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April 26, 2006

U.S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Subject: Duke Power Company, LLC d/b/a Duke Energy Carolinas, LLC
Catawba Nuclear Station, Units 1 and 2
Docket Nos. 50-413 and 50-414
2005 Annual Radioactive Effluent Release Report

Pursuant to Catawba Nuclear Station Technical Specification (TS) 5.6.3 and Selected Licensee Commitment 16.11-16, please find attached the Catawba Annual Radioactive Effluent Release Report for the period of January 1, 2005 through December 31, 2005. In accordance with Catawba TS 5.5.1, the Offsite Dose Calculation Manual (OCDM) is included in this submittal.

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|----------------|---|
| Attachment I | Radioactive Effluent Releases |
| Attachment II | Supplemental Information |
| Attachment III | Solid Waste Disposal Report |
| Attachment IV | Meteorological Data |
| Attachment V | Unplanned Offsite Releases |
| Attachment VI | Assessment of Radiation Dose from Radioactive Effluents to Members of the Public (includes fuel cycle dose calculation results) |
| Attachment VII | UFSAR Section 16.11 Radiological Effluent Controls |
| Enclosure | Radioactive Waste Process Control Program Manual 2006 Update [Contains all changes initiated during 2005] (CD-ROM) |
| Enclosure | Offsite Dose Calculation Manual [Changes describes in Chapter 7] (CD-ROM) |

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U. S. Nuclear Regulatory Commission
2005 Annual Radioactive Effluent Release Report
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Any questions concerning this report should be directed to Kay Nicholson at 803.831.3237.

Sincerely,

Bill Putza for

Dhiaa M. Jamil

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Attachments and Enclosures (2)

xc: W. D. Travers, Regional Administrator, Region II
J. F. Stang, Jr., Senior NRR Project Manager
*E. F. Guthrie, Senior Resident Inspector

*no attachments or enclosures

ATTACHMENT I

Summary of Liquid and Gaseous Effluents Report

This attachment includes a summary of the quantities of radioactive liquid and gaseous effluents as outlined in Regulatory Guide 1.21, Appendix B.

TABLE 1A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
PERIOD 1/1/05 TO 1/1/06
GASEOUS EFFLUENTS - SUMMATION OF ALL RELEASES

Catawba Nuclear Station Units 1 & 2

| REPORT FOR 2005 | Unit | QTR 1 | QTR 2 | QTR 3 | QTR 4 | YEAR |
|---|--------------|----------|----------|----------|----------|----------|
| A. Fission and Activation Gases | | | | | | |
| 1. Total Release | Ci | 1.04E+00 | 1.50E+00 | 1.33E+00 | 1.86E+00 | 5.74E+00 |
| 2. Avg. Release Rate | μ Ci/sec | 1.34E-01 | 1.91E-01 | 1.68E-01 | 2.34E-01 | 1.82E-01 |
| B. Iodine-131 | | | | | | |
| 1. Total Release | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2. Avg. Release Rate | μ Ci/sec | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| C. Particulates Half Life \geq 8 days | | | | | | |
| 1. Total Release | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2. Avg. Release Rate | μ Ci/sec | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| D. Tritium | | | | | | |
| 1. Total Release | Ci | 3.71E+01 | 4.33E+01 | 3.78E+01 | 3.14E+01 | 1.50E+02 |
| 2. Avg. Release Rate | μ Ci/sec | 4.77E+00 | 5.51E+00 | 4.76E+00 | 3.95E+00 | 4.75E+00 |
| E. Gross Alpha Radioactivity | | | | | | |
| 1. Total Release | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2. Avg. Release Rate | μ Ci/sec | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |

TABLE 1B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 GASEOUS EFFLUENTS - ELEVATED RELEASES - CONTINUOUS MODE

Catawba Nuclear Station Units 1 & 2

| REPORT FOR 2005 | Unit | QTR 1 | QTR 2 | QTR 3 | QTR 4 | YEAR |
|-------------------------------------|------|-------|-------|-------|-------|-------|
| 1. Fission and Activation Gases | | | | | | |
| ** No Nuclide Activities ** | | | | | | |
| 2. Iodines | | | | | | |
| ** No Nuclide Activities ** | | | | | | |
| 3. Particulates Half Life >= 8 days | | | | | | |
| ** No Nuclide Activities ** | | | | | | |
| 4. Tritium | | | | | | |
| ** No Nuclide Activities ** | | | | | | |
| 5. Gross Alpha Radioactivity | | | | | | |
| ** No Nuclide Activities ** | | | | | | |

TABLE 1B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 GASEOUS EFFLUENTS - ELEVATED RELEASES - BATCH MODE

Catawba Nuclear Station Units 1 & 2

| REPORT FOR 2005 | Unit | QTR 1 | QTR 2 | QTR 3 | QTR 4 | YEAR |
|-------------------------------------|------|-------|-------|-------|-------|-------|
| 1. Fission and Activation Gases | | | | | | |
| ** No Nuclide Activities ** | | | | | | |
| 2. Iodines | | | | | | |
| ** No Nuclide Activities ** | | | | | | |
| 3. Particulates Half Life >= 8 days | | | | | | |
| ** No Nuclide Activities ** | | | | | | |
| 4. Tritium | | | | | | |
| ** No Nuclide Activities ** | | | | | | |
| 5. Gross Alpha Radioactivity | | | | | | |
| ** No Nuclide Activities ** | | | | | | |

TABLE 1C

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 GASEOUS EFFLUENTS - GROUND RELEASES - CONTINUOUS MODE

Catawba Nuclear Station Units 1 & 2

| REPORT FOR 2005 | Unit | QTR 1 | QTR 2 | QTR 3 | QTR 4 | YEAR |
|-------------------------------------|------|----------|----------|----------|----------|----------|
| 1. Fission and Activation Gases | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |
| 2. Iodines | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |
| 3. Particulates Half Life >= 8 days | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |
| 4. Tritium | | | | | | |
| H-3 | Ci | 3.70E+01 | 2.74E+01 | 3.77E+01 | 3.11E+01 | 1.33E+02 |
| Totals for Period... | Ci | 3.70E+01 | 2.74E+01 | 3.77E+01 | 3.11E+01 | 1.33E+02 |
| 5. Gross Alpha Radioactivity | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |

TABLE 1C

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 GASEOUS EFFLUENTS - GROUND RELEASES - BATCH MODE

Catawba Nuclear Station Units 1 & 2

| REPORT FOR 2005 | Unit | QTR 1 | QTR 2 | QTR 3 | QTR 4 | YEAR |
|---|------|----------|----------|----------|----------|----------|
| 1. Fission and Activation Gases | | | | | | |
| AR-41 | Ci | 6.73E-01 | 8.20E-01 | 9.09E-01 | 1.32E+00 | 3.73E+00 |
| KR-85 | Ci | 0.00E+00 | 6.07E-02 | 0.00E+00 | 5.04E-02 | 1.11E-01 |
| XE-131M | Ci | 1.97E-02 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.97E-02 |
| XE-133 | Ci | 3.45E-01 | 5.91E-01 | 4.16E-01 | 4.77E-01 | 1.83E+00 |
| XE-135 | Ci | 3.36E-03 | 2.68E-02 | 7.79E-03 | 1.20E-02 | 5.00E-02 |
| Totals for Period... | Ci | 1.04E+00 | 1.50E+00 | 1.33E+00 | 1.86E+00 | 5.74E+00 |
| 2. Iodines | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |
| 3. Particulates Half Life >= 8 days | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |
| 4. Tritium | | | | | | |
| H-3 | Ci | 1.10E-01 | 1.59E+01 | 1.15E-01 | 2.86E-01 | 1.64E+01 |
| Totals for Period... | Ci | 1.10E-01 | 1.59E+01 | 1.15E-01 | 2.86E-01 | 1.64E+01 |
| 5. Gross Alpha Radioactivity | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |

