

MISSISSIPPI  
STATE DEPARTMENT OF  
HEALTH

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April 13, 1993

U. S. Nuclear Regulatory Commission  
Attn: Office of Nuclear Reactor Regulation  
Radiation Protection Branch  
Washington, DC 20555

Gentlemen:

Enclosed is Mississippi's 1992 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 was sent to the NRC's Public Document Room, Washington, DC, and a copy is being provided to the Division of Contracts and Property Management and the NRC's Regional Administrator and Project Officer. Should you have any questions regarding this report, please direct them to Bob Bell at (601) 354-6657.

Sincerely,

*Eddie S. Fuente*

Eddie S. Fuente, Director  
Division of Radiological Health

ESF/sd  
Enclosure

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Equal Opportunity in Employment/Services

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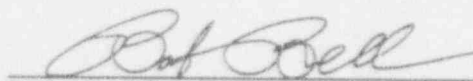
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REPORT TO THE NUCLEAR REGULATORY COMMISSION  
ENVIRONMENTAL MONITORING AT GRAND GULF NUCLEAR STATION  
CALENDAR YEAR 1992  
NRC CONTRACT NUMBER NRC-29-83-621

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



Eddie S. Fuente; Director, Division of Radiological Health

 7Apr 93

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.

The results detailed in this report are for Calendar Year 1992 which represent the twelfth year of this contract with the State of Mississippi.

Licensee for Grand Gulf Nuclear Station was System Energy Resources, Inc. (SERI) before June 6, 1990 and Entergy Operations, Inc. (Entergy Operations) on and after June 6, 1990.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

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GRAND GULF NUCLEAR STATION  
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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. The Lower Limit of Detection (LLD) specified in the contract for Gross Beta is 0.01 pCi/m<sup>3</sup>.

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
TC	12/31-1/06		0.036
AA	12/31-1/06	0.027	
TC	1/06-1/14		0.030
AA	1/06-1/14	0.016	
TC	1/14-1/21		0.010
AA	1/14-1/21	A	
TC	1/21-1/28		0.017
AA	1/21-1/28	A	
TC	1/28-2/04		0.031
AA	1/28-2/04	A	
TC	2/04-2/11		0.014
AA	2/04-2/11	0.022	
TC	2/11-2/18		0.011
AA	2/11-2/18	0.006	
TC	2/18-2/25		0.019
AA	2/18-2/25	0.003	
TC	2/25-3/03		0.023
AA	2/25-3/03	0.033	
TC	3/03-3/10		0.016
AA	3/03-3/10	0.008	
TC	3/10-3/17		0.010
AA	3/10-3/17	0.016	
TC	3/17-3/24		0.018
AA	3/17-3/24	B	
TC	3/24-3/31		0.015
AA	3/24-3/31	0.005	

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

Particulate Gross Beta (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
TC	3/31-4/07		0.018
AA	3/31-4/07	0.006	
TC	4/07-4/14		0.013
AA	4/07-4/14	0.009	
TC	4/14-4/21		0.011
AA	4/14-4/21	0.014	
TC	4/21-4/28		0.012
AA	4/21-4/28	0.058	
TC	4/28-5/05		0.018
AA	4/28-5/05	0.057	
TC	5/05-5/12		0.018
AA	5/05-5/12	0.024	
TC	5/12-5/19		0.027
AA	5/12-5/19	0.037	
TC	5/19-5/26		0.010
AA	5/19-5/26	<0.01	
TC	5/26-6/02		0.027
AA	5/26-6/02	0.014	
TC	6/02-6/09		0.010
AA	6/02-6/09	0.031	
TC	6/09-6/16		0.008
AA	6/09-6/16	0.014	
TC	6/16-6/23		0.014
AA	6/16-6/23	0.055	
TC	6/23-6/30		0.043-C
AA	6/23-6/30	0.014	
TC	6/30-7/07		0.018-D
AA	6/30-7/07	0.047	
TC	7/07-7/14		0.028
AA	7/07-7/14	0.027	
TC	7/14-7/21		0.010
AA	7/14-7/21	0.024	
TC	7/21-7/28		0.007
AA	7/21-7/28	0.022	
TC	7/28-8/04		0.013
AA	7/28-8/04	0.043	

