



MISSISSIPPI  
STATE DEPARTMENT OF  
HEALTH

Division Of  
Radiological Health

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April 16, 1996

U.S. Nuclear Regulatory Commission  
Public Document Room  
Washington, D.C. 20555

Dear Sir:

Enclosed is Mississippi's 1995 Calendar Year report of environmental activities at the Grand Gulf Nuclear Station. These activities were conducted by the Division of Radiological Health, Mississippi State Department of Health, in accordance with Cooperative Agreement No. NRC-29-83-621.

The original is being sent to you and copies are being provided to the Division of Contracts and Property Management and the Office of Nuclear Reactor Regulations. Should you have any questions or comments regarding this report, please direct them to Bob Bell at (601) 354-6657.

Sincerely,

*Bob Maff*  
*for*

Eddie S. Fuente, Director  
Division of Radiological Health


ESF/dd  
Enclosure

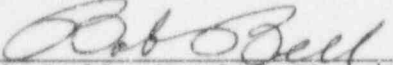
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REPORT TO THE NUCLEAR REGULATORY COMMISSION  
ENVIRONMENTAL MONITORING AT GRAND GULF NUCLEAR STATION  
CALENDAR YEAR 1995  
NRC CONTRACT NUMBER NRC-29-83-621

ENVIRONMENTAL MONITORING AND EMERGENCY RESPONSE BRANCH  
DIVISION OF RADIOLOGICAL HEALTH  
MISSISSIPPI STATE DEPARTMENT OF HEALTH

  
Eddie S. Fuente; Director, Division of Radiological Health

  
Bob Bell; Health Physicist-Administrative,  
Environmental Monitoring and Emergency Response Branch

**Abstract:**

Under contract to the U.S. Nuclear Regulatory Commission (NRC), the Mississippi State Department of Health (MSDH), Division of Radiological Health (DRH) provides environmental radiological data to the NRC pertaining to the Grand Gulf Nuclear Station (GGNS), Claiborne County, Mississippi.

Detailed in this report are results for Calendar Year 1995 which represent the fifteenth year of this contract with the State of Mississippi.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1995

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**Particulate Gross Beta**

These results are for particulate air samples duplicated by the MSDH and the Licensee which were analyzed for Gross Beta. The Licensee's sampler is located at the Old Training Center (TC) 0.3 miles south of the GGNS and designated as AS-5 (Indicator). The MSDH's comparable sampler is located at Arnold Acres (AA) 0.4 miles south of the GGNS. Specific lower limit of detection (LLD) requirements are listed on pages 28 (MSDH) and 29 (Licensee) for all categories.

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| TC       | 12/28-01/03 |                               | <0.027 <sup>A</sup>               |
| AA       | 12/28-01/03 | 0.046                         |                                   |
| TC       | 01/03-01/10 |                               | 0.023                             |
| AA       | 01/03-01/10 | 0.046                         |                                   |
| TC       | 01/10-01/17 |                               | 0.014                             |
| AA       | 01/10-01/17 | 0.027                         |                                   |
| TC       | 01/17-01/24 |                               | <0.017 <sup>B</sup>               |
| AA       | 01/17-01/24 | 0.034                         |                                   |
| TC       | 01/24-01/31 |                               | 0.010                             |
| AA       | 01/24-01/31 | 0.038                         |                                   |
| TC       | 01/31-02/07 |                               | 0.014                             |
| AA       | 01/31-02/07 | 0.047                         |                                   |
| TC       | 02/07-02/14 |                               | 0.013                             |
| AA       | 02/07-02/14 | 0.031                         |                                   |
| TC       | 02/14-02/21 |                               | 0.012                             |
| AA       | 02/14-02/21 | 0.028                         |                                   |
| TC       | 02/21-02/28 |                               | 0.010                             |
| AA       | 02/21-02/28 | 0.017                         |                                   |
| TC       | 02/28-03/07 |                               | 0.012 <sup>C</sup>                |
| AA       | 02/28-03/07 | 0.004                         |                                   |
| TC       | 03/07-03/14 |                               | 0.020 <sup>D</sup>                |
| AA       | 03/07-03/14 | 0.018                         |                                   |
| TC       | 03/14-03/21 |                               | <0.080 <sup>E</sup>               |
| AA       | 03/14-03/21 | 0.023                         |                                   |
| TC       | 03/21-03/28 |                               | 0.018 <sup>F</sup>                |
| AA       | 03/21-03/28 | 0.035                         |                                   |

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**Particulate Gross Beta (cont'd)**

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| TC       | 03/28-04/04 |                               | 0.016                             |
| AA       | 03/28-04/04 | 0.055                         |                                   |
| TC       | 04/04-04/11 |                               | 0.012                             |
| AA       | 04/04-04/11 | 0.019                         |                                   |
| TC       | 04/11-04/18 |                               | 0.011                             |
| AA       | 04/11-04/18 | 0.030                         |                                   |
| TC       | 04/18-04/25 |                               | <0.010 <sup>G</sup>               |
| AA       | 04/18-04/25 | 0.029                         |                                   |
| TC       | 04/25-05/02 |                               | 0.015                             |
| AA       | 04/25-05/02 | 0.037                         |                                   |
| TC       | 05/02-05/09 |                               | 0.011 <sup>H</sup>                |
| AA       | 05/02-05/09 | 0.019                         |                                   |
| TC       | 05/09-05/16 |                               | 0.012                             |
| AA       | 05/09-05/16 | 0.027                         |                                   |
| TC       | 05/16-05/23 |                               | 0.014 <sup>I</sup>                |
| AA       | 05/16-05/23 | 0.083                         |                                   |
| TC       | 05/23-05/30 |                               | 0.016 <sup>J</sup>                |
| AA       | 05/23-05/30 | 0.035                         |                                   |
| TC       | 05/30-06/06 |                               | 0.012                             |
| AA       | 05/30-06/06 | 0.068                         |                                   |
| TC       | 06/06-06/13 |                               | 0.012                             |
| AA       | 06/06-06/13 | 0.056                         |                                   |
| TC       | 06/13-06/20 |                               | 0.017                             |
| AA       | 06/13-06/20 | 0.094                         |                                   |
| TC       | 06/20-06/27 |                               | 0.019                             |
| AA       | 06/20-06/27 | 0.092                         |                                   |
| TC       | 06/27-07/05 |                               | 0.013                             |
| AA       | 06/27-07/05 | 0.032                         |                                   |
| TC       | 07/05-07/11 |                               | 0.017                             |
| AA       | 07/05-07/11 | 0.093                         |                                   |
| TC       | 07/11-07/18 |                               | 0.017                             |
| AA       | 07/11-07/18 | 0.083                         |                                   |
| TC       | 07/18-07/25 |                               | 0.014                             |
| AA       | 07/18-07/25 | 0.063                         |                                   |
| TC       | 07/25-08/01 |                               | 0.011                             |
| AA       | 07/25-08/01 | 0.023                         |                                   |

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**Particulate Gross Beta (cont'd)**