TABLE 2A

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
PERIOD 1/1/05 TO 1/1/06
LIQUID EFFLUENTS - SUMMATION OF ALL RELEASES

Catawba Nuclear Station Units 1 & 2

| REPORT FOR 2005 | Unit | QTR 1 | QTR 2 | QTR 3 | QTR 4 | YEAR |
|---|--------|----------|----------|----------|----------|----------|
| A. Fission and Activation Products | | | | | | |
| 1. Total Release | Ci | 7.87E-03 | 2.99E-02 | 9.00E-03 | 1.74E-02 | 6.42E-02 |
| 2. Average Diluted Concentration | | | | | | |
| a. Continuous Releases | μCi/ml | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| b. Batch Releases | μCi/ml | 3.88E-10 | 1.34E-09 | 2.57E-10 | 9.79E-10 | 6.73E-10 |
| B. Tritium | | | | | | |
| 1. Total Release | Ci | 2.89E+02 | 4.75E+02 | 3.66E+02 | 3.98E+02 | 1.53E+03 |
| 2. Average Diluted Concentration | | | | | | |
| a. Continuous Releases | μCi/ml | 2.09E-07 | 3.32E-07 | 4.48E-08 | 4.20E-07 | 2.21E-07 |
| b. Batch Releases | μCi/ml | 1.42E-05 | 2.13E-05 | 1.04E-05 | 2.23E-05 | 1.60E-05 |
| C. Dissolved and Entrained Gases | | | | | | |
| 1. Total Release | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2. Average Diluted Concentration | | | | | | |
| a. Continuous Releases | μCi/ml | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| b. Batch Releases | μCi/ml | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| D. Gross Alpha Radioactivity | | | | | | |
| 1. Total Release | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| 2. Average Diluted Concentration | | | | | | |
| a. Continuous Releases | μCi/ml | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| b. Batch Releases | μCi/ml | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 0.00E+00 |
| E. Volume of Liquid Waste | | | | | | |
| 1. Continuous Releases | liters | 9.73E+07 | 1.53E+08 | 3.10E+07 | 1.16E+08 | 3.98E+08 |
| 2. Batch Releases | liters | 5.47E+05 | 1.34E+06 | 1.11E+06 | 9.21E+05 | 3.92E+06 |
| F. Volume of Dilution Water | | | | | | |
| 1. Continuous Releases | liters | 2.03E+09 | 2.23E+09 | 3.50E+09 | 1.78E+09 | 9.54E+09 |
| 2. Batch Releases | liters | 2.03E+10 | 2.23E+10 | 3.50E+10 | 1.78E+10 | 9.54E+10 |

TABLE 2B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 LIQUID EFFLUENTS - CONTINUOUS MODE

Catawba Nuclear Station Units 1 & 2

| REPORT FOR 2005 | Unit | QTR 1 | QTR 2 | QTR 3 | QTR 4 | YEAR |
|---|------|----------|----------|----------|----------|----------|
| 1. Fission and Activation Products | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |
| 2. Tritium | | | | | | |
| H-3 | Ci | 4.45E-01 | 7.91E-01 | 1.58E-01 | 7.97E-01 | 2.19E+00 |
| Totals for Period... | Ci | 4.45E-01 | 7.91E-01 | 1.58E-01 | 7.97E-01 | 2.19E+00 |
| 3. Dissolved and Entrained Gases | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |
| 4. Gross Alpha Radioactivity | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |

TABLE 2B

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 LIQUID EFFLUENTS - BATCH MODE

Catawba Nuclear Station Units 1 & 2

| REPORT FOR 2005 | Unit | QTR 1 | QTR 2 | QTR 3 | QTR 4 | YEAR |
|---|------|----------|----------|----------|----------|----------|
| 1. Fission and Activation Products | | | | | | |
| BE-7 | Ci | 1.48E-04 | 7.28E-04 | 2.98E-04 | 2.32E-04 | 1.41E-03 |
| CO-57 | Ci | 2.93E-05 | 1.05E-04 | 1.99E-05 | 3.84E-05 | 1.93E-04 |
| CO-58 | Ci | 1.69E-03 | 1.92E-02 | 3.14E-03 | 4.35E-03 | 2.84E-02 |
| CO-60 | Ci | 2.69E-03 | 3.51E-03 | 2.35E-03 | 6.60E-03 | 1.52E-02 |
| CR-51 | Ci | 0.00E+00 | 1.16E-03 | 2.41E-04 | 2.59E-04 | 1.66E-03 |
| CS-134 | Ci | 1.43E-05 | 2.96E-04 | 2.85E-05 | 2.18E-05 | 3.60E-04 |
| CS-137 | Ci | 2.24E-05 | 9.20E-04 | 1.21E-04 | 1.21E-04 | 1.18E-03 |
| FE-59 | Ci | 0.00E+00 | 1.74E-04 | 2.63E-04 | 1.23E-05 | 4.49E-04 |
| MN-54 | Ci | 1.28E-04 | 2.48E-04 | 2.73E-04 | 5.73E-04 | 1.22E-03 |
| NB-95 | Ci | 0.00E+00 | 0.00E+00 | 6.98E-05 | 1.58E-04 | 2.28E-04 |
| NB-97 | Ci | 0.00E+00 | 4.05E-05 | 0.00E+00 | 3.99E-05 | 8.04E-05 |
| SB-124 | Ci | 1.20E-04 | 2.20E-04 | 1.62E-04 | 1.65E-04 | 6.68E-04 |
| SB-125 | Ci | 3.01E-03 | 3.24E-03 | 2.01E-03 | 4.76E-03 | 1.30E-02 |
| SB-126 | Ci | 0.00E+00 | 6.95E-07 | 0.00E+00 | 0.00E+00 | 6.95E-07 |
| SR-92 | Ci | 0.00E+00 | 1.15E-05 | 0.00E+00 | 0.00E+00 | 1.15E-05 |
| TC-99M | Ci | 0.00E+00 | 0.00E+00 | 0.00E+00 | 7.18E-06 | 7.18E-06 |
| W-187 | Ci | 1.32E-05 | 0.00E+00 | 0.00E+00 | 0.00E+00 | 1.32E-05 |
| ZN-65 | Ci | 0.00E+00 | 1.26E-05 | 0.00E+00 | 0.00E+00 | 1.26E-05 |
| ZR-95 | Ci | 0.00E+00 | 1.19E-05 | 3.39E-05 | 9.66E-05 | 1.42E-04 |
| Totals for Period... | Ci | 7.87E-03 | 2.99E-02 | 9.00E-03 | 1.74E-02 | 6.42E-02 |
| 2. Tritium | | | | | | |
| H-3 | Ci | 2.89E+02 | 4.74E+02 | 3.66E+02 | 3.97E+02 | 1.53E+03 |
| Totals for Period... | Ci | 2.89E+02 | 4.74E+02 | 3.66E+02 | 3.97E+02 | 1.53E+03 |
| 3. Dissolved and Entrained Gases | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |
| 4. Gross Alpha Radioactivity | | | | | | |
| ** No Nuclide Activities ** |  | ..... | ..... | ..... | ..... | ..... |

ATTACHMENT II

Supplemental Information

to the

Liquid and Gaseous Effluents Report

CATAWBA NUCLEAR STATION

2005 EFFLUENT AND WASTE DISPOSAL SUPPLEMENTAL INFORMATION

I. REGULATORY LIMITS - PER UNIT

A. NOBLE GASES - AIR DOSE

1. CALENDAR QUARTER - GAMMA DOSE = 5 MRAD
2. CALENDAR QUARTER - BETA DOSE = 10 MRAD
3. CALENDAR YEAR - GAMMA DOSE = 10 MRAD
4. CALENDAR YEAR - BETA DOSE = 20 MRAD

B. LIQUID EFFLUENTS - DOSE

1. CALENDAR QUARTER - TOTAL BODY DOSE = 1.5 MREM
2. CALENDAR QUARTER - ORGAN DOSE = 5 MREM
3. CALENDAR YEAR - TOTAL BODY DOSE = 3 MREM
4. CALENDAR YEAR - ORGAN DOSE = 10 MREM