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
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Particulate Gross Beta (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
TC	8/04-8/11		0.016
AA	8/04-8/11	0.030	
TC	8/11-8/18		0.009
AA	8/11-8/18	0.054	
TC	8/18-8/25		0.019
AA	8/18-8/25	0.024	
TC	8/25-9/01		0.010
AA	8/25-9/01	0.039	
TC	9/01-9/09		0.011
AA	9/01-9/09	0.015	
TC	9/09-9/15		0.017
AA	9/09-9/15	0.044	
TC	9/15-9/22		0.006
AA	9/15-9/22	0.014	
TC	9/22-9/29		0.010
AA	9/22-9/29	0.027	
TC	9/29-10/06		0.011
AA	9/29-10/06	0.036	
TC	10/06-10/13		0.014
AA	10/06-10/13	0.047	
TC	10/13-10/20		0.015
AA	10/13-10/20	0.059	
TC	10/20-10/27		0.018
AA	10/20-10/27	0.045	
TC	10/27-11/03		0.017
AA	10/27-11/03	0.026	
TC	11/03-11/10		0.010
AA	11/03-11/10	0.024	
TC	11/10-11/17		0.010
AA	11/10-11/17	0.026	
TC	11/17-11/24		0.008
AA	11/17-11/24	0.016	
TC	11/24-12/01		0.029
AA	11/24-12/01	0.027	
TC	12/01-12/08		0.020
AA	12/01-12/08	0.010	
TC	12/08-12/15		0.020

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Particulate Gross Beta (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
AA	12/08-12/15	0.015	
TC	12/15-12/22		0.025
AA	12/15-12/22	0.009	
TC	12/22-12/29		0.016
AA	12/22-12/29	0.024	

A Motor out.

B Cattle blocked entrance.

C Blown fuse at 142.26 hours run time.

D No flow at collection.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

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. The Lower Limit of Detection (LLD) specified in the contract for Iodine-131 is 0.07 pCi/m<sup>3</sup>.

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
TC	12/31-1/06		<0.032
AA	12/31-1/06	<0.07	
TC	1/06-1/14		<0.012
AA	1/06-1/14	<0.07	
TC	1/14-1/21		<0.015
AA	1/14-1/21	A	
TC	1/21-1/28		<0.015
AA	1/21-1/28	A	
TC	1/28-2/04		<0.011
AA	1/28-2/04	A	
TC	2/04-2/11		<0.014
AA	2/04-2/11	<0.07	
TC	2/11-2/18		<0.010
AA	2/11-2/18	<0.07	
TC	2/18-2/25		<0.021
AA	2/18-2/25	<0.07	
TC	2/25-3/03		<0.016
AA	2/25-3/03	<0.07	
TC	3/03-3/10		<0.020
AA	3/03-3/10	<0.07	
TC	3/10-3/17		<0.026
AA	3/10-3/17	<0.07	
TC	3/17-3/24		<0.012
AA	3/17-3/24	B	
TC	3/24-3/31		<0.024
AA	3/24-3/31	<0.07	

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

Radioiodine (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
TC	3/31-4/07		<0.028
AA	3/31-4/07	<0.07	
TC	4/07-4/14		<0.016
AA	4/07-4/14	<0.07	
TC	4/14-4/21		<0.010
AA	4/14-4/21	<0.07	
TC	4/21-4/28		<0.011
AA	4/21-4/28	<0.07	
TC	4/28-5/05		<0.029
AA	4/28-5/05	<0.07	
TC	5/05-5/12		<0.015
AA	5/05-5/12	<0.07	
TC	5/12-5/19		<0.018
AA	5/12-5/19	<0.07	
TC	5/19-5/26		<0.015
AA	5/19-5/26	<0.07	
TC	5/26-6/02		<0.020
AA	5/26-6/02	<0.07	
TC	6/02-6/09		<0.016
AA	6/02-6/09	<0.07	
TC	6/09-6/16		<0.013
AA	6/09-6/16	<0.07	
TC	6/16-6/23		<0.013
AA	6/16-6/23	<0.07	
TC	6/23-6/30		<0.012-C
AA	6/23-6/30	<0.07	
TC	6/30-7/07		<0.017-D
AA	6/30-7/07	<0.07	
TC	7/07-7/14		<0.016
AA	7/07-7/14	<0.07	
TC	7/14-7/21		<0.015
AA	7/14-7/21	<0.07	
TC	7/21-7/28		<0.008
AA	7/21-7/28	<0.07	
TC	7/28-8/04		<0.016
AA	7/28-8/04	<0.07	