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| TC       | 08/01-08/08 |                               | 0.010                             |
| AA       | 08/01-08/08 | 0.054                         |                                   |
| TC       | 08/08-08/15 |                               | 0.016                             |
| AA       | 08/08-08/15 | 0.066                         |                                   |
| TC       | 08/15-08/22 |                               | 0.018                             |
| AA       | 08/15-08/22 | 0.018                         |                                   |
| TC       | 08/22-08/29 |                               | 0.024                             |
| AA       | 08/22-08/29 | 0.097                         |                                   |
| TC       | 08/29-09/06 |                               | 0.026                             |
| AA       | 08/29-09/06 | 0.091                         |                                   |
| TC       | 09/06-09/12 |                               | 0.032                             |
| AA       | 09/06-09/12 | 0.124                         |                                   |
| TC       | 09/12-09/19 |                               | 0.021                             |
| AA       | 09/12-09/19 | 0.023                         |                                   |
| TC       | 09/19-09/26 |                               | 0.022                             |
| AA       | 09/19-09/26 | 0.026                         |                                   |
| TC       | 09/26-10/03 |                               | 0.028 <sup>K</sup>                |
| AA       | 09/26-10/03 | 0.029                         |                                   |
| TC       | 10/03-10/10 |                               | 0.013                             |
| AA       | 10/03-10/10 | 0.050                         |                                   |
| TC       | 10/10-10/17 |                               | 0.021                             |
| AA       | 10/10-10/17 | 0.081                         |                                   |
| TC       | 10/17-10/24 |                               | 0.017 <sup>L</sup>                |
| AA       | 10/17-10/24 | 0.057                         |                                   |
| TC       | 10/24-10/31 |                               | 0.017                             |
| AA       | 10/24-10/31 | 0.034                         |                                   |
| TC       | 10/31-11/07 |                               | 0.014                             |
| AA       | 10/31-11/07 | 0.018                         |                                   |
| TC       | 11/07-11/14 |                               | 0.013                             |
| AA       | 11/07-11/14 | 0.040                         |                                   |
| TC       | 11/14-11/21 |                               | 0.026                             |
| AA       | 11/14-11/21 | 0.095                         |                                   |
| TC       | 11/21-11/28 |                               | 0.018                             |
| AA       | 11/21-11/28 | 0.058                         |                                   |
| TC       | 11/28-12/05 |                               | 0.020                             |
| AA       | 11/28-12/05 | 0.051                         |                                   |



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Particulate Gross Beta (cont'd)

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| TC       | 12/05-12/12 |                               | 0.033                             |
| AA       | 12/05-12/12 | 0.054                         |                                   |
| TC       | 12/12-12/19 |                               | 0.012                             |
| AA       | 12/12-12/19 | 0.015                         |                                   |
| TC       | 12/19-12/27 |                               | 0.026                             |
| AA       | 12/19-12/27 | 0.037                         |                                   |

- A Mechanical failure at 16.25 hours run time.
- B Mechanical failure at 30.8 hours run time.
- C Blown fuse at 163.53 hours run time.
- D Breaker tripped at 134.22 hours run time.
- E Breaker tripped at 5.92 hours run time.
- F Breaker tripped at 121.92 hours run time.
- G Breaker tripped at 53.8 hours run time.
- H Breaker tripped at 25.21 hours run time.
- I Inclement weather tripped at 75.15 hours run time.
- J No flow at time of collection.
- K Mechanical failure at 61.75 hours run time.
- L Mechanical failure at 112.38 hours run time.



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**Radioiodine**

These results are for charcoal canister air samples duplicated by the MSDH and the Licensee which were analyzed for radioiodine. The Licensee's sampler is located at the Old Training Center (TC) 0.3 miles south of the GGNS and designated as AS-5 (Indicator). The MSDH's comparable sampler is located at Arnold Acres (AA) 0.4 miles south of the GGNS.

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| TC       | 12/28-01/03 |                               | <0.020 <sup>A</sup>               |
| AA       | 12/28-01/03 | <0.07                         |                                   |
| TC       | 01/03-01/10 |                               | <0.018                            |
| AA       | 01/03-01/10 | <0.07                         |                                   |
| TC       | 01/10-01/17 |                               | <0.015                            |
| AA       | 01/10-01/17 | <0.07                         |                                   |
| TC       | 01/17-01/24 |                               | <0.014 <sup>B</sup>               |
| AA       | 01/17-01/24 | <0.07                         |                                   |
| TC       | 01/24-01/31 |                               | <0.013                            |
| AA       | 01/24-01/31 | <0.07                         |                                   |
| TC       | 01/31-02/07 |                               | <0.011                            |
| AA       | 01/31-02/07 | <0.07                         |                                   |
| TC       | 02/07-02/14 |                               | <0.014                            |
| AA       | 02/07-02/14 | <0.07                         |                                   |
| TC       | 02/14-02/21 |                               | <0.011                            |
| AA       | 02/14-02/21 | <0.07                         |                                   |
| TC       | 02/21-02/28 |                               | <0.016                            |
| AA       | 02/21-02/28 | <0.07                         |                                   |
| TC       | 02/28-03/07 |                               | <0.027 <sup>C</sup>               |
| AA       | 02/28-03/07 | <0.07                         |                                   |
| TC       | 03/07-03/14 |                               | <0.017 <sup>D</sup>               |
| AA       | 03/07-03/14 | <0.07                         |                                   |
| TC       | 03/14-03/21 |                               | <0.015 <sup>E</sup>               |
| AA       | 03/14-03/21 | <0.07                         |                                   |
| TC       | 03/21-03/28 |                               | <0.019 <sup>F</sup>               |
| AA       | 03/21-03/28 | <0.07                         |                                   |

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Radioiodine (cont'd)

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| TC       | 03/28-04/04 |                               | <0.017                            |
| AA       | 03/28-04/04 | <0.07                         |                                   |
| TC       | 04/04-04/11 |                               | <0.021                            |
| AA       | 04/04-04/11 | <0.07                         |                                   |
| TC       | 04/11-04/18 |                               | <0.019                            |
| AA       | 04/11-04/18 | <0.07                         |                                   |
| TC       | 04/18-04/25 |                               | <0.049 <sup>G</sup>               |
| AA       | 04/18-04/25 | <0.07                         |                                   |
| TC       | 04/25-05/02 |                               | <0.017                            |
| AA       | 04/25-05/02 | <0.07                         |                                   |
| TC       | 05/02-05/09 |                               | <0.046 <sup>H</sup>               |
| AA       | 05/02-05/09 | <0.07                         |                                   |
| TC       | 05/09-05/16 |                               | <0.012                            |
| AA       | 05/09-05/16 | <0.07                         |                                   |
| TC       | 05/16-05/23 |                               | <0.042 <sup>I</sup>               |
| AA       | 05/16-05/23 | <0.07                         |                                   |
| TC       | 05/23-05/30 |                               | <0.025 <sup>J</sup>               |
| AA       | 05/23-05/30 | <0.07                         |                                   |
| TC       | 05/30-06/06 |                               | <0.023                            |
| AA       | 05/30-06/06 | <0.07                         |                                   |
| TC       | 06/06-06/13 |                               | <0.016                            |
| AA       | 06/06-06/13 | <0.07                         |                                   |
| TC       | 06/13-06/20 |                               | <0.018                            |
| AA       | 06/13-06/20 | <0.07                         |                                   |
| TC       | 06/20-06/27 |                               | <0.011                            |
| AA       | 06/20-06/27 | <0.07                         |                                   |
| TC       | 06/27-07/05 |                               | <0.022                            |
| AA       | 06/27-07/05 | <0.07                         |                                   |
| TC       | 07/05-07/11 |                               | <0.024                            |
| AA       | 07/05-07/11 | <0.07                         |                                   |
| TC       | 07/11-07/18 |                               | <0.013                            |
| AA       | 07/11-07/18 | <0.07                         |                                   |
| TC       | 07/18-07/25 |                               | <0.027                            |
| AA       | 07/18-07/25 | <0.07                         |                                   |
| TC       | 07/25-08/01 |                               | <0.019                            |
| AA       | 07/25-08/01 | <0.07                         |                                   |