C. GASEOUS EFFLUENTS - IODINE - 131 AND 133, TRITIUM, PARTICULATES WITH HALF-LIVES > 8 DAYS - ORGAN DOSE

1. CALENDAR QUARTER = 7.5 MREM
2. CALENDAR YEAR = 15 MREM

II. MAXIMUM PERMISSIBLE EFFLUENT CONCENTRATIONS

A. GASEOUS EFFLUENTS - INFORMATION FOUND IN OFFSITE DOSE CALCULATION MANUAL

B. LIQUID EFFLUENTS - INFORMATION FOUND IN 10CFR20, APPENDIX B, TABLE 2, COLUMN 2

III. AVERAGE ENERGY - NOT APPLICABLE

IV. MEASUREMENTS AND APPROXIMATIONS OF TOTAL RADIOACTIVITY

ANALYSES OF SPECIFIC RADIONUCLIDES IN SELECTED OR COMPOSITED SAMPLES AS DESCRIBED IN THE SELECTED LICENSEE COMMITMENTS ARE USED TO DETERMINE THE RADIONUCLIDE COMPOSITION OF THE EFFLUENT. SUPPLEMENTAL REPORT, PAGE 2, PROVIDES A SUMMARY DESCRIPTION OF THE METHOD USED FOR ESTIMATING OVERALL ERRORS ASSOCIATED WITH RADIOACTIVITY MEASUREMENTS.

V. BATCH RELEASES

A. LIQUID EFFLUENT

1. $7.60E+01$ = TOTAL NUMBER OF BATCH RELEASES
2. $6.17E+03$ = TOTAL TIME (MIN.) FOR BATCH RELEASES.
3. $1.31E+02$ = MAXIMUM TIME (MIN.) FOR A BATCH RELEASE.
4. $8.11E+01$ = AVERAGE TIME (MIN.) FOR A BATCH RELEASE.
5. $3.70E+01$ = MINIMUM TIME (MIN.) FOR A BATCH RELEASE.
6. $4.80E+04$ = AVERAGE DILUTION WATER FLOW DURING RELEASES (GPM).

B. GASEOUS EFFLUENT

1. $7.90E+01$ = TOTAL NUMBER OF BATCH RELEASES.
2. $1.02E+06$ = TOTAL TIME (MIN.) FOR BATCH RELEASES.
3. $4.43E+04$ = MAXIMUM TIME (MIN.) FOR A BATCH RELEASE.
4. $1.29E+04$ = AVERAGE TIME (MIN.) FOR A BATCH RELEASE.
5. $1.00E+02$ = MINIMUM TIME (MIN.) FOR A BATCH RELEASE.

VI. ABNORMAL RELEASES

A. LIQUID

1. NUMBER OF RELEASES = 0
2. TOTAL ACTIVITY RELEASED (CURIES) = 0

B. GASEOUS

1. NUMBER OF RELEASES = 0
2. TOTAL ACTIVITY RELEASED (CURIES) = 0

SUPPLEMENTAL REPORT PAGE 2

CATAWBA NUCLEAR STATION

The estimated percentage of error for both Liquid and Gaseous effluent release data at Catawba Nuclear Station has been determined to be $\pm 25.2\%$. This value was derived by taking the square root of the sum of the squares of the following discrete individual estimates of error:

- (1) Flow rate determining devices = $\pm 20\%$
- (2) Counting error = $\pm 15\%$
- (3) Sample preparation error = $\pm 3\%$

ATTACHMENT III

Solid Waste Disposal Report

CATAWBA NUCLEAR STATION - SOLID RADIOACTIVE WASTE SHIPPED TO A DISPOSAL FACILITY

REPORT PERIOD 1/1/2005 TO 12/31/2005

| Type of Waste Shipped | Number of Shipments | Number of Containers | Waste Class | Container Type | Burial Volume | | Total Activity (Curies) |
|--|---------------------|----------------------|--------------|----------------|--------------------|-------------------|-------------------------|
| | | | | | (ft ³) | (m ³) | |
| 1. Waste from Liquid Systems | | | | | | | |
| (A) Dewatered Secondary Resins | 0 | 0 | NA | NA | 0.0 | 0.00 | 0.000 |
| (B) Dewatered Primary Resins | 5 | 5 | 3 B 2 A S | 5 HIC | 772.5 | 21.88 | 219.650 |
| (C) Evaporator Concentrates | 0 | 0 | NA | NA | 0.0 | 0.00 | 0.000 |
| (D) Dewatered Mechanical Filters | 0 | 0 | NA | NA | 0.0 | 0.00 | 0.000 |
| (E) Dewatered Demineralizers | 0 | 0 | NA | NA | 0.0 | 0.00 | 0.000 |
| (F) Solidified (Cement) Acids, Oils, Sludges | 0 | 0 | NA | NA | 0.0 | 0.00 | 0.000 |
| 2. Dry Solid Waste | | | | | | | |
| (A) Dry Active Waste (compacted) | 0 | 0 | NA | NA | 0.0 | 0.00 | 0.000 |
| (B) Dry Active Waste (non-compacted) | 0 | 0 | NA | NA | 0.0 | 0.00 | 0.000 |
| (C) Dry Active Waste (brokered) | NA | NA | NA | NA | 1819.7 | 51.53 | 3.750 |
| (D) Irradiated Components | 0 | 0 | NA | NA | 0.0 | 0.00 | 0.000 |
| 3. All Solid Waste | | | | | | | |
| | 5 | 5 | NA | NA | 2592.2 | 73.41 | 223.400 |

* Does not included brokered Dry Active Waste totals.

CATAWBA NUCLEAR STATION - SOLID RADIOACTIVE WASTE
SUMMARY OF PRINCIPAL RADIONUCLIDE COMPOSITION
REPORT PERIOD 1/1/2005 TO 12/31/2005

| Type of Waste Shipped | Radionuclide | % Abundance * |
|--|----------------------------|---------------|
| 1. Waste from Liquid Systems | | |
| (A) Dewatered Secondary Resins | (None shipped this period) | |
| (B) Dewatered Primary Resins | Ag-108m | 0.0% |
| | Ag-110m | 0.0% |
| | Am-241 | 0.0% |
| | Ba/La-140 | 0.0% |
| | C-14 | 0.0% |
| | Ce-144 | 0.0% |
| | Cm-243 | 0.0% |
| | Co-57 | 0.4% |
| | Co-58 | 1.0% |
| | Co-60 | 15.9% |
| | Cr-51 | 0.0% |
| | Cs-134 | 0.8% |
| | Cs-137 | 2.0% |
| | Fe-55 | 13.9% |
| | Fe-59 | 0.0% |
| | H-3 | 0.5% |
| | I-129 | 0.0% |
| | Mn-54 | 3.8% |
| | Nb-95 | 0.0% |
| | Ni-63 | 61.4% |
| | Pu-238 | 0.0% |
| | Pu-239 | 0.0% |
| | Pu-241 | 0.0% |
| | Sb-124 | 0.0% |
| | Sb-125 | 0.2% |
| | Sn-113 | 0.0% |
| | Sr-89 | 0.0% |
| | Sr-90 | 0.0% |
| | Tc-99 | 0.0% |
| | Zr-95 | 0.0% |
| (C) Evaporator Concentrates | (None shipped this period) | |
| (D) Dewatered Mechanical Filters | (None shipped this period) | |
| (E) Dewatered Demineralizers | (None shipped this period) | |
| (F) Solidified (Cement) Acids, Oils, Sludges | (None shipped this period) | |

* Average percent abundance for all shipments during period.