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

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
TC	8/04-8/11		<0.024
AA	8/04-8/11	<0.07	
TC	8/11-8/18		<0.025
AA	8/11-8/18	<0.07	
TC	8/18-8/25		<0.018
AA	8/18-8/25	<0.07	
TC	8/25-9/01		<0.016
AA	8/25-9/01	<0.07	
TC	9/01-9/09		<0.009
AA	9/01-9/09	<0.07	
TC	9/09-9/15		<0.030
AA	9/09-9/15	<0.07	
TC	9/15-9/22		<0.030
AA	9/15-9/22	<0.07	
TC	9/22-9/29		<0.019
AA	9/22-9/29	<0.07	
TC	9/29-10/06		<0.009
AA	9/29-10/06	<0.07	
TC	10/06-10/13		<0.013
AA	10/06-10/13	<0.07	
TC	10/13-10/20		<0.018
AA	10/13-10/20	<0.07	
TC	10/20-10/27		<0.032
AA	10/20-10/27	<0.07	
TC	10/27-11/03		<0.024
AA	10/27-11/03	<0.07	
TC	11/03-11/10		<0.019
AA	11/03-11/10	<0.07	
TC	11/10-11/17		<0.009
AA	11/10-11/17	<0.07	
TC	11/17-11/24		<0.008
AA	11/17-11/24	<0.07	
TC	11/24-12/01		<0.015
AA	11/24-12/01	<0.07	
TC	12/01-12/08		<0.015
AA	12/01-12/08	<0.07	
TC	12/08-12/15		<0.013

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

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
AA	12/08-12/15	<0.07	
TC	12/15-12/22		<0.025
AA	12/15-12/22	<0.07	
TC	12/22-12/29		<0.016
AA	12/22-12/29	<0.07	

A Motor out.

B Cattle blocked entrance.

C Blown fuse at 142.26 hours run time.

D No flow at collection.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

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. The Lower Limit of Detection (LLD) specified in the contract for Cs-134/-137 is 0.05 pCi/m<sup>3</sup> and 0.06 pCi/m<sup>3</sup> respectively.

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
TC	12/31-3/31		<0.01
AA	12/31-3/31	<0.01	
TC	3/31-6/30		<0.01
AA	3/31-6/30	<0.01	
TC	6/30-9/29		<0.01
AA	6/30-9/29	<0.01	
TC	9/29-12/29		<0.01
AA	9/29-12/29	<0.01	

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

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. The Lower Limit of Detection (LLD) specified in the contract for Gross Beta is 0.01 pCi/m<sup>3</sup>.

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
VB	12/31-1/06		0.026
RH	12/31-1/06	0.005	
VB	1/06-1/14		0.023
RH	1/06-1/14	0.017	
VB	1/14-1/21		0.011
RH	1/14-1/21	0.009	
VB	1/21-1/28		0.022
RH	1/21-1/28	0.002	
VB	1/28-2/04		0.063
RH	1/28-2/04	0.027	
VB	2/04-2/11		0.014
RH	2/04-2/11	0.020	
VB	2/11-2/18		0.016
RH	2/11-2/18	0.014	
VB	2/18-2/25		0.019
RH	2/18-2/25	0.008	
VB	2/25-3/03		0.026
RH	2/25-3/03	0.008	
VB	3/03-3/10		0.017
RH	3/03-3/10	0.006	
VB	3/10-3/17		0.012
RH	3/10-3/17	0.017	
VB	3/17-3/24		0.017
RH	3/17-3/24	0.009	
VB	3/24-3/31		0.016
RH	3/24-3/31	0.012	
VB	3/31-4/07		0.022