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Radioiodine (cont'd)

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| TC       | 08/01-08/08 |                               | <0.010                            |
| AA       | 08/01-08/08 | <0.07                         |                                   |
| TC       | 08/08-08/15 |                               | <0.029                            |
| AA       | 08/08-08/15 | <0.07                         |                                   |
| TC       | 08/15-08/22 |                               | <0.026                            |
| AA       | 08/15-08/22 | <0.07                         |                                   |
| TC       | 08/22-08/29 |                               | <0.018                            |
| AA       | 08/22-08/29 | <0.07                         |                                   |
| TC       | 08/29-09/06 |                               | <0.015                            |
| AA       | 08/29-09/06 | <0.07                         |                                   |
| TC       | 09/06-09/12 |                               | <0.035                            |
| AA       | 09/06-09/12 | <0.07                         |                                   |
| TC       | 09/12-09/19 |                               | <0.019                            |
| AA       | 09/12-09/19 | <0.07                         |                                   |
| TC       | 09/19-09/26 |                               | <0.012                            |
| AA       | 09/19-09/26 | <0.07                         |                                   |
| TC       | 09/26-10/03 |                               | <0.049 <sup>K</sup>               |
| AA       | 09/26-10/03 | <0.07                         |                                   |
| TC       | 10/03-10/10 |                               | <0.020                            |
| AA       | 10/03-10/10 | <0.07                         |                                   |
| TC       | 10/10-10/17 |                               | <0.027                            |
| AA       | 10/10-10/17 | <0.07                         |                                   |
| TC       | 10/17-10/24 |                               | <0.017 <sup>L</sup>               |
| AA       | 10/17-10/24 | <0.07                         |                                   |
| TC       | 10/24-10/31 |                               | <0.037                            |
| AA       | 10/24-10/31 | <0.07                         |                                   |
| TC       | 10/31-11/07 |                               | <0.016                            |
| AA       | 10/31-11/07 | <0.07                         |                                   |
| TC       | 11/07-11/14 |                               | <0.036                            |
| AA       | 11/07-11/14 | <0.07                         |                                   |
| TC       | 11/14-11/21 |                               | <0.021                            |
| AA       | 11/14-11/21 | <0.07                         |                                   |
| TC       | 11/21-11/28 |                               | <0.022                            |
| AA       | 11/21-11/28 | <0.07                         |                                   |
| TC       | 11/28-12/05 |                               | <0.016                            |
| AA       | 11/28-12/05 | <0.07                         |                                   |

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**Radioiodine (cont'd)**

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| TC       | 12/05-12/12 |                               | <0.015                            |
| AA       | 12/05-12/12 | <0.07                         |                                   |
| TC       | 12/12-12/19 |                               | <0.017                            |
| AA       | 12/12-12/19 | <0.07                         |                                   |
| TC       | 12/19-12/27 |                               | <0.012                            |
| AA       | 12/19-12/27 | <0.07                         |                                   |

- A Mechanical failure at 16.25 hours run time.
- B Mechanical failure at 30.8 hours run time.
- C Blown fuse at 163.53 hours run time.
- D Breaker tripped at 144.22 hours run time.
- E Breaker tripped at 5.92 hours run time.
- F Breaker tripped at 121.92 hours run time.
- G Breaker tripped at 53.8 hours run time.
- H Breaker tripped at 25.21 hours run time.
- I Inclement weather tripped at 75.15 hours run time.
- J No flow at time of collection.
- K Mechanical failure at 61.75 hours run time.
- L Mechanical failure at 112.38 hours run time.

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Quarterly Composite (Gamma Isotopic)

These results are for particulate air samples, collected during a quarter, duplicated by the MSDH and the Licensee which were analyzed as a composite for gamma emitters. The Licensee's sampler is located at the Old Training Center (TC) 0.3 miles south of the GGNS and designated as AS-5 (Indicator). The MSDH's sampler is located at Arnold Acres (AA) 0.4 miles south of the GGNS.

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| TC       | 12/28-03/28 |                               | <0.01                             |
| AA       | 12/28-03/28 | <0.01                         |                                   |
| TC       | 03/28-06/27 |                               | <0.01                             |
| AA       | 03/28-06/27 | <0.01                         |                                   |
| TC       | 06/27-09/26 |                               | <0.01                             |
| AA       | 06/27-09/26 | <0.01                         |                                   |
| TC       | 09/26-12/27 |                               | <0.01                             |
| AA       | 09/26-12/27 | <0.01                         |                                   |

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**Particulate Gross Beta Control**

These results are for particulate air samples taken from control locations by the MSDH and the Licensee which were analyzed for Gross Beta. The Licensee's sampler is located in Vicksburg (VB) 18 miles north of the GGNS and designated as AS-3 (Control). The MSDH's sampler is located behind the Radiological Health Building (RH) in Jackson, 51 miles east northeast of the GGNS.

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| VB       | 12/28-01/03 |                               | 0.026                             |
| RH       | 12/28-01/03 | 0.026                         |                                   |
| VB       | 01/03-01/10 |                               | 0.020                             |
| RH       | 01/03-01/10 | 0.025                         |                                   |
| VB       | 01/10-01/17 |                               | 0.015                             |
| RH       | 01/10-01/17 | 0.016                         |                                   |
| VB       | 01/17-01/24 |                               | 0.011                             |
| RH       | 01/17-01/24 | 0.003                         |                                   |
| VB       | 01/24-01/31 |                               | 0.012                             |
| RH       | 01/24-01/31 | 0.016                         |                                   |
| VB       | 01/31-02/07 |                               | 0.018                             |
| RH       | 01/31-02/07 | 0.027                         |                                   |
| VB       | 02/07-02/14 |                               | 0.015                             |
| RH       | 02/07-02/14 | 0.018                         |                                   |
| VB       | 02/14-02/21 |                               | 0.014                             |
| RH       | 02/14-02/21 | 0.015                         |                                   |
| VB       | 02/21-02/28 |                               | 0.009                             |
| RH       | 02/21-02/28 | 0.013                         |                                   |
| VB       | 02/28-03/07 |                               | 0.018                             |
| RH       | 02/28-03/07 | 0.016                         |                                   |
| VB       | 03/07-03/14 |                               | 0.017                             |
| RH       | 03/07-03/14 | 0.021                         |                                   |
| VB       | 03/14-03/21 |                               | 0.009                             |
| RH       | 03/14-03/21 | 0.016                         |                                   |
| VB       | 03/21-03/28 |                               | 0.018                             |
| RH       | 03/21-03/28 | 0.021                         |                                   |

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Particulate Gross Beta Control (cont'd)