CATAWBA NUCLEAR STATION - SOLID RADIOACTIVE WASTE
SUMMARY OF PRINCIPAL RADIONUCLIDE COMPOSITION
REPORT PERIOD 1/1/2005 TO 12/31/2005

| Type of Waste Shipped | Radionuclide | % Abundance * |
|--------------------------------------|----------------------------|---------------|
| 2. Dry Solid Waste | | |
| (A) Dry Active Waste (compacted) | (None shipped this period) | |
| (B) Dry Active Waste (non-compacted) | (None shipped this period) | |
| (C) Dry Active Waste (brokered) | Ag-108m | 0.0% |
| | Ag-110m | 0.2% |
| | Am-241 | 0.6% |
| | Ba/La-140 | 0.0% |
| | C-14 | 0.0% |
| | Ce-144 | 0.0% |
| | Cm-243 | 0.3% |
| | Co-57 | 23.3% |
| | Co-58 | 10.7% |
| | Co-60 | 0.1% |
| | Cr-51 | 0.2% |
| | Cs-134 | 0.2% |
| | Cs-137 | 42.1% |
| | Fe-55 | 0.0% |
| | Fe-59 | 0.8% |
| | H-3 | 0.0% |
| | I-129 | 1.9% |
| | Mn-54 | 1.7% |
| | Nb-95 | 16.7% |
| | Ni-63 | 0.0% |
| | Pu-238 | 0.0% |
| | Pu-241 | 0.0% |
| | Sb-124 | 0.1% |
| | Sb-125 | 0.0% |
| | Sn-113 | 0.0% |
| | Sr-89 | 0.2% |
| | Sr-90 | 0.0% |
| | Tc-99 | 0.9% |
| | Zr-95 | 0.0% |
| | Pu-239 | 0.0% |
| (D) Irradiated Components | (None shipped this period) | |

* Average percent abundance for all shipments during period.

CATAWBA NUCLEAR STATION - SOLID RADIOACTIVE WASTE
SUMMARY OF PRINCIPAL RADIONUCLIDE COMPOSITION
REPORT PERIOD 1/1/2005 TO 12/31/2005

| Type of Waste Shipped | Radionuclide | % Abundance * |
|-----------------------|--------------|---------------|
| 3. All Solid Waste | Ag-108m | 0.0% |
| | Ag-110m | 0.0% |
| | Am-241 | 0.0% |
| | Ba/La-140 | 0.0% |
| | C-14 | 0.0% |
| | Ce-144 | 0.0% |
| | Cm-243 | 0.0% |
| | Co-57 | 0.4% |
| | Co-58 | 1.4% |
| | Co-60 | 15.9% |
| | Cr-51 | 0.0% |
| | Cs-134 | 0.8% |
| | Cs-137 | 2.0% |
| | Fe-55 | 14.4% |
| | Fe-59 | 0.0% |
| | H-3 | 0.5% |
| | I-129 | 0.0% |
| | Mn-54 | 3.8% |
| | Nb-95 | 0.0% |
| | Ni-63 | 60.7% |
| | Pu-238 | 0.0% |
| | Pu-239 | 0.0% |
| | Pu-241 | 0.0% |
| | Sb-124 | 0.0% |
| | Sb-125 | 0.2% |
| | Sn-113 | 0.0% |
| | Sr-89 | 0.0% |
| | Sr-90 | 0.0% |
| | Tc-99 | 0.0% |
| | Zr-95 | 0.0% |

* Average percent abundance for all shipments during period.

ATTACHMENT IV

Meteorological Data

**Meteorological Joint Frequency Distributions
Of Wind Speed, Wind Direction, and Atmospheric Stability
Using winds at the 10 M Level
(Hours of Occurrence)**

CATAWBA NUCLEAR STN. METEOROLOGY (2005) PROG=XOQFREQ
 10M WIND SPEED/DIRECTION/DELTA-T STABILITY
 STABILITY CLASSES BASED ON DELTA-T BETWEEN UPPER-LOWER LEVELS

PASQUILL STABILITY A

| SECTOR | WIND SPEED CLASS | | | | | | | | | |
|--------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|
| | 1.00- 1.24 | 1.25- 1.49 | 1.50- 1.99 | 2.00- 2.99 | 3.00- 3.99 | 4.00- 4.99 | 5.00- 5.99 | 6.00- 7.99 | 8.00- 9.99 | TOTAL |
| | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. |
| -N- | . | . | 1 | 11 | 36 | 44 | 18 | 2 | . | 112 |
| -NNE- | . | . | 3 | 3 | 9 | 35 | 39 | 9 | . | 98 |
| -NE- | . | . | . | 4 | 6 | 7 | 12 | . | . | 29 |
| -ENE- | . | . | . | . | 1 | . | . | . | . | 1 |
| -E- | . | . | 1 | . | 4 | . | . | . | . | 5 |
| -ESE- | . | 1 | 3 | 4 | 1 | . | . | . | . | 9 |
| -SE- | 1 | 4 | 8 | 7 | 8 | 2 | . | . | . | 30 |
| -SSE- | . | 2 | 12 | 36 | 15 | 2 | 2 | . | . | 69 |
| -S- | . | . | 10 | 29 | 5 | 4 | 1 | . | . | 49 |
| -SSW- | . | . | 13 | 51 | 46 | 12 | 1 | 1 | . | 124 |
| -SW- | 1 | 2 | 14 | 46 | 39 | 13 | . | . | . | 115 |
| -WSW- | 1 | . | 6 | 36 | 21 | 6 | . | . | . | 70 |
| -W- | . | . | 6 | 31 | 17 | 6 | . | 1 | . | 61 |
| -WNW- | . | . | 10 | 19 | 12 | 11 | 2 | 3 | . | 57 |
| -NW- | . | . | 2 | 5 | 3 | 1 | 1 | 6 | 1 | 19 |
| -NNW- | . | . | . | 4 | 4 | 3 | 7 | 6 | 2 | 26 |
| TOTAL | 3 | 9 | 89 | 286 | 227 | 146 | 83 | 28 | 3 | 874 |

CATAWBA NUCLEAR STN. METEOROLOGY (2005) PROG=XOQFREQ
 10M WIND SPEED/DIRECTION/DELTA-T STABILITY
 STABILITY CLASSES BASED ON DELTA-T BETWEEN UPPER-LOWER LEVELS

PASQUILL STABILITY B

| SECTOR | WIND SPEED CLASS | | | | | | | | | | TOTAL |
|--------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|
| | 0.75- 0.99 | 1.00- 1.24 | 1.25- 1.49 | 1.50- 1.99 | 2.00- 2.99 | 3.00- 3.99 | 4.00- 4.99 | 5.00- 5.99 | 6.00- 7.99 | 8.00- 9.99 | |
| | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | |
| -N- | . | . | . | 2 | 16 | 26 | 17 | 2 | . | 1 | 64 |
| -NNE- | . | . | . | 1 | 10 | 16 | 22 | 21 | 4 | . | 74 |
| -NE- | . | . | . | . | 3 | 4 | 12 | 1 | . | . | 20 |
| -ENE- | . | 1 | . | . | 1 | 1 | . | . | . | . | 3 |
| -E- | . | . | . | 3 | 1 | . | . | . | . | . | 4 |
| -ESE- | . | . | 1 | 1 | 2 | 1 | . | . | . | . | 5 |
| -SE- | . | 1 | 2 | 4 | 6 | 1 | . | . | . | . | 14 |
| -SSE- | . | . | 1 | 11 | 20 | 6 | 2 | 1 | . | . | 41 |
| -S- | . | . | 2 | 5 | 8 | 6 | . | 2 | . | . | 23 |
| -SSW- | . | . | 2 | 7 | 30 | 22 | 4 | 1 | . | . | 66 |
| -SW- | . | . | . | 7 | 19 | 7 | 1 | 5 | . | . | 39 |
| -WSW- | . | . | 2 | 8 | 9 | 3 | 3 | . | . | 1 | 26 |
| -W- | . | . | 1 | 2 | 8 | 7 | 3 | 1 | . | . | 22 |
| -WNW- | . | . | . | 3 | 6 | 8 | 6 | 1 | 2 | . | 26 |
| -NW- | . | . | . | 1 | 8 | 2 | 1 | 4 | 6 | . | 22 |
| -NNW- | 1 | . | 1 | 1 | 5 | 6 | 2 | 1 | 2 | . | 19 |
| TOTAL | 1 | 2 | 12 | 56 | 152 | 116 | 73 | 40 | 14 | 2 | 468 |