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
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Particulate Gross Beta Control (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
RH	3/31-4/07	0.013	
VB	4/07-4/14		0.012
RH	4/07-4/14	0.021	
VB	4/14-4/21		0.013
RH	4/14-4/21	0.019	
VB	4/21-4/28		0.013
RH	4/21-4/28	0.030	
VB	4/28-5/05		0.025
RH	4/28-5/05	0.035	
VB	5/05-5/12		0.016
RH	5/05-5/12	0.019	
VB	5/12-5/19		0.028
RH	5/12-5/19	0.021	
VB	5/19-5/26		0.013
RH	5/19-5/26	0.018	
VB	5/26-6/02		0.027
RH	5/26-6/02	0.002	
VB	6/02-6/09		0.013
RH	6/02-6/09	0.019	
VB	6/09-6/16		0.011
RH	6/09-6/16	0.001	
VB	6/16-6/23		0.011-E
RH	6/16-6/23	0.002	
VB	6/23-6/30		0.034
RH	6/23-6/30	0.001	
VB	6/30-7/07		0.015
RH	6/30-7/07	0.025	
VB	7/07-7/14		0.027
RH	7/07-7/14	0.009	
VB	7/14-7/21		0.008
RH	7/14-7/21	0.004	
VB	7/21-7/28		0.012
RH	7/21-7/28	0.002	
VB	7/28-8/04		0.008
RH	7/28-8/04	0.005	
VB	8/04-8/11		0.013

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
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Particulate Gross Beta Control (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
RH	8/04-8/11	A	
VB	8/11-8/18		0.011
RH	8/11-8/18	A	
VB	8/18-8/25		0.013
RH	8/18-8/25	0.015	
VB	8/25-9/01		0.011
RH	8/25-9/01	0.017	
VB	9/01-9/09		0.009
RH	9/01-9/09	A	
VB	9/09-9/15		0.017
RH	9/09-9/15	0.054	
VB	9/15-9/22		0.004
RH	9/15-9/22	0.011	
VB	9/22-9/29		0.011
RH	9/22-9/29	0.019	
VB	9/29-10/06		0.017
RH	9/29-10/06	0.057	
VB	10/06-10/13		0.015
RH	10/06-10/13	0.041	
VB	10/13-10/20		0.016
RH	10/13-10/20	0.037	
VB	10/20-10/27		0.023
RH	10/20-10/27	0.054	
VB	10/27-11/03		0.017
RH	10/27-11/03	0.031	
VB	11/03-11/10		0.009
RH	11/03-11/10	0.010	
VB	11/10-11/17		0.008
RH	11/10-11/17	0.018	
VB	11/17-11/24		0.006
RH	11/17-11/24	0.010	
VB	11/24-12/01		0.012
RH	11/24-12/01	0.028	
VB	12/01-12/08		0.009
RH	12/01-12/08	0.018	
VB	12/08-12/15		0.009
RH	12/18-12/15	0.002	

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

Particulate Gross Beta Control (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
VB	12/15-12/22		0.014
RH	12/15-12/22	0.013	
VB	12/22-12/29		0.014
RH	12/22-12/29	0.017	

A Motor out.

E Pump failure at 82.34 hours run time.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

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. The Lower Limit of Detection (LLD) specified in the contract for Iodine-131 is 0.07 pCi/m<sup>3</sup>.

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
VB	12/31-1/06		<0.032
RH	12/31-1/06	<0.07	
VB	1/06-1/14		<0.012
RH	1/06-1/14	<0.07	
VB	1/14-1/21		<0.015
RH	1/14-1/21	<0.07	
VB	1/21-1/28		<0.015
RH	1/21-1/28	<0.07	
VB	1/28-2/04		<0.011
RH	1/28-2/04	<0.07	
VB	2/04-2/11		<0.014
RH	2/04-2/11	<0.07	
VB	2/11-2/18		<0.010
RH	2/11-2/18	<0.07	
VB	2/18-2/25		<0.021
RH	2/18-2/25	<0.07	
VB	2/25-3/03		<0.016
RH	2/25-3/03	<0.07	
VB	3/03-3/10		<0.020
RH	3/03-3/10	<0.07	
VB	3/10-3/17		<0.026
RH	3/10-3/17	<0.07	
VB	3/17-3/24		<0.012
RH	3/17-3/24	<0.07	
VB	3/24-3/31		<0.024
RH	3/24-3/31	<0.07	

