.00  | -3.65E-01( 0/ 52)                                | 071   | -5.89E-02( 0/ 26)   | -4.00E-01( 0/ 25)                            |
| CO-58                      | 77   | 0.00  | 0.00E-01-- 0.00E-01                              | 10.3 mi/SSE   | 0.00E-01-- 0.00E-01   | 0.00E-01-- 0.00E-01                          |
| CO-60                      | 77   | 0.00  | 1.70E 00( 4/ 52)                                 | 069   | 2.30E 00( 3/ 26)  | 1.15E 00( 2/ 25)                             |
| ZN-65                      | 77   | 0.00  | 1.41E 01-- 2.83E 01                              | 069   | 1.41E 01-- 2.83E 01   | 1.30E 01-- 1.30E 01                          |
| ZR-95                      | 77   | 0.00  | -9.76E-02( 0/ 52)                                | 071   | 5.94E-01( 0/ 26)  | 2.58E-01( 0/ 25)                             |
| NB-95                      | 77   | 0.00  | 0.00E-01-- 0.00E-01                              | 071   | 0.00E-01-- 0.00E-01   | 0.00E-01-- 0.00E-01                          |
| I-131                      | 77   | 15.00 | 5.29E-01( 2/ 52)                                 | 071   | 1.02E 00( 1/ 26)  | 1.76E 00( 2/ 25)                             |
| CS-134                     | 77   | 15.00 | 6.05E 00-- 7.24E 00                              | 071   | 6.05E 00-- 6.05E 00   | 6.52E 00-- 1.46E 01                          |
| CS-137                     | 77   | 18.00 | -1.04E-02( 0/ 52)                                | 071   | 3.30E-01( 0/ 26)  | -3.29E-01( 0/ 25)                            |
| BALA-140                   | 77   | 15.00 | 0.00E-01-- 0.00E-01                              | 071   | 0.00E-01-- 0.00E-01   | 0.00E-01-- 0.00E-01                          |
|                            |  |       | -2.30E-02( 0/ 52)                                | 071   | 2.43E-01( 0/ 26)  | 1.30E 00( 0/ 25)                             |
|                            |  |       | 0.00E-01-- 0.00E-01                              | 071   | 0.00E-01-- 0.00E-01   | 0.00E-01-- 0.00E-01                          |
|                            |  |       | 7.76E-01( 2/ 52)                                 | 071   | 1.37E 00( 2/ 26)  | 1.66E 00( 1/ 25)                             |
|                            |  |       | 8.79E 00-- 1.20E 01                              | 071   | 8.79E 00-- 1.20E 01   | 7.60E 00-- 7.60E 00                          |
|                            |  |       | 3.06E-01( 1/ 52)                                 | 071   | 9.63E-01( 1/ 26)  | 1.99E 00( 3/ 25)                             |
|                            |  |       | 1.47E 01-- 1.47E 01                              | 069   | 1.47E 01-- 1.47E 01   | 6.01E 00-- 8.46E 00                          |
|                            |  |       | -1.93E-01( 2/ 52)                                | 069   | -9.87E-02( 0/ 25)   | 4.84E-01( 0/ 25)                             |
|                            |  |       | 6.70E 00-- 1.80E 01                              | 069   | 0.00E-01-- 0.00E-01   | 0.00E-01-- 0.00E-01                          |
|                            |  |       | 2.12E 00( 5/ 52)                                 | 071   | 2.30E 00( 3/ 26)  | 2.58E 00( 3/ 25)                             |
|                            |  |       | 6.50E 00-- 8.18E 00                              | 071   | 6.50E 00-- 9.18E 00   | 6.00E 00-- 9.80E 00                          |
|                            |  |       | 6.40E-01( 3/ 52)                                 | 071   | 1.27E 00( 3/ 26)  | -3.17E-01( 0/ 25)                            |
|                            |  |       | 5.56E 00-- 1.07E 01                              |   | 5.56E 00-- 1.07E 01   | 0.00E-01-- 0.00E-01                          |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS