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| VB       | 03/28-04/04 |                               | 0.016                             |
| RH       | 03/28-04/04 | 0.021                         |                                   |
| VB       | 04/04-04/11 |                               | 0.013                             |
| RH       | 04/04-04/11 | 0.013                         |                                   |
| VB       | 04/11-04/18 |                               | 0.016                             |
| RH       | 04/11-04/18 | 0.005                         |                                   |
| VB       | 04/18-04/25 |                               | 0.010                             |
| RH       | 04/18-04/25 | 0.020                         |                                   |
| VB       | 04/25-05/02 |                               | 0.021                             |
| RH       | 04/25-05/02 | 0.011                         |                                   |
| VB       | 05/02-05/09 |                               | 0.012 <sup>M</sup>                |
| RH       | 05/02-05/09 | 0.008                         |                                   |
| VB       | 05/09-05/16 |                               | 0.014                             |
| RH       | 05/09-05/16 | 0.018                         |                                   |
| VB       | 05/16-05/23 |                               | 0.015                             |
| RH       | 05/16-05/23 | 0.026                         |                                   |
| VB       | 05/23-05/30 |                               | 0.017                             |
| RH       | 05/23-05/30 | 0.019                         |                                   |
| VB       | 05/30-06/06 |                               | 0.011                             |
| RH       | 05/30-06/06 | 0.049                         |                                   |
| VB       | 06/06-06/13 |                               | 0.019                             |
| RH       | 06/06-06/13 | 0.027                         |                                   |
| VB       | 06/13-06/20 |                               | 0.018                             |
| RH       | 06/13-06/20 | 0.034                         |                                   |
| VB       | 06/20-06/27 |                               | 0.013 <sup>N</sup>                |
| RH       | 06/20-06/27 | 0.043                         |                                   |
| VB       | 06/27-07/05 |                               | 0.014                             |
| RH       | 06/27-07/05 | 0.027                         |                                   |
| VB       | 07/05-07/11 |                               | 0.016                             |
| RH       | 07/05-07/11 | 0.036                         |                                   |
| VB       | 07/11-07/18 |                               | 0.017                             |
| RH       | 07/11-07/18 | 0.036                         |                                   |
| VB       | 07/18-07/25 |                               | 0.015                             |
| RH       | 07/18-07/25 | 0.034                         |                                   |
| VB       | 07/25-08/01 |                               | 0.012                             |
| RH       | 07/25-08/01 | 0.021                         |                                   |



GRAND GULF NUCLEAR STATION  
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**Particulate Gross Beta Control (cont'd)**

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| VB       | 08/01-08/08 |                               | 0.010                             |
| RH       | 08/01-08/08 | 0.024                         |                                   |
| VB       | 08/08-08/15 |                               | 0.015                             |
| RH       | 08/08-08/15 | 0.032                         |                                   |
| VB       | 08/15-08/22 |                               | 0.019                             |
| RH       | 08/15-08/22 | 0.033                         |                                   |
| VB       | 08/22-08/29 |                               | 0.023                             |
| RH       | 08/22-08/29 | 0.039                         |                                   |
| VB       | 08/29-09/06 |                               | 0.023                             |
| RH       | 08/29-09/06 | 0.008                         |                                   |
| VB       | 09/06-09/12 |                               | 0.028                             |
| RH       | 09/06-09/12 | 0.051                         |                                   |
| VB       | 09/12-09/19 |                               | 0.027                             |
| RH       | 09/12-09/19 | 0.029                         |                                   |
| VB       | 09/19-09/26 |                               | 0.021                             |
| RH       | 09/19-09/26 | 0.028                         |                                   |
| VB       | 09/26-10/03 |                               | 0.020                             |
| RH       | 09/26-10/03 | 0.034                         |                                   |
| VB       | 10/03-10/10 |                               | 0.015                             |
| RH       | 10/03-10/10 | 0.027                         |                                   |
| VB       | 10/10-10/17 |                               | 0.023                             |
| RH       | 10/10-10/17 | 0.047                         |                                   |
| VB       | 10/17-10/24 |                               | 0.017                             |
| RH       | 10/17-10/24 | 0.020                         |                                   |
| VB       | 10/24-10/31 |                               | 0.020                             |
| RH       | 10/24-10/31 | 0.026                         |                                   |
| VB       | 10/31-11/07 |                               | 0.014                             |
| RH       | 10/31-11/07 | 0.022                         |                                   |
| VB       | 11/07-11/14 |                               | 0.013                             |
| RH       | 11/07-11/14 | 0.022                         |                                   |
| VB       | 11/14-11/21 |                               | 0.025                             |
| RH       | 11/14-11/21 | 0.045                         |                                   |
| VB       | 11/21-11/28 |                               | 0.015 <sup>0</sup>                |
| RH       | 11/21-11/28 | 0.027                         |                                   |
| VB       | 11/28-12/05 |                               | 0.018                             |
| RH       | 11/28-12/05 | 0.011                         |                                   |

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Particulate Gross Beta Control (cont'd)

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| VB       | 12/05-12/12 |                               | 0.032                             |
| RH       | 12/05-12/12 | 0.046                         |                                   |
| VB       | 12/12-12/19 |                               | 0.012                             |
| RH       | 12/12-12/19 | 0.013                         |                                   |
| VB       | 12/19-12/27 |                               | 0.023                             |
| RH       | 12/19-12/27 | 0.031                         |                                   |

M Inclement weather tripped at 166.5 hours run time.  
N No flow at collection.  
O Blown fuse at 165.67 hours run time.

GRAND GULF NUCLEAR STATION  
 CLAIBORNE COUNTY, MISSISSIPPI  
 CY 1995

**Radioiodine Control**

These results are for charcoal canister air samples taken from control locations by the MSDH and the Licensee which were analyzed for radioiodine. The Licensee's sampler is located in Vicksburg (VB) 18 miles north of the GGNS and designated as AS-3 (Control). The MSDH's sampler is located behind the Radiological Health Building (RH) in Jackson, 51 miles east northeast of the GGNS.

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| VB       | 12/28-01/03 |                               | <0.020                            |
| RH       | 12/28-01/03 | <0.07                         |                                   |
| VB       | 01/03-01/10 |                               | <0.018                            |
| RH       | 01/03-01/10 | <0.07                         |                                   |
| VB       | 01/10-01/17 |                               | <0.015                            |
| RH       | 01/10-01/17 | <0.07                         |                                   |
| VB       | 01/17-01/24 |                               | <0.014                            |
| RH       | 01/17-01/24 | <0.07                         |                                   |
| VB       | 01/24-01/31 |                               | <0.013                            |
| RH       | 01/24-01/31 | <0.07                         |                                   |
| VB       | 01/31-02/07 |                               | <0.011                            |
| RH       | 01/31-02/07 | <0.07                         |                                   |
| VB       | 02/07-02/14 |                               | <0.014                            |
| RH       | 02/07-02/14 | <0.07                         |                                   |
| VB       | 02/14-02/21 |                               | <0.011                            |
| RH       | 02/14-02/21 | <0.07                         |                                   |
| VB       | 02/21-02/28 |                               | <0.016                            |
| RH       | 02/21-02/28 | <0.07                         |                                   |
| VB       | 02/28-03/07 |                               | <0.027                            |
| RH       | 02/28-03/07 | <0.07                         |                                   |
| VB       | 03/07-03/14 |                               | <0.017                            |
| RH       | 03/07-03/14 | <0.07                         |                                   |
| VB       | 03/14-03/21 |                               | <0.015                            |
| RH       | 03/14-03/21 | <0.07                         |                                   |
| VB       | 03/21-03/28 |                               | <0.019                            |
| RH       | 03/21-03/28 | <0.07                         |                                   |