CATAWBA NUCLEAR STN. METEOROLOGY (2005) PROG=XOQFREQ
 10M WIND SPEED/DIRECTION/DELTA-T STABILITY
 STABILITY CLASSES BASED ON DELTA-T BETWEEN UPPER-LOWER LEVELS

PASQUILL STABILITY C

| SECTOR | WIND SPEED CLASS | | | | | | | | | |
|--------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|
| | 0.75- 0.99 | 1.00- 1.24 | 1.25- 1.49 | 1.50- 1.99 | 2.00- 2.99 | 3.00- 3.99 | 4.00- 4.99 | 5.00- 5.99 | 6.00- 7.99 | TOTAL |
| | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. |
| -N- | . | . | 2 | 3 | 26 | 30 | 19 | 6 | 3 | 89 |
| -NNE- | . | . | . | 1 | 12 | 26 | 40 | 17 | 6 | 102 |
| -NE- | . | . | . | . | 4 | 19 | 19 | 5 | . | 47 |
| -ENE- | 1 | . | 2 | . | 2 | 6 | 4 | 1 | . | 16 |
| -E- | . | . | . | 2 | 2 | 1 | . | . | . | 5 |
| -ESE- | . | . | . | 3 | 2 | 2 | . | . | . | 7 |
| -SE- | . | . | 2 | 3 | 5 | 4 | . | . | . | 14 |
| -SSE- | . | 1 | 5 | 14 | 21 | 8 | 3 | . | . | 52 |
| -S- | . | . | 3 | 7 | 10 | 5 | 1 | 1 | . | 27 |
| -SSW- | . | . | 1 | 11 | 33 | 12 | 7 | . | 1 | 65 |
| -SW- | . | . | 5 | 10 | 13 | 9 | 5 | 1 | . | 43 |
| -WSW- | . | . | 3 | 2 | 8 | 3 | 1 | . | . | 17 |
| -W- | . | . | . | 6 | 11 | 3 | 1 | . | . | 21 |
| -WNW- | . | 1 | . | 2 | 6 | 3 | 4 | 2 | 2 | 20 |
| -NW- | . | 1 | 1 | 3 | 4 | 4 | 2 | 1 | 5 | 21 |
| -NNW- | . | . | 1 | 6 | 7 | 8 | 8 | . | 3 | 33 |
| TOTAL | 1 | 3 | 25 | 73 | 166 | 143 | 114 | 34 | 20 | 579 |

CATAWBA NUCLEAR STN. METEOROLOGY (2005) PROG=XOQFREQ
 10M WIND SPEED/DIRECTION/DELTA-T STABILITY
 STABILITY CLASSES BASED ON DELTA-T BETWEEN UPPER-LOWER LEVELS

PASQUILL STABILITY D

| SECTOR | WIND SPEED CLASS | | | | | | | | | | | TOTAL |
|--------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|
| | 0.45- 0.74 | 0.75- 0.99 | 1.00- 1.24 | 1.25- 1.49 | 1.50- 1.99 | 2.00- 2.99 | 3.00- 3.99 | 4.00- 4.99 | 5.00- 5.99 | 6.00- 7.99 | 8.00- 9.99 | |
| | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | |
| -N- | . | . | 5 | 7 | 23 | 84 | 167 | 116 | 27 | 7 | 2 | 438 |
| -NNE- | 1 | 1 | . | 1 | 9 | 41 | 194 | 129 | 47 | 7 | . | 430 |
| -NE- | . | . | 2 | 1 | 6 | 21 | 71 | 90 | 23 | 2 | . | 216 |
| -ENE- | . | 1 | 2 | 1 | 6 | 16 | 19 | 6 | 9 | . | . | 60 |
| -E- | . | . | 1 | 6 | 5 | 18 | 7 | . | . | . | . | 37 |
| -ESE- | . | 3 | 2 | 3 | 7 | 13 | 1 | . | . | . | . | 29 |
| -SE- | . | 2 | 3 | 10 | 12 | 27 | 17 | 4 | . | . | . | 75 |
| -SSE- | 1 | 4 | 9 | 14 | 40 | 83 | 28 | 6 | 1 | . | . | 186 |
| -S- | 1 | 4 | 8 | 23 | 57 | 91 | 48 | 18 | 5 | . | . | 255 |
| -SSW- | 1 | 3 | 11 | 26 | 54 | 116 | 62 | 25 | 6 | . | . | 304 |
| -SW- | 1 | 2 | 13 | 36 | 46 | 50 | 34 | 9 | 3 | . | . | 194 |
| -WSW- | . | 3 | 14 | 20 | 23 | 31 | 8 | 3 | 2 | . | . | 104 |
| -W- | . | 4 | 5 | 19 | 13 | 14 | 6 | 1 | 2 | 1 | . | 65 |
| -WNW- | . | 1 | 8 | 18 | 15 | 13 | 19 | 14 | 6 | 9 | . | 103 |
| -NW- | . | 1 | 5 | 12 | 20 | 21 | 12 | 13 | 10 | 8 | . | 102 |
| -NNW- | 1 | 3 | 1 | 3 | 31 | 57 | 32 | 22 | 12 | 7 | . | 169 |
| TOTAL | 6 | 32 | 89 | 200 | 367 | 696 | 725 | 456 | 153 | 41 | 2 | 2767 |

CATAWBA NUCLEAR STN. METEOROLOGY (2005) PROG=XOQFREQ
 10M WIND SPEED/DIRECTION/DELTA-T STABILITY
 STABILITY CLASSES BASED ON DELTA-T BETWEEN UPPER-LOWER LEVELS

PASQUILL STABILITY E

| SECTOR | WIND SPEED CLASS | | | | | | | | | | | TOTAL |
|--------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|
| | 0.45- 0.74 | 0.75- 0.99 | 1.00- 1.24 | 1.25- 1.49 | 1.50- 1.99 | 2.00- 2.99 | 3.00- 3.99 | 4.00- 4.99 | 5.00- 5.99 | 6.00- 7.99 | 8.00- 9.99 | |
| | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | |
| -N- | . | . | 2 | 3 | 11 | 67 | 117 | 17 | . | . | . | 217 |
| -NNE- | . | 1 | . | 1 | 3 | 8 | 18 | 13 | 1 | . | . | 45 |
| -NE- | . | . | 1 | . | 2 | . | 7 | 11 | 15 | 3 | . | 39 |
| -ENE- | . | . | 2 | 1 | 5 | 7 | 2 | 8 | 5 | 2 | . | 32 |
| -E- | . | . | 1 | 2 | 6 | 5 | . | 2 | 1 | . | . | 17 |
| -ESE- | . | . | 5 | 2 | 2 | 16 | 3 | 5 | . | . | . | 33 |
| -SE- | . | 2 | 6 | 5 | 17 | 36 | 13 | 9 | . | . | . | 88 |
| -SSE- | . | 11 | 4 | 15 | 32 | 64 | 24 | 5 | 1 | . | . | 156 |
| -S- | 2 | 9 | 15 | 38 | 76 | 47 | 14 | 3 | . | . | . | 204 |
| -SSW- | . | 8 | 31 | 67 | 92 | 107 | 27 | 2 | . | . | . | 334 |
| -SW- | 2 | 18 | 32 | 59 | 36 | 40 | 10 | . | . | . | . | 197 |
| -WSW- | 3 | 17 | 26 | 38 | 39 | 15 | 3 | 1 | . | . | . | 142 |
| -W- | . | 15 | 24 | 25 | 31 | 21 | 2 | . | . | . | 1 | 119 |
| -WNW- | . | 10 | 21 | 25 | 48 | 43 | 12 | 1 | . | . | . | 160 |
| -NW- | . | 4 | 19 | 17 | 34 | 30 | 14 | 2 | . | . | . | 120 |
| -NNW- | . | 3 | 1 | 8 | 35 | 117 | 58 | 4 | 1 | . | . | 227 |
| TOTAL | 7 | 98 | 190 | 306 | 469 | 623 | 324 | 83 | 24 | 5 | 1 | 2130 |