RANGE BASED UPON DETECTABLE ACTIVITY MEASUREMENTS ONLY

ZERO RANGE INDICATES NO DETECTABLE ACTIVITY MEASUREMENTS

FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 10 OF 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269,-270,-207  
JANUARY 1, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS  | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD) | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN<br>NAME<br>DIST/<br>DIRECTION | MEAN (F)<br>RANGE | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>064<br>6.7 mi./SW | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|-----------------------------|--|-------|--|---|-------------------|---|--|
| FISH                        |  |       |  |   |                   |   |  |
| PCI/KG (WET)<br>3 LOCATIONS |  |       |  |   |                   |   |  |
|                             | MN-54  | 41    | 130.00   | 2.40E 00( 0/ 30)  | 013               | 4.36E 00( 0/ 12)  | 6.57E 00( 0/ 11)                             |
|                             |  |       |  | 0.00E-01-- 0.00E-01   | 7.8 mi/SSE        | 0.00E-01-- 0.00E-01   | 0.00E-01-- 0.00E-01                          |
|                             | FE-59  | 41    | 260.00   | 2.16E 01( 2/ 30)  | 063               | 2.30E 01( 1/ 18)  | 6.58E 00( 0/ 11)                             |
|                             |  |       |  | 1.12E 02-- 2.51E 02   | 0.8 mi/ESE        | 2.51E 02-- 2.51E 02   | 0.00E-01-- 0.00E-01                          |
|                             | CO-58  | 41    | 130.00   | 7.48E 01( 8/ 30)  | 063               | 1.21E 02( 8/ 18)  | -7.21E 00( 0/ 11)                            |
|                             |  |       |  | 3.19E 01-- 9.26E 02   |                   | 3.19E 01-- 9.26E 02   | 0.00E-01-- 0.00E-01                          |
|                             | CO-60  | 41    | 130.00   | 3.03E 01( 6/ 30)  | 063               | 6.23E 01( 6/ 18)  | 8.96E 00( 1/ 11)                             |
|                             |  |       |  | 1.72E 01-- 4.83E 02   |                   | 1.72E 01-- 4.83E 02   | 2.77E 01-- 2.77E 01                          |
|                             | ZN-65  | 41    | 260.00   | 5.71E 00( 0/ 30)  | 013               | 0.27E 00( 0/ 12)  | -3.25E 00( 0/ 11)                            |
|                             |  |       |  | 0.00E-01-- 0.00E-01   |                   | 0.00E-01-- 0.00E-01   | 0.00E-01-- 0.00E-01                          |
|                             | ZR-95  | 41    | 0.00   | 6.88E 00( 2/ 30)  | 013               | 7.76E 00( 1/ 12)  | 1.14E 00( 0/ 11)                             |
|                             |  |       |  | 5.74E 01-- 9.92E 01   |                   | 5.74E 01-- 5.74E 01   | 0.00E-01-- 0.00E-01                          |
|                             | NB-95  | 41    | 0.00   | 1.15E 01( 5/ 30)  | 063               | 1.93E 01( 4/ 18)  | 6.52E 00( 2/ 11)                             |
|                             |  |       |  | 1.79E 01-- 1.37E 02   |                   | 1.79E 01-- 1.37E 02   | 2.17E 01-- 7.23E 01                          |
|                             | I-131  | 41    | 0.00   | 1.10E 01( 1/ 30)  | 063               | 3.56E 01( 1/ 18)  | 1.06E 01( 1/ 11)                             |
|                             |  |       |  | 3.57E 01-- 3.57E 01   |                   | 3.57E 01-- 3.57E 01   | 2.24E 02-- 2.24E 02                          |
|                             | CS-134                                       | 41    | 130.00   | 2.53E 02( 22/ 30)   | 063               | 3.87E 02( 16/ 18)   | 2.24E 00( 0/ 11)                             |
|                             |  |       |  | 3.95E 01-- 3.66E 03   |                   | 3.95E 01-- 3.66E 03   | 0.00E-01-- 0.00E-01                          |
|                             | CS-137                                       | 41    | 150.00   | 6.73E 02( 29/ 30)   | 063               | 1.04E 03( 18/ 18)   | 3.02E 01( 4/ 11)                             |
|                             |  |       |  | 6.46E 01-- 7.57E 03   |                   | 6.46E 01-- 7.57E 03   | 1.86E 01-- 7.19E 01                          |
|                             | BALA-140                                     | 41    | 0.00   | -7.23E 00( 0/ 30)   | 063               | -3.25E 00( 0/ 18)   | -5.48E 00( 0/ 11)                            |
|                             |  |       |  | 0.00E-01-- 0.00E-01   |                   | 0.00E-01-- 0.00E-01   | 0.00E-01-- 0.00E-01                          |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS

RANGE BASED UPON DETECTABLE ACTIVITY MEASUREMENTS ONLY

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FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)

# ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 11 OF 12

OCCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269,-270,-287  
JANUARY 1, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS                              | TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | (LLD) | ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | LOCATION W/ HIGHEST ANN. MEAN |                   | CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>073<br>9.0 mi./N W | NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|---|--|-------|--|-------------------------------|-------------------|--|--|
|   |  |       |  | NAME<br>DIST/<br>DIRECTION    | MEAN (F)<br>RANGE |  |  |
| BROAD-LEAF<br>VEGETATION<br>PC1/KG (WET)<br>2 LOCATIONS |  |       |  |                               |                   |  |  |
|   | MN-54  | 24    | 0.00   | 4.37E-01( 0/ 12)              | 0.028             | 4.37E-01( 0/ 12)   | 1.26E 01( 3/ 12)                             |
|   | FE-59  | 24    | 0.00   | 0.00E-01-- 0.00E-01           | 0.5 mi./S         | 0.00E-01-- 0.00E-01  | 1.44E 01-- 3.11E 01                          |
|   |  |       |  | 2.56E 00( 0/ 12)              | 0.028             | 2.56E 00( 0/ 12)   | 9.13E 00( 1/ 12)                             |
|   | CO-58  | 24    | 0.00   | 0.00E-01-- 0.00E-01           |                   | 0.00E-01-- 0.00E-01  | 7.57E 01-- 7.57E 01                          |
|   |  |       |  | 1.24E 00( 0/ 12)              | 0.028             | 1.24E 00( 0/ 12)   | -2.94E-01( 0/ 12)                            |
|   | CO-60  | 24    | 0.00   | 0.00E-01-- 0.00E-01           |                   | 0.00E-01-- 0.00E-01  | 0.00E-01-- 0.00E-01                          |
|   |  |       |  | 1.38E 00( 2/ 12)              | 0.028             | 1.38E 00( 2/ 12)   | -1.20E 00( 0/ 12)                            |
|   | ZN-65  | 24    | 0.00   | 1.70E 01-- 2.19E 01           |                   | 1.70E 01-- 2.19E 01  | 0.00E-01-- 0.00E-01                          |
|   |  |       |  | 1.54E 00( 0/ 12)              | 0.028             | 1.54E 00( 0/ 12)   | -0.49E 00( 0/ 12)                            |
|   | ZR-95  | 24    | 0.00   | 0.00E-01-- 0.00E-01           |                   | 0.00E-01-- 0.00E-01  | 0.00E-01-- 0.00E-01                          |
|   |  |       |  | 3.79E 00( 1/ 12)              | 0.028             | 3.79E 00( 1/ 12)   | 1.11E 01( 2/ 12)                             |
|   | NB-95  | 24    | 0.00   | 2.44E 01-- 2.44E 01           |                   | 2.44E 01-- 2.44E 01  | 3.22E 01-- 6.18E 01                          |
|   |  |       |  | 4.06E-01( 0/ 12)              | 0.028             | 4.06E-01( 0/ 12)   | -1.01E 01( 0/ 12)                            |
|   | I-131  | 24    | 60.00  | 0.00E-01-- 0.00E-01           |                   | 0.00E-01-- 0.00E-01  | 0.00E-01-- 0.00E-01                          |
|   |  |       |  | 4.55E 00( 0/ 12)              | 0.028             | 4.55E 00( 0/ 12)   | 3.87E-01( 0/ 12)                             |
|   | CS-134                                       | 24    | 60.00  | 0.00E-01-- 0.00E-01           |                   | 0.00E-01-- 0.00E-01  | 0.00E-01-- 0.00E-01                          |
|   |  |       |  | 1.01E 01( 2/ 12)              | 0.028             | 1.01E 01( 2/ 12)   | 2.91E 01( 6/ 12)                             |
|   | CS-137                                       | 24    | 80.00  | 1.72E 01-- 4.46E 01           |                   | 1.72E 01-- 4.46E 01  | 2.94E 01-- 7.03E 01                          |
|   |  |       |  | 1.37E 01( 4/ 12)              | 0.028             | 1.37E 01( 4/ 12)   | 4.74E 02( 12/ 12)                            |
|   | BALA-140                                     | 24    | 0.00   | 2.08E 01-- 2.61E 01           |                   | 2.08E 01-- 2.61E 01  | 7.27E 01-- 9.86E 02                          |
|   |  |       |  | 4.47E 00( 1/ 12)              | 0.028             | 4.47E 00( 1/ 12)   | 1.37E 00( 0/ 12)                             |
|   |  |       |  | 5.11E 01-- 5.11E 01           |                   | 5.11E 01-- 5.11E 01  | 0.00E-01-- 0.00E-01                          |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS

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FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)

ENVIRONMENTAL RADIOLOGICAL MONITORING PROGRAM ANNUAL SUMMARY

PAGE 12 OF 12

OCONEE NUCLEAR STATION  
PICKENS COUNTY, SOUTH CAROLINA

DOCKET NUMBER 50-269,-270,-287  
APRIL 3, 1984 - DECEMBER 31, 1984

| MEDIUM<br>SAMPLED<br>UNITS | I<br>TYPE & TOTAL<br>NO. OF ANALYSES<br>PERFORMED | I<br>(LLD) | I<br>ALL INDICATOR<br>LOCATIONS<br>MEANS (F)<br>RANGE | I<br>LOCATION W/ HIGHEST ANN. MEAN<br>NAME<br>DIST/<br>DIRECTION | I<br>CONTROL LOCATIONS<br>MEAN (F)<br>RANGE<br>058<br>10.0 mi./WSW | I<br>NO. OF<br>NON-<br>ROUTINE<br>REPORT<br>MEAS. |
|----------------------------|---|------------|---|--|--|---|
|                            |   |            |   |  |  |   |
| TLDS                       | I   | I          | I   | I  | I  | I   |
| MR/HOUR                    | I   | I          | I   | I  | I  | I   |
| 40 LOCATIONS               | I   | I          | I   | I  | I  | I   |
|                            | I MR/HOUR 149                                     | I 0.00     | I 1.01E-02( 145/ 145)                                 | I 034  | I 1.68E-02( 4/ 4)  | I 1.28E-02( 4/ 4)                                 |
|                            | I   | I          | I 3.00E-03-- 2.40E-02                                 | I 10.2 mi./NW  | I 1.30E-02-- 2.40E-02  | I 8.00E-03-- 2.10E-02                             |