GRAND GULF NUCLEAR STATION  
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Radioiodine Control (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
VB	3/31-4/07		<0.028
RH	3/31-4/07	<0.07	
VB	4/07-4/14		<0.016
RH	4/07-4/14	<0.07	
VB	4/14-4/21		<0.010
RH	4/14-4/21	<0.07	
VB	4/21-4/28		<0.011
RH	4/21-4/28	<0.07	
VB	4/28-5/05		<0.029
RH	4/28-5/05	<0.07	
VB	5/05-5/12		<0.015
RH	5/05-5/12	<0.07	
VB	5/12-5/19		<0.018
RH	5/12-5/19	<0.07	
VB	5/19-5/26		<0.015
RH	5/19-5/26	<0.07	
VB	5/26-6/02		<0.020
RH	5/26-6/02	<0.07	
VB	6/02-6/09		0.016
RH	6/02-6/09	<0.07	
VB	6/09-6/16		<0.013
RH	6/09-6/16	<0.07	
VB	6/16-6/23		<0.013-E
RH	6/16-6/23	<0.07	
VB	6/23-6/30		<0.012
RH	6/23-6/30	<0.07	
VB	6/30-7/07		<0.017
RH	6/30-7/07	<0.07	
VB	7/07-7/14		<0.016
RH	7/07-7/14	<0.07	
VB	7/14-7/21		<0.015
RH	7/14-7/21	<0.07	
VL	7/21-7/28		<0.008
RH	7/21-7/28	<0.07	
VB	7/28-8/04		<0.016
RH	7/28-8/04	<0.07	
VB	8/04-8/11		<0.024

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Radioiodine Control (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
RH	8/04-8/11	A	
VB	8/11-8/18		<0.025
RH	8/11-8/18	A	
VB	8/18-8/25		<0.018
RH	8/18-8/25	<0.07	
VB	8/25-9/01		<0.016
RH	8/25-9/01	<0.07	
VB	9/01-9/09		<0.009
RH	9/01-9/09	A	
VB	9/09-9/15		<0.030
RH	9/09-9/15	<0.07	
VB	9/15-9/22		<0.030
RH	9/15-9/22	<0.07	
VB	9/22-9/29		<0.019
RH	9/22-9/29	<0.07	
VB	9/29-10/06		<0.009
RH	9/29-10/06	<0.07	
VB	10/06-10/13		<0.013
RH	10/06-10/13	<0.07	
VB	10/13-10/20		<0.018
RH	10/13-10/20	<0.07	
VB	10/20-10/27		<0.032
RH	10/20-10/27	<0.07	
VB	10/27-11/03		<0.024
RH	10/27-11/03	<0.07	
VB	11/03-11/10		<0.019
RH	11/03-11/10	<0.07	
VB	11/10-11/17		<0.009
RH	11/10-11/17	<0.07	
VB	11/17-11/24		<0.008
RH	11/17-11/24	<0.07	
VB	11/24-12/01		<0.015
RH	11/24-12/01	<0.07	
VB	12/01-12/08		<0.015
RH	12/01-12/08	<0.07	
VB	12/08-12/15		<0.013

GRAND GULF NUCLEAR STATION  
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Radioiodine Control (cont'd)

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
RH	12/08-12/15	<0.07	
VB	12/15-12/22		<0.025
RH	12/15-12/22	<0.07	
VB	12/22-12/29		<0.016
RH	12/22-12/29	<0.07	

A Motor out.

E Pump failure at 82.34 hours run time.

GRAND GULF NUCLEAR STATION  
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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. The Lower Limit of Detection (LLD) specified in the contract for Cs-134/-137 is 0.05 pCi/m<sup>3</sup> and 0.06 pCi/m<sup>3</sup>, respectively.

Location	Date	MSDH (pCi/m <sup>3</sup> )	Licensee (pCi/m <sup>3</sup> )
VB	12/31-3/31		<0.01
RH	12/31-3/31	<0.01	
VB	3/31-6/30		<0.01
RH	3/31-6/30	<0.01	
VB	6/30-9/29		<0.01
RH	6/30-9/29	<0.01	
VB	9/29-12/29		<0.01
RH	9/29-12/29	<0.01	

GRAND GULF NUCLEAR STATION  
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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). The Licensee's Lower Limits of Detection (LLD), from their Technical Specifications, are: Cs-137: 18 pCi/l; Mn-54, Co-58, Co-60, Nb-95, Cs-134, La-140: 15 pCi/l; Fe-59, Zn-65, Zr-95: 30 pCi/l; Ba-140: 60 pCi/l. The MSDH's LLD are: Mn-54, Cs-134: 6 pCi/l; Ba/La-140, Co-58/-60, Nb-95: 15 pCi/l; Cs-137: 18 pCi/l; Fe-59, Zn-65, Zr-95: 25 pCi/l, which are equal to or less than the contract specification. The data for these radionuclides are reported as less than LLD in each case.