CATAWBA NUCLEAR STN. METEOROLOGY (2005) PROG=XOQFREQ
 10M WIND SPEED/DIRECTION/DELTA-T STABILITY
 STABILITY CLASSES BASED ON DELTA-T BETWEEN UPPER-LOWER LEVELS

PASQUILL STABILITY F

| SECTOR | WIND SPEED CLASS | | | | | | | | | TOTAL |
|--------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|
| | 0.45- 0.74 | 0.75- 0.99 | 1.00- 1.24 | 1.25- 1.49 | 1.50- 1.99 | 2.00- 2.99 | 3.00- 3.99 | 4.00- 4.99 | 5.00- 5.99 | |
| | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | |
| -N- | 1 | . | . | 1 | 9 | 37 | 16 | . | . | 64 |
| -NNE- | . | . | . | . | . | 4 | 5 | 1 | . | 10 |
| -NE- | . | . | . | . | . | 1 | . | 1 | . | 2 |
| -ENE- | . | 2 | . | 1 | . | . | . | . | . | 3 |
| -E- | . | . | . | 2 | . | 1 | . | . | . | 3 |
| -ESE- | . | . | . | 1 | . | 1 | 1 | . | . | 3 |
| -SE- | . | . | 1 | 2 | 1 | 6 | 2 | 1 | 3 | 16 |
| -SSE- | 1 | 1 | 7 | 6 | 9 | 5 | 5 | . | . | 34 |
| -S- | 1 | 7 | 25 | 32 | 29 | 8 | 1 | . | . | 103 |
| -SSW- | 2 | 9 | 32 | 35 | 44 | 7 | . | . | . | 129 |
| -SW- | 2 | 8 | 32 | 32 | 15 | 1 | . | . | . | 90 |
| -WSW- | 2 | 10 | 19 | 14 | 24 | 1 | . | . | . | 70 |
| -W- | 2 | 8 | 17 | 13 | 30 | 18 | . | . | . | 88 |
| -WNW- | 2 | 14 | 8 | 8 | 19 | 17 | 1 | . | . | 69 |
| -NW- | . | 9 | 19 | 20 | 27 | 16 | 1 | . | . | 92 |
| -NNW- | . | . | 3 | 11 | 48 | 83 | 16 | . | . | 161 |
| TOTAL | 13 | 68 | 163 | 178 | 255 | 206 | 48 | 3 | 3 | 937 |

CATAWBA NUCLEAR STN. METEOROLOGY (2005) PROG=XOQFREQ
 10M WIND SPEED/DIRECTION/DELTA-T STABILITY
 STABILITY CLASSES BASED ON DELTA-T BETWEEN UPPER-LOWER LEVELS

PASQUILL STABILITY G

| | WIND SPEED CLASS | | | | | | | | TOTAL |
|--------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|
| | 0.45- 0.74 | 0.75- 0.99 | 1.00- 1.24 | 1.25- 1.49 | 1.50- 1.99 | 2.00- 2.99 | 3.00- 3.99 | 4.00- 4.99 | |
| | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | |
| SECTOR | | | | | | | | | |
| -N- | . | . | . | 1 | 3 | 22 | 3 | 2 | 31 |
| -NNE- | . | . | . | . | 1 | . | . | . | 1 |
| -ESE- | . | 1 | . | . | . | . | . | . | 1 |
| -SSE- | 1 | 4 | 9 | 10 | 3 | 1 | . | . | 28 |
| -S- | 1 | 12 | 28 | 33 | 22 | . | . | . | 96 |
| -SSW- | 1 | 18 | 30 | 38 | 20 | . | . | . | 107 |
| -SW- | 5 | 17 | 22 | 18 | 8 | 2 | . | . | 72 |
| -WSW- | 6 | 20 | 15 | 12 | 13 | 2 | . | . | 68 |
| -W- | 8 | 22 | 17 | 10 | 13 | 7 | . | . | 77 |
| -WNW- | 6 | 20 | 19 | 13 | 10 | 13 | . | . | 81 |
| -NW- | 3 | 16 | 18 | 24 | 17 | 6 | . | . | 84 |
| -NNW- | 1 | 3 | 7 | 11 | 22 | 45 | 4 | . | 93 |
| -CALM- | 1 | . | . | . | . | . | . | . | 1 |
| TOTAL | 33 | 133 | 165 | 170 | 132 | 98 | 7 | 2 | 740 |

CATAWBA NUCLEAR STN. METEOROLOGY (2005) PROG=XOQFREQ
 10M WIND SPEED/DIRECTION/DELTA-T STABILITY
 STABILITY CLASSES BASED ON DELTA-T BETWEEN UPPER-LOWER LEVELS

ALL STABILITY CLASSES

| | WIND SPEED CLASS | | | | | | | | | | | TOTAL |
|--------|------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|-------|
| | 0.45- 0.74 | 0.75- 0.99 | 1.00- 1.24 | 1.25- 1.49 | 1.50- 1.99 | 2.00- 2.99 | 3.00- 3.99 | 4.00- 4.99 | 5.00- 5.99 | 6.00- 7.99 | 8.00- 9.99 | |
| | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | NO. | |
| SECTOR | | | | | | | | | | | | |
| -N- | 1 | . | 7 | 14 | 52 | 263 | 395 | 215 | 53 | 12 | 3 | 1015 |
| -NNE- | 1 | 2 | . | 2 | 18 | 78 | 268 | 240 | 125 | 26 | . | 760 |
| -NE- | . | . | 3 | 1 | 8 | 33 | 107 | 140 | 56 | 5 | . | 353 |
| -ENE- | . | 4 | 5 | 5 | 11 | 26 | 29 | 18 | 15 | 2 | . | 115 |
| -E- | . | . | 2 | 10 | 17 | 27 | 12 | 2 | 1 | . | . | 71 |
| -ESE- | . | 4 | 7 | 8 | 16 | 38 | 9 | 5 | . | . | . | 87 |
| -SE- | . | 4 | 12 | 25 | 45 | 87 | 45 | 16 | 3 | . | . | 237 |
| -SSE- | 3 | 20 | 30 | 53 | 121 | 230 | 86 | 18 | 5 | . | . | 566 |
| -S- | 5 | 32 | 76 | 131 | 206 | 193 | 79 | 26 | 9 | . | . | 757 |
| -SSW- | 4 | 38 | 104 | 169 | 241 | 344 | 169 | 50 | 8 | 2 | . | 1129 |
| -SW- | 10 | 45 | 100 | 152 | 136 | 171 | 99 | 28 | 9 | . | . | 750 |
| -WSW- | 11 | 50 | 75 | 89 | 115 | 102 | 38 | 14 | 2 | . | 1 | 497 |
| -W- | 10 | 49 | 63 | 68 | 101 | 110 | 35 | 11 | 3 | 2 | 1 | 453 |
| -WNW- | 8 | 45 | 57 | 64 | 107 | 117 | 55 | 36 | 11 | 16 | . | 516 |
| -NW- | 3 | 30 | 62 | 74 | 104 | 90 | 36 | 19 | 16 | 25 | 1 | 460 |
| -NNW- | 2 | 10 | 12 | 35 | 143 | 318 | 128 | 39 | 21 | 18 | 2 | 728 |
| -CALM- | 1 | . | . | . | . | . | . | . | . | . | . | 1 |
| TOTAL | 59 | 333 | 615 | 900 | 1441 | 2227 | 1590 | 877 | 337 | 108 | 8 | 8495 |

ATTACHMENT V

Unplanned Offsite Releases

CATAWBA NUCLEAR STATION

UNPLANNED RELEASES

(January 1, 2005 through December 31, 2005)

There were no unplanned liquid or gaseous radioactive effluent releases to the environment in 2005.