MEAN BASED UPON ALL NET ACTIVITY MEASUREMENTS

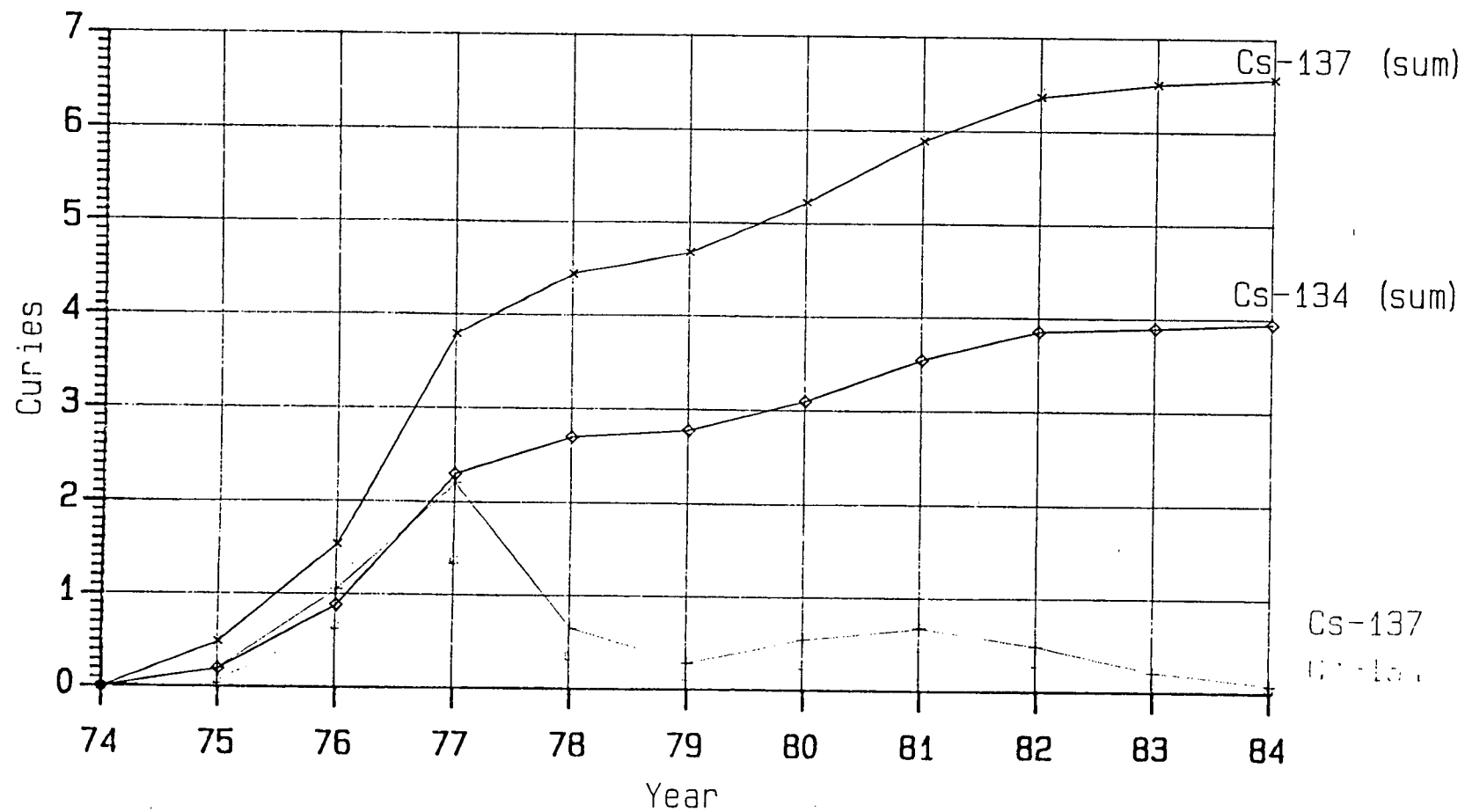
RANGE BASED UPON DETECTABLE ACTIVITY MEASUREMENTS ONLY

ZERO RANGE INDICATES NO DETECTABLE ACTIVITY MEASUREMENTS

FRACTION OF DETECTABLE ACTIVITY MEASUREMENTS AT SPECIFIED LOCATIONS IS INDICATED IN PARENTHESES, (F)

Oconee Nuclear Station  
Environmental Cesium Trends  
1974-1984

Exhibit 2



OCONEE RADIOLOGICAL MONITORING PROGRAM SAMPLING LOCATIONS  
(OTHER SAMPLING LOCATIONS)

CODE:

W - Weekly  
SM - Semimonthly  
M - Monthly  
SA - Semiannually

| SAMPLING LOCATION DESCRIPTION |   | Air Radioiodines<br>and Particulates | Surface Water | Drinking Water | Shoreline Sediment | Milk | Fish | Broadleaf Vegetation |
|-------------------------------|---|--------------------------------------|---------------|----------------|--------------------|------|------|----------------------|
| 028                           | Site Boundary (0.5 miles S)                             |                                      |               |                |                    |      |      |                      |
| 060                           | New Greenville Water Intake Rd. (2.5 miles NNE)         | W                                    |               |                |                    |      |      | M                    |
| 061                           | Old Hwy. 183 (1.5 miles SSW)                            | W                                    |               |                |                    |      |      |                      |
| 062                           | Lake Kewoee/Hydro Intake (0.7 mile ENE) (CONTROL)       |                                      | M             |                |                    |      |      |                      |
| 063                           | Lake Hartwell - Hwy 183 Bridge (0.8 mile ESE) (000.7)   |                                      | M             |                |                    |      |      |                      |
| 064                           | Seneca (6.7 miles SW) (004.1) (CONTROL)                 |                                      |               |                |                    |      | SA   |                      |
| 065                           | Clemson (8.1 miles SSE) (006.1)                         |                                      |               | M              |                    |      | SA   |                      |
| 066                           | Anderson (19.0 miles SSE) (012) (CONTROL FOR MILK ONLY) |                                      |               | M              |                    |      |      |                      |
| 067                           | Lawrence Ramsey Bridge, Hwy 27 (4.2 miles SSE) (005.2)  |                                      |               |                |                    | SM   |      |                      |
| 068                           | High Falls County Park (2.0 miles W) (CONTROL)          |                                      |               |                | SA                 |      |      |                      |
| 069                           | Powell Residence (4.5 miles WNW) (002.1)                |                                      |               |                | SA                 |      |      |                      |
| 070                           | (Deleted)   |                                      |               |                |                    | SM   |      |                      |
| 071                           | Clemson Dairy (10.3 miles SSE) (006.3)                  |                                      |               |                |                    | SM   |      |                      |
| 072                           | Hwy 130 (1.7 miles S)                                   | W                                    |               |                |                    |      |      |                      |
| 073                           | Tamassee Dar School (9.0 miles NW) (CONTROL)            | W                                    |               |                |                    |      |      |                      |
| 074                           | Keowee Kee Resort (1.7 miles NNW)                       | W                                    |               |                |                    |      |      | M                    |