GRAND GULF NUCLEAR STATION  
 CLAIBORNE COUNTY, MISSISSIPPI  
 CY 1995

Radioiodine Control (cont'd)

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| VB       | 03/28-04/04 |                               | <0.017                            |
| RH       | 03/28-04/04 | <0.07                         |                                   |
| VB       | 04/04-04/11 |                               | <0.021                            |
| RH       | 04/04-04/11 | <0.07                         |                                   |
| VB       | 04/11-04/18 |                               | <0.019                            |
| RH       | 04/11-04/18 | <0.07                         |                                   |
| VB       | 04/18-04/25 |                               | <0.049                            |
| RH       | 04/18-04/25 | <0.07                         |                                   |
| VB       | 04/25-05/02 |                               | <0.017                            |
| RH       | 04/25-05/02 | <0.07                         |                                   |
| VB       | 05/02-05/09 |                               | <0.046 <sup>M</sup>               |
| RH       | 05/02-05/09 | <0.07                         |                                   |
| VB       | 05/09-05/16 |                               | <0.012                            |
| RH       | 05/09-05/16 | <0.07                         |                                   |
| VB       | 05/16-05/23 |                               | <0.042                            |
| RH       | 05/16-05/23 | <0.07                         |                                   |
| VB       | 05/23-05/30 |                               | <0.025                            |
| RH       | 05/23-05/30 | <0.07                         |                                   |
| VB       | 05/30-06/06 |                               | <0.023                            |
| RH       | 05/30-06/06 | <0.07                         |                                   |
| VB       | 06/06-06/13 |                               | <0.016                            |
| RH       | 06/06-06/13 | <0.07                         |                                   |
| VB       | 06/13-06/20 |                               | <0.018                            |
| RH       | 06/13-06/20 | <0.07                         |                                   |
| VB       | 06/20-06/27 |                               | <0.011 <sup>N</sup>               |
| RH       | 06/20-06/27 | <0.07                         |                                   |
| VB       | 06/27-07/05 |                               | <0.022                            |
| RH       | 06/27-07/05 | <0.07                         |                                   |
| VB       | 07/05-07/11 |                               | <0.024                            |
| RH       | 07/05-07/11 | <0.07                         |                                   |
| VB       | 07/11-07/18 |                               | <0.013                            |
| RH       | 07/11-07/18 | <0.07                         |                                   |
| VB       | 07/18-07/25 |                               | <0.027                            |
| RH       | 07/18-07/25 | <0.07                         |                                   |
| VB       | 07/25-08/01 |                               | <0.019                            |
| RH       | 07/25-08/01 | <0.07                         |                                   |

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 CLAIBORNE COUNTY, MISSISSIPPI  
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Radioiodine Control (cont'd)

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| VB       | 08/01-08/08 |                               | <0.010                            |
| RH       | 08/01-08/08 | <0.07                         |                                   |
| VB       | 08/08-08/15 |                               | <0.029                            |
| RH       | 08/08-08/15 | <0.07                         |                                   |
| VB       | 08/15-08/22 |                               | <0.026                            |
| RH       | 08/15-08/22 | <0.07                         |                                   |
| VB       | 08/22-08/29 |                               | <0.018                            |
| RH       | 08/22-08/29 | <0.07                         |                                   |
| VB       | 08/29-09/06 |                               | <0.015                            |
| RH       | 08/29-09/06 | <0.07                         |                                   |
| VB       | 09/06-09/12 |                               | <0.035                            |
| RH       | 09/06-09/12 | <0.07                         |                                   |
| VB       | 09/12-09/19 |                               | <0.019                            |
| RH       | 09/12-09/19 | <0.07                         |                                   |
| VB       | 09/19-09/26 |                               | <0.012                            |
| RH       | 09/19-09/26 | <0.07                         |                                   |
| VB       | 09/26-10/03 |                               | <0.049                            |
| RH       | 09/26-10/03 | <0.07                         |                                   |
| VB       | 10/03-10/10 |                               | <0.020                            |
| RH       | 10/03-10/10 | <0.07                         |                                   |
| VB       | 10/10-10/17 |                               | <0.027                            |
| RH       | 10/10-10/17 | <0.07                         |                                   |
| VB       | 10/17-10/24 |                               | <0.017                            |
| RH       | 10/17-10/24 | <0.07                         |                                   |
| VB       | 10/24-10/31 |                               | <0.037                            |
| RH       | 10/24-10/31 | <0.07                         |                                   |
| VB       | 10/31-11/07 |                               | <0.016                            |
| RH       | 10/31-11/07 | <0.07                         |                                   |
| VB       | 11/07-11/14 |                               | <0.036                            |
| RH       | 11/07-11/14 | <0.07                         |                                   |
| VB       | 11/14-11/21 |                               | <0.021                            |
| RH       | 11/14-11/21 | <0.07                         |                                   |
| VB       | 11/21-11/28 |                               | <0.022 <sup>0</sup>               |
| RH       | 11/21-11/28 | <0.07                         |                                   |
| VB       | 11/28-12/05 |                               | <0.016                            |
| RH       | 11/28-12/05 | <0.07                         |                                   |

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
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Radioiodine Control (cont'd)

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| VB       | 12/05-12/12 |                               | <0.015                            |
| RH       | 12/05-12/12 | <0.07                         |                                   |
| VE       | 12/12-12/19 |                               | <0.017                            |
| RH       | 12/12-12/19 | <0.07                         |                                   |
| VB       | 12/19-12/27 |                               | <0.012                            |
| RH       | 12/19-12/27 | <0.07                         |                                   |

M Inclement weather tripped at 166.5 hours run time.  
N No flow at collection.  
O Blown fuse at 165.67 hours run time.

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CY 1995

**Quarterly Composite (Gamma Isotopic) Control**

These results are for particulate air samples, collected during a quarter, taken from control locations by the MSDH and the Licensee which were analyzed as a composite for gross gamma emitters. The Licensee's sampler is located in Vicksburg (VB) 18 miles north of the GGNS and designated as AS-3 (Control). The MSDH's sampler is located behind the Radiological Health Building (RH) in Jackson, 51 miles east northeast of the GGNS.

| Location | Date        | MSDH<br>(pCi/m <sup>3</sup> ) | Licensee<br>(pCi/m <sup>3</sup> ) |
|----------|-------------|-------------------------------|-----------------------------------|
| VB       | 12/28-03/28 |                               | <0.01                             |
| RH       | 12/28-03/28 | <0.01                         |                                   |
| VB       | 03/28-06/27 |                               | <0.01                             |
| RH       | 03/28-06/27 | <0.01                         |                                   |
| VB       | 06/27-09/26 |                               | <0.01                             |
| RH       | 06/27-09/26 | <0.01                         |                                   |
| VB       | 09/26-12/27 |                               | <0.01                             |
| RH       | 09/26-12/27 | <0.01                         |                                   |



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**Gamma Isotopic Analysis**

These results are for river water samples split with the Licensee and analyzed by Gamma Isotopic analysis. The Mississippi River Water Upstream (MRU) sample location is 2 miles north northwest of the GGNS (Control). The Mississippi River Water Downstream (MRD) sample location is 2 miles west southwest of the GGNS (Indicator).