ATTACHMENT VI

Assessment of Radiation Dose from

Radioactive Effluents to

Members of the Public

(includes fuel cycle dose calculation results)

This attachment includes an assessment of radiation doses to the maximum exposed member of the public due to radioactive liquid and gaseous effluents released from the site for each calendar quarter for the calendar year of the report as well as the total dose for the calendar year.

This attachment also includes an assessment of radiation doses to the maximum exposed member of the public from all uranium fuel cycle sources within ten miles of Catawba for the calendar year of this report to show conformance with 40 CFR 190.

Methods for calculating the dose contribution from liquid and gaseous effluents are given in the Offsite Dose Calculation Manual (ODCM).

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 GASEOUS ANNUAL DOSE SUMMARY REPORT

Catawba Nuclear Station Units 1 & 2

1st Quarter 2005

=== IODINE, H3, AND PARTICULATE DOSE LIMIT ANALYSIS===== Quarter 1 2005 ===

| Period-Limit | Critical Group | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
|-------------------------|----------------|----------------|-------------|--------------|----------------|
| Q1 - Maximum Organ Dose | CHILD | LIVER | 1.33E-01 | 1.50E+01 | 8.88E-01 |

Maximum Organ Dose Receptor Location: 0.5 Mile ENE
 Critical Pathway: Vegetation

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

=== NOBLE GAS DOSE LIMIT ANALYSIS===== Quarter 1 2005 ===

| Period-Limit | Dose (mrad) | Limit (mrad) | % of Limit |
|-----------------------------|-------------|--------------|------------|
| Q1 - Maximum Gamma Air Dose | 7.11E-03 | 1.00E+01 | 7.11E-02 |

Maximum Gamma Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 9.79E+01 |

| | | | |
|----------------------------|----------|----------|----------|
| Q1 - Maximum Beta Air Dose | 2.89E-03 | 2.00E+01 | 1.45E-02 |
|----------------------------|----------|----------|----------|

Maximum Beta Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 8.49E+01 |
| XE-133 | 1.39E+01 |

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 GASEOUS ANNUAL DOSE SUMMARY REPORT

Catawba Nuclear Station Units 1 & 2

2nd Quarter 2005

=== IODINE, H3, AND PARTICULATE DOSE LIMIT ANALYSIS===== Quarter 2 2005 ===

| Period-Limit | Critical Group | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
|-------------------------|----------------|----------------|-------------|--------------|----------------|
| Q2 - Maximum Organ Dose | CHILD | LIVER | 1.55E-01 | 1.50E+01 | 1.04E+00 |

Maximum Organ Dose Receptor Location: 0.5 Mile ENE
 Critical Pathway: Vegetation

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

=== NOBLE GAS DOSE LIMIT ANALYSIS===== Quarter 2 2005 ===

| Period-Limit | Dose (mrad) | Limit (mrad) | % of Limit |
|-----------------------------|-------------|--------------|------------|
| Q2 - Maximum Gamma Air Dose | 8.78E-03 | 1.00E+01 | 8.78E-02 |

Maximum Gamma Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 9.67E+01 |

| | | | |
|----------------------------|----------|----------|----------|
| Q2 - Maximum Beta Air Dose | 3.89E-03 | 2.00E+01 | 1.95E-02 |
|----------------------------|----------|----------|----------|

Maximum Beta Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 7.70E+01 |
| XE-133 | 1.78E+01 |

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 GASEOUS ANNUAL DOSE SUMMARY REPORT

Catawba Nuclear Station Units 1 & 2

3rd Quarter 2005

=== IODINE, H3, AND PARTICULATE DOSE LIMIT ANALYSIS===== Quarter 3 2005 ===

| Period-Limit | Critical Group | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
|-------------------------|----------------|----------------|-------------|--------------|----------------|
| Q3 - Maximum Organ Dose | CHILD | LIVER | 1.36E-01 | 1.50E+01 | 9.06E-01 |

Maximum Organ Dose Receptor Location: 0.5 Mile ENE
 Critical Pathway: Vegetation

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

=== NOBLE GAS DOSE LIMIT ANALYSIS===== Quarter 3 2005 ===

| Period-Limit | Dose (mrad) | Limit (mrad) | % of Limit |
|-----------------------------|-------------|--------------|------------|
| Q3 - Maximum Gamma Air Dose | 9.59E-03 | 1.00E+01 | 9.59E-02 |

Maximum Gamma Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 9.81E+01 |

| | | | |
|----------------------------|----------|----------|----------|
| Q3 - Maximum Beta Air Dose | 3.83E-03 | 2.00E+01 | 1.91E-02 |
|----------------------------|----------|----------|----------|

Maximum Beta Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 8.67E+01 |
| XE-133 | 1.27E+01 |

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4th Quarter 2005

=== IODINE, H3, AND PARTICULATE DOSE LIMIT ANALYSIS===== Quarter 4 2005 ===

| Period-Limit | Critical Group | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
|-------------------------|----------------|----------------|-------------|--------------|----------------|
| Q4 - Maximum Organ Dose | CHILD | LIVER | 1.13E-01 | 1.50E+01 | 7.51E-01 |

Maximum Organ Dose Receptor Location: 0.5 Mile ENE
 Critical Pathway: Vegetation

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

=== NOBLE GAS DOSE LIMIT ANALYSIS===== Quarter 4 2005 ===

| Period-Limit | Dose (mrad) | Limit (mrad) | % of Limit |
|-----------------------------|-------------|--------------|------------|
| Q4 - Maximum Gamma Air Dose | 1.39E-02 | 1.00E+01 | 1.39E-01 |

Maximum Gamma Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 9.85E+01 |

| | | | |
|----------------------------|----------|----------|----------|
| Q4 - Maximum Beta Air Dose | 5.53E-03 | 2.00E+01 | 2.77E-02 |
|----------------------------|----------|----------|----------|

Maximum Beta Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 8.74E+01 |
| XE-133 | 1.01E+01 |

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ANNUAL 2005

| === IODINE, H3, AND PARTICULATE DOSE LIMIT ANALYSIS===== Annual 2005 ===== | | | | | |
|--|----------------|----------------|-------------|--------------|----------------|
| Period-Limit | Critical Group | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
| Yr - Maximum Organ Dose | CHILD | LIVER | 5.37E-01 | 3.00E+01 | 1.79E+00 |

Maximum Organ Dose Receptor Location: 0.5 Mile ENE
 Critical Pathway: Vegetation

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

| === NOBLE GAS DOSE LIMIT ANALYSIS===== Annual 2005 ===== | | | |
|--|-------------|--------------|------------|
| Period-Limit | Dose (mrad) | Limit (mrad) | % of Limit |
| Yr - Maximum Gamma Air Dose | 3.94E-02 | 2.00E+01 | 1.97E-01 |

Maximum Gamma Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 9.79E+01 |

| | | | |
|----------------------------|----------|----------|----------|
| Yr - Maximum Beta Air Dose | 1.61E-02 | 4.00E+01 | 4.04E-02 |
|----------------------------|----------|----------|----------|

Maximum Beta Air Dose Receptor Location: 0.5 Mile NNE

Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| AR-41 | 8.43E+01 |
| XE-133 | 1.32E+01 |

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
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1st Quarter 2005

| === BATCH LIQUID RELEASES === | | | | Quarter 1 2005 ===== | |
|-------------------------------|--------------|----------------|-------------|----------------------|----------------|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
| Q1 - Maximum Organ Dose | CHILD | LIVER | 2.37E-02 | 1.00E+01 | 2.37E-01 |
| Q1 - Total Body Dose | CHILD | | 2.21E-02 | 3.00E+00 | 7.38E-01 |