# OCONEE RADIOLOGICAL MONITORING PROGRAM SAMPLING LOCATIONS

(TLD LOCATIONS)

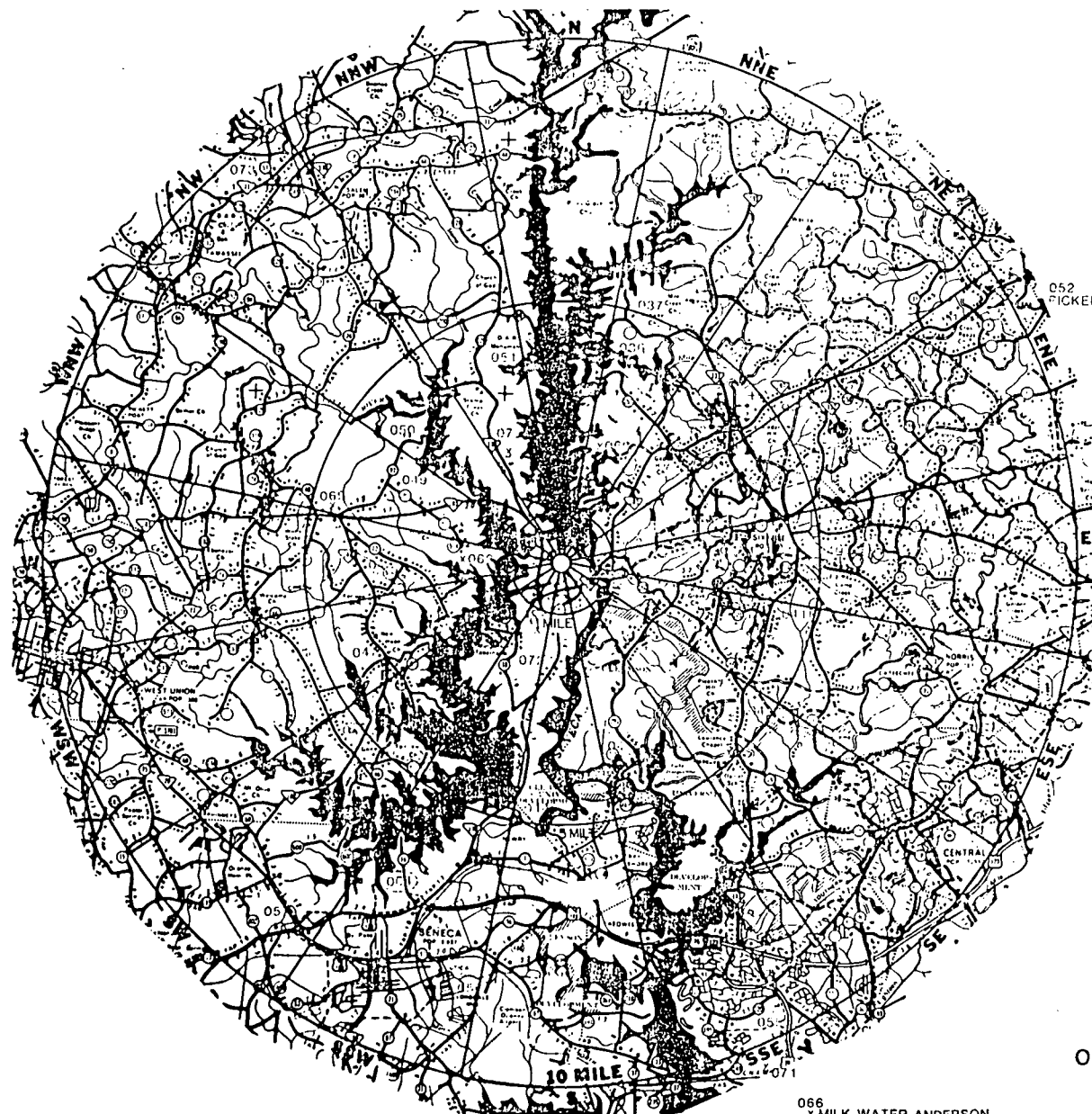
| SAMPLING LOCATION DESCRIPTION * |                 |                 | SAMPLING LOCATION DESCRIPTION * |                  |                  |
|---------------------------------|-----------------|-----------------|---------------------------------|------------------|------------------|
| 020                             | SITE BOUNDARY   | (0.2 MILES N)   | 040                             | 4-5 MILE RADIUS  | (4.5 MILES E)    |
| 021                             | SITE BOUNDARY   | (0.2 MILES NNE) | 041                             | 4-5 MILE RADIUS  | (4.0 MILES ESE)  |
| 022                             | SITE BOUNDARY   | (0.5 MILES NE)  | 042                             | 4-5 MILE RADIUS  | (5.0 MILES SE)   |
| 023                             | SITE BOUNDARY   | (0.9 MILES ENE) | 043                             | 4-5 MILE RADIUS  | (4.0 MILES SSE)  |
| 024                             | SITE BOUNDARY   | (0.8 MILES E)   | 044                             | 4-5 MILE RADIUS  | (4.0 MILES S)    |
| 025                             | SITE BOUNDARY   | (0.6 MILES ESE) | 045                             | 4-5 MILE RADIUS  | (5.0 MILES SSW)  |
| 026                             | SITE BOUNDARY   | (0.3 MILES SE)  | 046                             | 4-5 MILE RADIUS  | (4.5 MILES SW)   |
| 027                             | SITE BOUNDARY   | (0.3 MILES SSE) | 047                             | 4-5 MILE RADIUS  | (4.0 MILES WSW)  |
| 028                             | SITE BOUNDARY   | (0.5 MILES S)   | 048                             | 4-5 MILE RADIUS  | (4.0 MILES W)    |
| 029                             | SITE BOUNDARY   | (0.6 MILES SSW) | 049                             | 4-5 MILE RADIUS  | (4.0 MILES WNW)  |
| 030                             | SITE BOUNDARY   | (0.4 MILES SW)  | 050                             | 4-5 MILE RADIUS  | (4.0 MILES NW)   |
| 031                             | SITE BOUNDARY   | (0.2 MILES WSW) | 051                             | 4-5 MILE RADIUS  | (4.5 MILES NNW)  |
| 032                             | SITE BOUNDARY   | (0.2 MILES W)   | 052                             | SPECIAL INTEREST | (12.0 MILES ENE) |
| 033                             | SITE BOUNDARY   | (0.2 MILES WNW) | 053                             | SPECIAL INTEREST | (11.0 MILES E)   |
| 034                             | SITE BOUNDARY   | (0.2 MILES NW)  | 054                             | SPECIAL INTEREST | (9.5 MILES ESE)  |
| 035                             | SITE BOUNDARY   | (0.1 MILES NNW) | 055                             | SPECIAL INTEREST | (9.5 MILES SSE)  |
| 036                             | 4-5 MILE RADIUS | (4.0 MILES N)   | 056                             | SPECIAL INTEREST | (8.5 MILES SSW)  |
| 037                             | 4-5 MILE RADIUS | (4.5 MILES NNE) | 057                             | SPECIAL INTEREST | (9.0 MILES SW)   |
| 038                             | 4-5 MILE RADIUS | (4.0 MILES NE)  | 058                             | SPECIAL INTEREST | (10.0 MILES WSW) |
| 039                             | 4-5 MILE RADIUS | (4.0 MILES ENE) | 059                             | SPECIAL INTEREST | (9.0 MILES NW)   |