| Location         | Date     | MSDH<br>(pCi/l) | Licensee<br>(pCi/l) |
|------------------|----------|-----------------|---------------------|
| MRU              | 01/03/95 | <LLD            | <LLD                |
| MRU <sup>P</sup> | 01/03/95 | <LLD            | <LLD                |
| MRU              | 01/31/95 | <LLD            | <LLD                |
| MRU              | 03/07/95 | <LLD            | <LLD                |
| MRU <sup>P</sup> | 03/07/95 | <LLD            | <LLD                |
| MRU              | 04/04/95 | <LLD            | <LLD                |
| MRU              | 05/02/95 | <LLD            | <LLD                |
| MRU              | 06/06/95 | <LLD            | <LLD                |
| MRU              | 07/03/95 | <LLD            | <LLD                |
| MRU              | 08/01/95 | <LLD            | <LLD                |
| MRU              | 09/06/95 | <LLD            | <LLD                |
| MRU              | 10/03/95 | <LLD            | <LLD                |
| MRU              | 11/01/95 | <LLD            | <LLD                |
| MRU              | 12/05/95 | <LLD            | <LLD                |
| MRD              | 01/03/95 | <LLD            | <LLD                |
| MRD <sup>P</sup> | 01/03/95 | <LLD            | <LLD                |
| MRD              | 01/31/95 | <LLD            | <LLD                |
| MRD              | 03/07/95 | <LLD            | <LLD                |
| MRD <sup>P</sup> | 03/07/95 | <LLD            | <LLD                |
| MRD              | 04/04/95 | <LLD            | <LLD                |
| MRD              | 05/02/95 | <LLD            | <LLD                |
| MRD              | 06/06/95 | <LLD            | <LLD                |
| MRD              | 07/03/95 | <LLD            | <LLD                |
| MRD              | 08/01/95 | <LLD            | <LLD                |
| MRD              | 09/06/95 | <LLD            | <LLD                |
| MRD              | 10/03/95 | <LLD            | <LLD                |
| MRD              | 11/01/95 | <LLD            | <LLD                |
| MRD              | 12/05/95 | <LLD            | <LLD                |

P Duplicate sample for Licensee Quality Control program.

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**Tritium**

These results are for river water samples split by the MSDH and the Licensee and analyzed for tritium using liquid scintillation analysis. The Mississippi River Water Upstream (MRU) sample location is 2 miles north northwest of the GGNS (Control). The Mississippi River Water Downstream (MRD) sample location is 2 miles west southwest of the GGNS (Indicator). The Licensee's LLD is computed individually for each sample and indicated by "<nnn" below. Licensee's results are a quarterly composite of the preceding three months. The MSDH tritium analyses are performed monthly.

| Location         | Date     | MSDH<br>(pCi/l) | Licensee<br>(pCi/l) |
|------------------|----------|-----------------|---------------------|
| MRU              | 01/03/95 | <330            | COMP                |
| MRU <sup>p</sup> | 01/03/95 |                 | COMP                |
| MRU              | 01/31/95 | <330            | COMP                |
| MRU              | 03/07/95 | <330            | <300                |
| MRU <sup>p</sup> | 03/07/95 |                 | <300                |
| MRU              | 04/04/95 | <330            | COMP                |
| MRU              | 05/02/95 | <330            | COMP                |
| MRU              | 06/06/95 | <330            | <330                |
| MRU              | 07/03/95 | <330            | COMP                |
| MRU              | 08/01/95 | <330            | COMP                |
| MRU              | 09/06/95 | <330            | <320                |
| MRU              | 10/03/95 | <330            | COMP                |
| MRU              | 11/01/95 | <330            | COMP                |
| MRU              | 12/05/95 | <330            | <310                |
| MRD              | 01/03/95 | <330            | COMP                |
| MRD <sup>p</sup> | 01/03/95 |                 | COMP                |
| MRD              | 01/31/95 | <330            | COMP                |
| MRD              | 03/07/95 | <330            | <300                |
| MRD <sup>p</sup> | 03/07/95 |                 | COMP                |
| MRD              | 04/04/95 | <330            | COMP                |
| MRD              | 05/02/95 | <330            | COMP                |
| MRD              | 06/06/95 | <330            | <330                |
| MRD              | 07/03/95 | <330            | COMP                |
| MRD              | 08/01/95 | <330            | COMP                |
| MRD              | 09/06/95 | <330            | <320                |

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Tritium (cont'd)

| Location | Date     | MSDH<br>(pCi/l) | Licensee<br>(pCi/l) |
|----------|----------|-----------------|---------------------|
| MRD      | 10/03/95 | <330            | COMP                |
| MRD      | 11/01/95 | <330            | COMP                |
| MRD      | 12/05/95 | <330            | <310                |

P Duplicate sample for Licensee Quality Control program.  
COMP Composite sample, results below.

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**Gamma Isotopic Analysis**

These results are for river sediment samples collected in duplicate and analyzed by Gamma Isotopic methods. The MSDH designates their control as the Mississippi River Upstream (MRU) and their indicator as the Mississippi River Downstream (MRD). The Licensee's designation for control is the Mississippi River Upstream, (SEDCONT) and indicator is Hamilton Lake (SEDHAM). The controls are both located approximately 2 miles north northwest of GGNS. The indicators are located approximately 2 miles west southwest of the GGNS.

| Location             | Date     | MSDH<br>(pCi/kg) | Licensee<br>(pCi/kg) |
|----------------------|----------|------------------|----------------------|
| MRU                  | 06/06/95 | <LLD             |                      |
| SEDCONT              | 06/06/95 |                  | <LLD                 |
| SEDCONT <sup>P</sup> | 06/06/95 |                  | <LLD                 |
| MRD                  | 06/06/95 | <LLD*            |                      |
| SEPHAM               | 06/06/95 |                  | <LLD                 |
| SEDHAM <sup>P</sup>  | 06/06/95 |                  | <LLD                 |
| MRU                  | 12/01/95 | <LLD             |                      |
| SEDCONT              | 12/01/95 |                  | <LLD                 |
| MRD                  | 12/01/95 | <LLD             |                      |
| SEDHAM               | 12/01/95 |                  | <LLD                 |

\*The MSDH and Licensee both detected three radionuclides above their system LLD in barge slip sediment (06/06/95). This sample point is not normally reported, but included here to show the comparability of results for duplicate samples (not splits) processed by the two laboratories. Results reported in pCi/kg.

| LAB                   | Mn-54  | Co-58 | Co-60  | Cs-137 |
|-----------------------|--------|-------|--------|--------|
| MSDH                  | 232±18 | <54.9 | 425±17 | 139±17 |
| Licensee              | 276±21 | 42±15 | 473±25 | 126±19 |
| Licensee <sup>P</sup> | 271±17 | 36±12 | 487±22 | 122±13 |

P Duplicate sample for Licensee Quality Control program.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1995

**Gamma Isotopic Analysis**

These results are for duplicate Alcorn Dairy milk samples which the MSDH and the Licensee analyzed by Gamma Isotopic methods. Alcorn Dairy is located eleven miles southwest of the GGNS. Samples are labeled RH for Radiological Health and GG for Licensee.