Maximum Organ
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)
 Nuclide Percentage

 H-3 8.90E+01

Total Body
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)
 Nuclide Percentage

 H-3 9.55E+01

| === CONTINUOUS LIQUID RELEASES (NC) === | | | | Quarter 1 2005 ===== | |
|---|--------------|----------------|-------------|----------------------|----------------|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
| Q1 - Maximum Organ Dose | CHILD | LIVER | 3.11E-04 | 1.00E+01 | 3.11E-03 |
| Q1 - Total Body Dose | CHILD | | 3.11E-04 | 3.00E+00 | 1.04E-02 |

Maximum Organ
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)
 Nuclide Percentage

 H-3 1.00E+02

Total Body
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)
 Nuclide Percentage

 H-3 1.00E+02

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
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2nd Quarter 2005

| --- BATCH LIQUID RELEASES --- | | | Quarter 2 2005 --- | | |
|-------------------------------|--------------|----------------|--------------------|--------------|----------------|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
| Q2 - Maximum Organ Dose | ADULT | LIVER | 9.78E-02 | 1.00E+01 | 9.78E-01 |
| Q2 - Total Body Dose | ADULT | | 7.80E-02 | 3.00E+00 | 2.60E+00 |

Maximum Organ
 Critical Pathway: Fresh Water Fish
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| CS-137 | 4.82E+01 |
| H-3 | 2.99E+01 |
| CS-134 | 2.10E+01 |

Total Body
 Critical Pathway: Fresh Water Fish
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| CS-137 | 3.96E+01 |
| H-3 | 3.75E+01 |
| CS-134 | 2.15E+01 |

| --- CONTINUOUS LIQUID RELEASES (WC) --- | | | Quarter 2 2005 --- | | |
|---|--------------|----------------|--------------------|--------------|----------------|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
| Q2 - Maximum Organ Dose | CHILD | LIVER | 4.99E-04 | 1.00E+01 | 4.99E-03 |
| Q2 - Total Body Dose | CHILD | | 4.99E-04 | 3.00E+00 | 1.66E-02 |

Maximum Organ
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

Total Body
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
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3rd Quarter 2005

| --- BATCH LIQUID RELEASES --- | | | | Quarter 3 2005 ----- | | |
|-------------------------------|--------------|----------------|-------------|----------------------|----------------|--|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit | |
| Q3 - Maximum Organ Dose | ADULT | GI-LLI | 2.28E-02 | 1.00E+01 | 2.28E-01 | |
| Q3 - Total Body Dose | ADULT | | 1.85E-02 | 3.00E+00 | 6.16E-01 | |

Maximum Organ
 Critical Pathway: Fresh Water Fish
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 6.37E+01 |
| NB-95 | 2.86E+01 |

Total Body
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 7.85E+01 |
| CS-137 | 1.41E+01 |
| CS-134 | 5.64E+00 |

| --- CONTINUOUS LIQUID RELEASES (WC) --- | | | | Quarter 3 2005 ----- | | |
|---|--------------|----------------|-------------|----------------------|----------------|--|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit | |
| Q3 - Maximum Organ Dose | CHILD | LIVER | 6.81E-05 | 1.00E+01 | 6.81E-04 | |
| Q3 - Total Body Dose | CHILD | | 6.81E-05 | 3.00E+00 | 2.27E-03 | |

Maximum Organ
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

Total Body
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
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 LIQUID ANNUAL DOSE SUMMARY REPORT

Catawba Nuclear Station Units 1 & 2

4th Quarter 2005

| === BATCH LIQUID RELEASES === | | | Quarter 4 2005 ===== | | |
|-------------------------------|--------------|----------------|----------------------|--------------|----------------|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
| Q4 - Maximum Organ Dose | ADULT | GI-LLI | 6.72E-02 | 1.00E+01 | 6.72E-01 |
| Q4 - Total Body Dose | ADULT | | 3.93E-02 | 3.00E+00 | 1.31E+00 |

Maximum Organ
 Critical Pathway: Fresh Water Fish
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 4.61E+01 |
| NB-95 | 4.32E+01 |
| CO-60 | 7.45E+00 |

Total Body
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 7.89E+01 |
| CS-137 | 1.31E+01 |

| === CONTINUOUS LIQUID RELEASES (WC) === | | | Quarter 4 2005 ===== | | |
|---|--------------|----------------|----------------------|--------------|----------------|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
| Q4 - Maximum Organ Dose | CHILD | LIVER | 6.38E-04 | 1.00E+01 | 6.38E-03 |
| Q4 - Total Body Dose | CHILD | | 6.38E-04 | 3.00E+00 | 2.13E-02 |

Maximum Organ
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

Total Body
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

EFFLUENT AND WASTE DISPOSAL ANNUAL REPORT
 PERIOD 1/1/05 TO 1/1/06
 LIQUID ANNUAL DOSE SUMMARY REPORT

Catawba Nuclear Station Units 1 & 2

ANNUAL 2005

| --- BATCH LIQUID RELEASES ----- | | | Annual 2005 ----- | | |
|---------------------------------|--------------|----------------|-------------------|--------------|----------------|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
| Yr - Maximum Organ Dose | CHILD | LIVER | 1.73E-01 | 2.00E+01 | 8.65E-01 |
| Yr - Total Body Dose | ADULT | | 1.48E-01 | 6.00E+00 | 2.46E+00 |

Maximum Organ
 Critical Pathway: Fresh Water Fish
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 5.57E+01 |
| CS-137 | 3.10E+01 |
| CS-134 | 1.16E+01 |

Total Body
 Critical Pathway: Fresh Water Fish
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 5.96E+01 |
| CS-137 | 2.52E+01 |
| CS-134 | 1.30E+01 |

| --- CONTINUOUS LIQUID RELEASES (WC) ----- | | | Annual 2005 ----- | | |
|---|--------------|----------------|-------------------|--------------|----------------|
| Period-Limit | Critical Age | Critical Organ | Dose (mrem) | Limit (mrem) | Max % of Limit |
| Yr - Maximum Organ Dose | CHILD | LIVER | 1.33E-03 | 2.00E+01 | 6.64E-03 |
| Yr - Total Body Dose | CHILD | | 1.33E-03 | 6.00E+00 | 2.21E-02 |

Maximum Organ
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

Total Body
 Critical Pathway: Potable Water
 Major Isotopic Contributors (5% or greater to total)

| Nuclide | Percentage |
|---------|------------|
| H-3 | 1.00E+02 |

**Catawba Nuclear Station
2005 Radioactive Effluent Releases
40CFR190 Uranium Fuel Cycle Dose Calculation Results**

In accordance with the requirements of 40CFR190, the annual dose commitment to any member of the general public shall be calculated to assure that doses are limited to 25 millirems to the total body or any organ with the exception of the thyroid which is limited to 75 millirems. The fuel cycle dose assessment for Catawba Nuclear Station only includes liquid and gaseous effluent dose contributions from Catawba since no other uranium fuel cycle facility contributes significantly to Catawba's maximum exposed individual. The dose to a maximum exposed individual from Catawba's effluent releases is well below 40CFR190 limits as shown by the following summary:

2005 Catawba 40CFR190 Effluent Dose Summary

The 40CFR190 effluent dose analysis to the maximum exposed individual from liquid and gas releases includes the dose from noble gases (i.e., total body and skin).

Maximum Total Body Dose = 6.73E-01 mrem

Maximum Location: 0.5 Mile, East-Northeast Sector
Critical Age: Child
Gas non-NG Contribution: 80%
Gas NG Contribution: 3%
Liquid Contribution: 17%

Maximum Organ (other than TB) Dose = 7.11E-01 mrem

Maximum Location: 0.5 Mile, East-Northeast Sector
Critical Age: Child
Critical Organ: Liver
Gas Contribution: 76%
Liquid Contribution: 24%