\* All sampling locations are collected quarterly



# OCONEE RADIOLOGICAL MONITORING PROGRAM ANALYSES

| <u>SAMPLE MEDIUM</u>                | <u>ANALYSIS SCHEDULE</u>       | <u>ANALYSES</u>       |                |                        |                   |            |
|-------------------------------------|--------------------------------|-----------------------|----------------|------------------------|-------------------|------------|
|                                     |                                | <u>GAMMA ISOTOPIC</u> | <u>TRITIUM</u> | <u>LOW LEVEL I-131</u> | <u>GROSS BETA</u> | <u>TLD</u> |
| 1. Air Radioiodine and Particulates | Weekly                         | X                     |                |                        |                   |            |
| 2. Direct Radiation                 | Quarterly                      |                       |                |                        |                   | X          |
| 3. Surface Water                    | Monthly<br>Quarterly Composite | X                     | X              |                        |                   |            |
| 4. Drinking Water                   | Monthly<br>Quarterly Composite | X                     | X              |                        | X                 |            |
| 5. Shoreline Sediment               | Semiannually                   | X                     |                |                        |                   |            |
| 6. Milk                             | Semimonthly                    | X                     |                | X                      |                   |            |
| 7. Fish                             | Semiannually                   | X                     |                |                        |                   |            |
| 8. Broadleaf Vegetation             | Monthly                        | X                     |                |                        |                   |            |