| Sample          | Date     | MSDH<br>(pCi/l) | Licensee<br>(pCi/l) |
|-----------------|----------|-----------------|---------------------|
| RH              | 05/18/95 | <LLD            |                     |
| GG              | 05/18/95 |                 | <LLD                |
| GG <sup>P</sup> | 05/18/95 |                 | <LLD                |
| RH              | 11/15/95 | <LLD            |                     |
| GG              | 11/15/95 |                 | <LLD                |

P Duplicate sample for Licensee Quality Control program.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1995

**Radioiodine**

These results are for duplicate Alcorn Dairy milk samples which the MSDH and the Licensee analyzed for radioiodine by Gamma Isotopic methods. Alcorn Dairy is located eleven miles southwest of the GGNS. Samples are labeled RH for Radiological Health and GG for Licensee.

| Sample          | Date     | MSDH<br>(pCi/l) | Licensee<br>(pCi/l) |
|-----------------|----------|-----------------|---------------------|
| RH              | 05/18/95 | <LLD            |                     |
| GG              | 05/18/95 |                 | <0.9                |
| GG <sup>P</sup> | 05/18/95 |                 | <0.6                |
| RH              | 11/15/95 | <LLD            |                     |
| GG              | 11/15/95 |                 | <0.6                |

P Duplicate sample for Licensee Quality Control program.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1995

**Gamma Isotopic Analysis**

These results are for edible fish samples taken from the Mississippi River Upstream (MRU) approximately 2 miles north northwest of the GGNS and the Mississippi River Downstream (MRD) approximately 2 miles west southwest of the GGNS. Each sample was analyzed by Gamma Isotopic methods.

| Location         | Date     | MSDH<br>(pCi/kg) | Licensee<br>(pCi/kg) |
|------------------|----------|------------------|----------------------|
| MRU              | 05/12/95 | <LLD             | <LLD                 |
| MRD              | 05/12/95 | <LLD             | <LLD                 |
| MRU              | 11/27/95 | <LLD             | <LLD                 |
| MRU <sup>P</sup> | 11/27/95 | <LLD             | <LLD                 |
| MRD              | 11/27/95 | <LLD             | <LLD                 |
| MRD <sup>P</sup> | 11/27/95 | <LLD             | <LLD                 |

P Duplicate sample for Licensee Quality Control Program.



GRAND GULF NUCLEAR STATION  
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 CY 1995

**Gamma Isotopic Analysis**

These results are for vegetation samples taken from Sectors J, K, and R. These samples were analyzed by Gamma Isotopic methods.

| Vegetable         | Sector | Date     | MSDH<br>(pCi/kg) | Licensee<br>(pCi/kg) |
|-------------------|--------|----------|------------------|----------------------|
| Kale              | J      | 01/11/95 | <LLD             | <LLD                 |
| Kale              | K      | 01/11/95 | <LLD             | <LLD                 |
| Collards          | R      | 01/11/95 | <LLD             | <LLD                 |
| Swiss Chard       | J      | 04/13/95 | <LLD             | <LLD                 |
| Kale              | K      | 04/13/95 | <LLD             | <LLD                 |
| Swiss Chard       | R      | 04/13/95 | <LLD             | <LLD                 |
| Turnips           | H      | 07/12/95 | <LLD             | <LLD                 |
| Collards          | J      | 07/12/95 | <LLD             | <LLD                 |
| Kale              | K      | 07/12/95 | <LLD             | <LLD                 |
| Kale <sup>P</sup> | K      | 07/12/95 | <LLD             | <LLD                 |
| Collards          | H      | 10/16/95 | <LLD             | <LLD                 |
| Collards          | J      | 10/16/95 | <LLD             | <LLD                 |
| Kale              | K      | 10/16/95 | <LLD             | <LLD                 |

P Duplicate sample for Licensee Quality Control program.

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**MSDH Lower Limit of Detection (LLD)**

The following are contractually specified detection capabilities for environmental sample analyses.

| Analysis          | Water<br>(pCi/l)          | Airborne<br>Particulate<br>or Gas<br>(pCi/m <sup>3</sup> ) | Fish, Meat<br>or Poultry<br>(pCi/kg, wet) | Milk<br>(pCi/l) | Food<br>Products<br>(pCi/kg, wet) | Sediment<br>(pCi/kg, dry) |
|-------------------|---------------------------|--|---|-----------------|-----------------------------------|---------------------------|
| gross beta        | 4 <sup>Q</sup>            | 1.0E-02  |   |                 |                                   |                           |
| <sup>3</sup> H    | 2000<br>1000 <sup>Q</sup> |  |   |                 |                                   |                           |
| <sup>54</sup> Mn  | 15                        | 1.0E-02  | 130                                       |                 | 60                                | 100                       |
| <sup>59</sup> Fe  | 30                        | 2.0E-02  | 260                                       |                 | 80                                | 200                       |
| <sup>58</sup> Co  | 15                        | 1.0E-02  | 130                                       |                 | 50                                | 100                       |
| <sup>60</sup> Co  | 15                        | 1.0E-02  | 130                                       |                 | 50                                | 100                       |
| <sup>65</sup> Zn  | 30                        | 2.0E-02  | 260                                       |                 | 60                                | 200                       |
| <sup>95</sup> Zr  | 30                        | 2.0E-02  |   |                 | 80                                | 200                       |
| <sup>95</sup> Nb  | 15                        | 2.0E-02  |   |                 | 80                                | 200                       |
| <sup>131</sup> I  | 1 <sup>Q</sup>            | 7.0E-02  |   | 1               | 60                                | 200                       |
| <sup>134</sup> Cs | 15                        | 5.0E-02  | 130                                       | 15              | 60                                | 150                       |
| <sup>137</sup> Cs | 18                        | 6.0E-02  | 150                                       | 18              | 80                                | 180                       |
| <sup>140</sup> Ba | 60                        | 2.0E-02  |   | 60              | 60                                | 200                       |
| <sup>140</sup> La | 15                        | 2.0E-02  | 15  | 60              | 200                               |                           |

Q LLD for drinking water.

GRAND GULF NUCLEAR STATION  
 CLAIBORNE COUNTY, MISSISSIPPI  
 CY 1995

**Licensee Lower limit of Detection (LLD)**

The following are maximum values of the Lower Limits of Detection for environmental sample analyses from the Offsite Dose Calculation Manual.

| Analysis          | Water<br>(pCi/l)          | Airborne<br>Particulate<br>or Gas<br>(pCi/m <sup>3</sup> ) | Fish, Meat<br>or Poultry<br>(pCi/kg, wet) | Milk<br>(pCi/l) | Food<br>Products<br>(pCi/kg, wet) | Sediment<br>(pCi/kg, dry) |
|-------------------|---------------------------|--|---|-----------------|-----------------------------------|---------------------------|
| gross beta        | 4                         | 1.0E-02  |   |                 |                                   |                           |
| <sup>3</sup> H    | 3000<br>2000 <sup>Q</sup> |  |   |                 |                                   |                           |
| <sup>54</sup> Mn  | 15                        |  | 130                                       |                 |                                   |                           |
| <sup>59</sup> Fe  | 30                        |  | 260                                       |                 |                                   |                           |
| <sup>58</sup> Co  | 15                        |  | 130                                       |                 |                                   |                           |
| <sup>60</sup> Co  | 15                        |  | 130                                       |                 |                                   |                           |
| <sup>65</sup> Zn  | 30                        |  | 260                                       |                 |                                   |                           |
| <sup>95</sup> Zr  | 30                        |  |   |                 |                                   |                           |
| <sup>95</sup> Nb  | 15                        |  |   |                 |                                   |                           |
| <sup>131</sup> I  | 1 <sup>Q</sup>            | 7.0E-02  |   | 1               | 60                                |                           |
| <sup>134</sup> Cs | 15                        | 5.0E-02  | 130                                       | 15              | 60                                | 150                       |
| <sup>137</sup> Cs | 18                        | 6.0E-02  | 150                                       | 18              | 80                                | 180                       |
| <sup>140</sup> Ba | 60                        |  |   | 60              |                                   |                           |
| <sup>140</sup> La | 15                        |  |   | 15              |                                   |                           |

Q LLD for drinking water.