# LEGEND

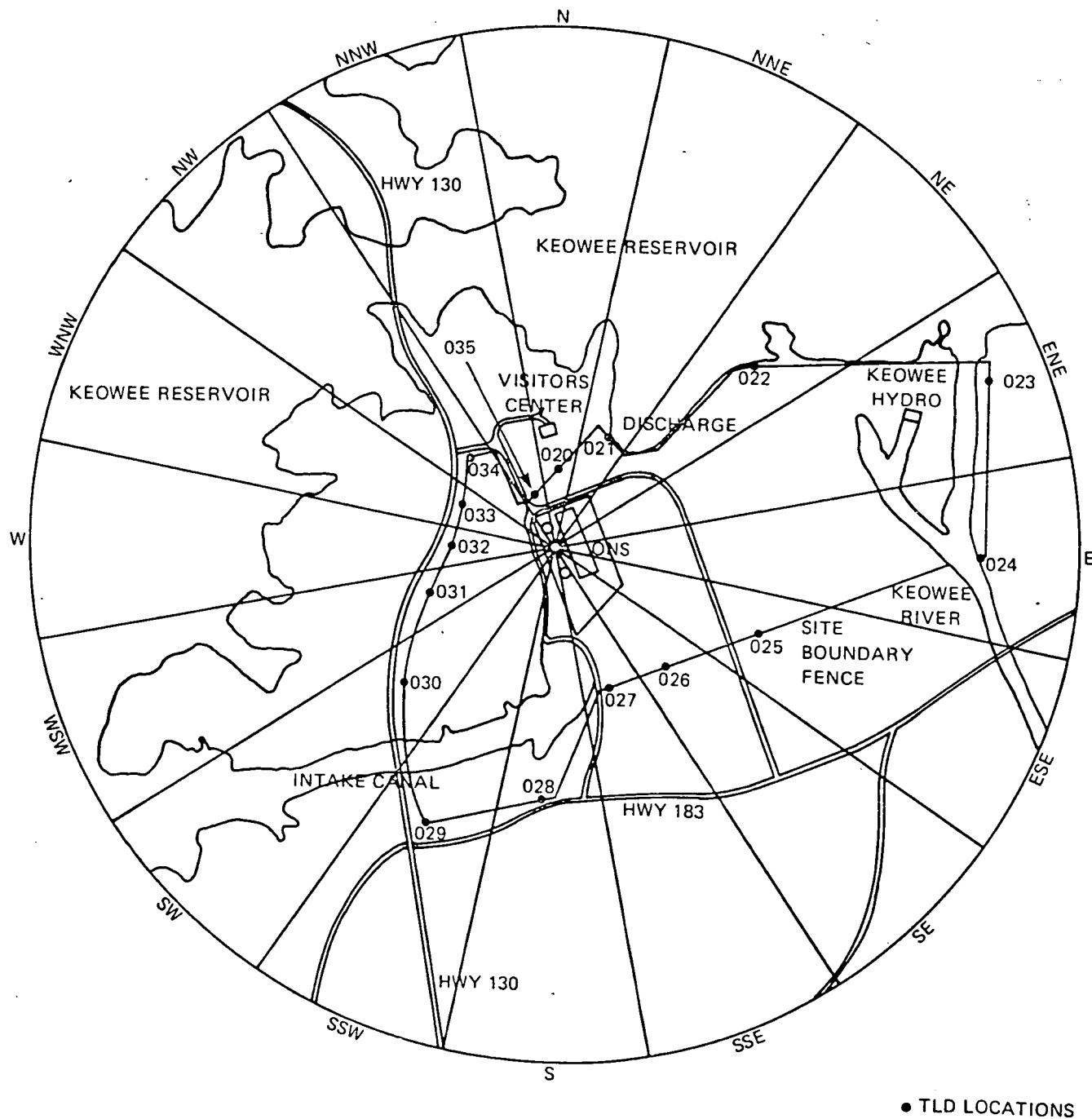
|  |   |
|--|---|
| <p>052 PICKENS DP</p> <p>053 LIBERTY DPC</p> | <p>066 X MILK WATER ANDERSON 19 MILES SSE</p> |
|--|---|

TLD LOCATIONS  
X ALL OTHER LOCATIONS

SCALE OF MILES

OCONEE NUCLEAR STATION

066  
X MILK WATER ANDERSON  
19 MILES SSE



● TLD LOCATIONS

RADIOLOGICAL MONITORING  
PROGRAM LOCATIONS  
OCONEE NUCLEAR STATION

OCONEE NUCLEAR STATION  
ANNUAL LAND USE CENSUS  
PERFORMED JULY 11, 1984

| <u>Sector</u> |  | <u>Distance</u>                |
|---------------|--|--------------------------------|
| N             | Nearest milk animal<br>Nearest residence | None within 5 miles<br>3 miles |
| NNE           | Nearest milk animal<br>Nearest residence | 3 miles<br>1 mile              |
| NE            | Nearest milk animal<br>Nearest residence | None within 5 miles<br>2 miles |
| ENE           | Nearest milk animal<br>Nearest residence | None within 5 miles<br>1 mile  |
| E             | Nearest milk animal<br>Nearest residence | None within 5 miles<br>1 mile  |
| ESE           | Nearest milk animal<br>Nearest residence | None within 5 miles<br>2 miles |
| SE            | Nearest milk animal<br>Nearest residence | None within 5 miles<br>3 miles |
| SSE           | Nearest milk animal<br>Nearest residence | None within 5 miles<br>2 miles |
| S             | Nearest milk animal<br>Nearest residence | None within 5 miles<br>2 miles |
| SSW           | Nearest milk animal<br>Nearest residence | None within 5 miles<br>2 miles |
| SW            | Nearest milk animal<br>Nearest residence | None within 5 miles<br>1 mile  |
| WSW           | Nearest milk animal<br>Nearest residence | None within 5 miles<br>3 miles |
| W             | Nearest milk animal<br>Nearest residence | None within 5 miles<br>2 miles |
| WNW           | Nearest milk animal<br>Nearest residence | 4 miles<br>2 miles             |
| NW            | Nearest milk animal<br>Nearest residence | None within 5 miles<br>1 mile  |
| NNW           | Nearest milk animal<br>Nearest residence | None within 5 miles<br>1 mile  |

U.S. ENVIRONMENTAL PROTECTION AGENCY  
INTERLABORATORY COMPARISON PROGRAM  
CROSS-CHECK RESULTS 1984

| <u>Analysis</u>     | <u>Date</u>    | <u>Nuclide</u>     | <u>Known Value</u> | <u>Control Limits<br/>(3 sigma; n=3)</u> | <u>Reported Value</u> |
|---------------------|----------------|--------------------|--------------------|--|-----------------------|
| Air Filter          | March 1984     | Gross Alpha        | 15 pCi/filter      | ±8.7 pCi/filter                          | 20 pCi/filter         |
|                     |                | Gross Beta         | 51 pCi/filter      | ±8.7 pCi/filter                          | 55 pCi/filter         |
|                     |                | Cs-137             | 10 pCi/filter      | ±8.7 pCi/filter                          | 14 pCi/filter         |
|                     | August 1984    | Gross Alpha        | 17 pCi/filter      | ±8.7 pCi/filter                          | 21 pCi/filter         |
|                     |                | Gross Beta         | 51 pCi/filter      | ±8.7 pCi/filter                          | 54 pCi/filter         |
|                     |                | Cs-137             | 15 pCi/filter      | ±8.7 pCi/filter                          | 17 pCi/filter         |
| Alpha/Beta in Water | January 1984   | Gross Alpha        | 10 pCi/l           | ±8.7 pCi/l                               | 8 pCi/l               |
|                     |                | Gross Beta         | 12 pCi/l           | ±8.7 pCi/l                               | 10 pCi/l              |
|                     | March 1984     | Gross Alpha        | 5 pCi/l            | ±8.7 pCi/l                               | 6 pCi/l               |
|                     |                | Gross Beta         | 20 pCi/l           | ±8.7 pCi/l                               | 22 pCi/l              |
|                     | May 1984       | Gross Alpha        | 3 pCi/l            | ±8.7 pCi/l                               | 4 pCi/l               |
|                     |                | Gross Beta         | 6 pCi/l            | ±8.7 pCi/l                               | 7 pCi/l               |
|                     | July 1984      | Gross Alpha        | 6 pCi/l            | ±8.7 pCi/l                               | 6 pCi/l               |
|                     |                | Gross Beta         | 13 pCi/l           | ±8.7 pCi/l                               | 14 pCi/l              |
|                     | September 1984 | Gross Alpha        | 5 pCi/l            | ±8.7 pCi/l                               | 5 pCi/l               |
|                     |                | Gross Beta         | 16 pCi/l           | ±8.7 pCi/l                               | 17 pCi/l              |
|                     | November 1984  | Gross Alpha        | 7 pCi/l            | ±8.7 pCi/l                               | 7 pCi/l               |
|                     |                | Gross Beta         | 20 pCi/l           | ±8.7 pCi/l                               | 21 pCi/l              |
| Milk                | March 1984     | Low-Level<br>I-131 | 6 pCi/l            | ±1.6 pCi/l                               | 7 pCi/l               |

| <u>Analysis</u>             | <u>Date</u>  | <u>Nuclide</u> | <u>Known Value</u> | <u>Control Limits<br/>(3 sigma; n=3)</u> | <u>Reported Value</u> |
|-----------------------------|--------------|----------------|--------------------|--|-----------------------|
| Gamma in Water              | June 1984    | I-131          | 43 pCi/l           | ±10.4 pCi/l                              | 44 pCi/l              |
|                             |              | Cs-137         | 35 pCi/l           | ±8.7 pCi/l                               | 35 pCi/l              |
|                             |              | K-40           | 1496 mg/l          | ±130.0 mg/l                              | 1532 mg/l             |
|                             | October 1984 | I-131          | 42 pCi/l           | ±10.4 pCi/l                              | 39 pCi/l              |
|                             |              | Cs-137         | 32 pCi/l           | ±8.7 pCi/l                               | 34 pCi/l              |
|                             |              | K-40           | 1517 mg/l          | ±131.0 mg/l                              | 1635 mg/l             |
|                             | June 1984    | Co-60          | 31 pCi/l           | ±8.7 pCi/l                               | 31 pCi/l              |
|                             |              | Zn-65          | 63 pCi/l           | ±8.7 pCi/l                               | 54 pCi/l              |
|                             |              | Cs-134         | 47 pCi/l           | ±8.7 pCi/l                               | 40 pCi/l              |
|                             |              | Cs-137         | 37 pCi/l           | ±8.7 pCi/l                               | 40 pCi/l              |
|                             |              | Cr-51          | 66 pCi/l           | ±8.7 pCi/l                               | *                     |
|                             |              | Ru-106         | 29 pCi/l           | ±8.7 pCi/l                               | *                     |
|                             | October 1984 | Co-60          | 20 pCi/l           | ±8.7 pCi/l                               | 22 pCi/l              |
|                             |              | Zn-65          | 147 pCi/l          | ±12.7 pCi/l                              | 151 pCi/l             |
|                             |              | Ru-106         | 47 pCi/l           | ±8.7 pCi/l                               | *                     |
|                             |              | Cs-134         | 31 pCi/l           | ±8.7 pCi/l                               | 52 pCi/l              |
|                             |              | Cs-137         | 24 pCi/l           | ±8.7 pCi/l                               | 47 pCi/l              |
| Low-Level I-131<br>in water | April 1984   | I-131          | 6 pCi/l            | ±1.5 pCi/l                               | 6 pCi/l               |
| Iodine in Water             | August 1984  | I-131          | 34 pCi/l           | ±1.5 pCi/l                               | 33 pCi/l              |

\*Insufficient counting time to accurately quantify these nuclides.