EPA Cross-Check Results--1995

All values reported in pCi/l unless otherwise indicated.

|           |   | Reported         | Known     |
|-----------|---|------------------|-----------|
| January   | Strontium in Water                              |                  |           |
|           | Strontium 89                                    | 20, 21, 21       | 20±8.7    |
|           | Strontium 90                                    | 15, 15, 15       | 15±8.7    |
|           | Gross Alpha/Beta<br>in Water                    |                  |           |
|           | Alpha   | 12, 12, 13       | 5±8.7     |
|           | Beta  | 6, 6, 7          | 5±8.7     |
| February  | Iodine in Water                                 |                  |           |
|           | Iodine  | 90, 90, 91       | 100±17.3  |
|           | Uranium and Radium in Water                     |                  |           |
|           | Uranium   | 30.3, 30.3, 30.4 | 25.5±5.2  |
|           | Radium 226                                      | 19.8, 19.8, 19.8 | 19.1±5.0  |
|           | Radium 228                                      | 22.4, 22.4, 22.5 | 20.0±8.7  |
| March     | Tritium in Water                                |                  |           |
|           | Tritium   | 7800, 7850, 7900 | 7435±1291 |
| April     | Performance Evaluation<br>Intercomparison Study |                  |           |
|           | Alpha   | 59.8, 59.9, 60.1 | 47.5±20.6 |
|           | Radium 226                                      | 15.5, 15.6, 15.6 | 14.9± 3.8 |
|           | Radium 228                                      | 16.7, 16.8, 16.8 | 15.8± 6.9 |
|           | Uranium   | 9.4, 9.4, 9.5    | 10± 5.2   |
|           | Beta  | 89.0, 89.0, 89.1 | 86.6±17.3 |
|           | Strontium 89                                    | 20, 20, 21       | 20±8.7    |
|           | Strontium 90                                    | 16, 16, 16       | 15±8.7    |
|           | Cesium 134                                      | 20, 20, 20       | 20±8.7    |
|           | Cesium 137                                      | 12, 12, 12       | 11±8.7    |
| Cobalt 60 | 30, 30, 30                                      | 29±8.7           |           |

EPA Cross-Check Results (cont'd)

|                             | Reported         | Known      |
|-----------------------------|------------------|------------|
| June                        |                  |            |
| Radionuclides in Water      |                  |            |
| Cobalt 60                   | 40, 40, 40       | 40±8.7     |
| Zinc 65                     | 75, 75, 76       | 76±22.6    |
| Barium 133                  | 74, 75, 75       | 79±17.3    |
| Cesium 134                  | 44, 45, 45       | 50±8.7     |
| Cesium 137                  | 34, 34, 34       | 35±8.7     |
| Uranium and Radium in Water |                  |            |
| Uranium                     | 19.0, 19.1, 19.1 | 15.2±5.2   |
| Radium 226                  | 14.6, 14.6, 14.6 | 14.8±3.8   |
| Radium 228                  | 17.7, 17.7, 17.7 | 15.0±6.6   |
| July                        |                  |            |
| Strontium in Water          |                  |            |
| Strontium 89                | 20, 20, 21       | 20±8.7     |
| Strontium 90                | 9, 10, 10        | 8±8.7      |
| Gross Alpha/Beta in Water   |                  |            |
| Alpha                       | 20.1, 20.2, 20.3 | 27.5±12    |
| Beta                        | 16.1, 16.2, 16.3 | 19.4±8.7   |
| August                      |                  |            |
| Tritium in Water            |                  |            |
| Tritium                     | 4891, 4894, 4918 | 4872±845   |
| Air Filter                  |                  |            |
| Alpha                       | 32, 32, 32       | 25±15.6*   |
| Beta                        | 129, 130, 130    | 86.6±17.3* |
| Strontium 90                | 27, 27, 28       | 30±8.7*    |
| Cesium 137                  | 30, 30, 30       | 25±8.7*    |
| September                   |                  |            |
| Uranium and Radium in Water |                  |            |
| Uranium                     | 34.6, 34.6, 34.7 | 30.5±5.2   |
| Radium 226                  | 24.3, 24.3, 24.4 | 24.8±6.4   |
| Radium 228                  | 20.7, 20.7, 20.8 | 20.0±8.7   |

EPA (cross-Check Results (cont'd))

|   | Reported         | Known      |
|---|------------------|------------|
| Radionuclides in Milk                           |                  |            |
| Strontium 89                                    | 21, 21, 22       | 20± 8.7    |
| Strontium 90                                    | 15, 16, 16       | 15± 8.7    |
| Iodine 131                                      | 100, 100, 101    | 99±20.8    |
| Potassium                                       | 1656, 1656, 1656 | 1654±83**  |
| Cesium 137                                      | 49, 50, 50       | 50± 8.7    |
| October   |                  |            |
| Iodine in Water                                 |                  |            |
| Iodine  | 155, 155, 155    | 148±26     |
| Performance Evaluation<br>Intercomparison Study |                  |            |
| Alpha   | 133, 133, 133    | 99.4±38.2  |
| Radium 226                                      | 24.7, 24.7, 24.7 | 24.8± 3.7  |
| Radium 228                                      | 22.8, 22.8, 22.9 | 20.7± 5.2  |
| Uranium   | 24.9, 24.9, 24.9 | 27± 5.2    |
| Beta  | 110.9, 111, 111  | 141.8±36.4 |
| Strontium 89                                    | 22, 22, 23       | 20± 8.7    |
| Strontium 90                                    | 10, 11, 11       | 10± 8.7    |
| Cobalt 60                                       | 46, 47, 48       | 49± 8.7    |
| Cesium 134                                      | 35, 35, 35       | 40± 8.7    |
| Cesium 137                                      | 29, 30, 30       | 30± 8.7    |
| Gross Alpha/Beta<br>in Water                    |                  |            |
| Alpha   | 46.8, 46.9, 47.0 | 51.2±22.2  |
| Beta  | 25.3, 25.4, 25.4 | 24.8± 8.7  |
| November  |                  |            |
| Radionuclides in Water                          |                  |            |
| Cobalt 60                                       | 57, 58, 58       | 60± 8.7    |
| Zinc 65   | 121, 122, 122    | 125±22.6   |
| Barium 133                                      | 91, 92, 92       | 99±17.3    |
| Cesium 134                                      | 35, 36, 36       | 40± 8.7    |
| Cesium 137                                      | 50, 50, 50       | 49± 8.7    |

\* Values are reported as pCi/filter.

\*\* Values are reported as mg/liter.