Location	Date	MSDH (pCi/l)	Licensee (pCi/l)
MRU	JAN 02, 1992	<LLD	<LLD
MRU	FEB 04, 1992	<LLD	<LLD
MRU	MAR 03, 1992	<LLD	<LLD
MRU-F	MAR 03, 1992		<LLD
MRU	APR 07, 1992	<LLD	<LLD
MRU	MAY 05, 1992	<LLD	<LLD
MRU	JUN 02, 1992	<LLD	<LLD
MRU-F	JUN 02, 1992		<LLD
MRU	JUL 07, 1992	<LLD	<LLD
MRU	AUG 04, 1992	<LLD	<LLD
MRU	SEP 01, 1992	<LLD	<LLD
MRU	OCT 06, 1992	<LLD	<LLD
MRU	NOV 03, 1992	<LLD	<LLD
MRU	DEC 01, 1992	<LLD	<LLD
MRD	JAN 02, 1992	<LLD	<LLD
MRD	FEB 04, 1992	<LLD	<LLD
MRD	MAR 03, 1992	<LLD	<LLD
MRD-F	MAR 03, 1992		<LLD
MRD	APR 07, 1992	<LLD	<LLD
MRD	MAY 05, 1992	<LLD	<LLD
MRD	JUN 02, 1992	<LLD	<LLD
MRD-F	JUN 02, 1992		<LLD

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

Gamma Isotopic Analysis (cont'd)

Location	Date	MSDH (pCi/l)	Licensee (pCi/l)
MRD	JUL 07, 1992	<LLD	<LLD
MRD	AUG 04, 1992	<LLD	<LLD
MRD	SEP 01, 1992	<LLD	<LLD
MRD	OCT 06, 1992	<LLD	<LLD
MRD	NOV 03, 1992	<LLD	<LLD
MRD	DEC 01, 1992	<LLD	<LLD

F Duplicate sample for Licensee Quality Control program.

GRAND GULF NUCLEAR STATION  
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CY 1992

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). Licensee's Lower Limit of Detection (LLD) for tritium (H-3) as required by their Technical Specifications is 2000 pCi/l. The Licensee's LLD is computed individually for each sample and indicated by "<" below. The MSDH's LLD is 330 pCi/l. The contract specifications are 1000 pCi/l for drinking water, and 2000 pCi/l for other water samples. Licensee's results are a quarterly composite of the preceding three months. The MSDH tritium analyses are performed monthly.

Location	Date	MSDH (pCi/l)	Licensee (pCi/l)
MRU	JAN 02, 1992	<330	G
MRU	FEB 04, 1992	<330	G
MRU	MAR 03, 1992	<330	<600
MRU-F	MAR 03, 1992		<600
MRU	APR 07, 1992	<330	G
MRU	MAY 05, 1992	<330	G
MRU	JUN 02, 1992	<330	<610
MRU-F	JUN 02, 1992		<610
MRU	JUL 07, 1992	<330	G
MRU	AUG 04, 1992	<330	G
MRU	SEP 01, 1992	<330	<510
MRU	OCT 06, 1992	<330	G
MRU	NOV 03, 1992	<330	G
MRU	DEC 01, 1992	<330	<480
MRU-F	DEC 01, 1992		<480
MRD	JAN 02, 1992	<330	G
MRD	FEB 04, 1992	<330	G
MRD	MAR 03, 1992	<330	<600
MRD-F	MAR 03, 1992		<600
MRD	APR 07, 1992	<330	G
MRD	MAY 05, 1992	<330	G
MRD	JUN 02, 1992	<330	<610
MRD-F	JUN 02, 1992		<610

GRAND GULF NUCLEAR STATION  
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Tritium (cont'd)

Location	Date	MSDH (pCi/l)	Licensee (pCi/l)
MRD	JUL 07, 1992	<330	G
MRD	AUG 04, 1992	<330	G
MRD	SEP 01, 1992	<330	<510
MRD	OCT 06, 1992	<330	G
MRD	NOV 03, 1992	<330	G
MRD	DEC 01, 1992	<330	<480
MRD-F	DEC 01, 1992		<480

F Duplicate sample for Licensee Quality Control program.

G Composite sample, results below.

GRAND GULF NUCLEAR STATION  
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CY 1992

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. The Licensee's Lower Limits of Detection (LLD) for sediment samples are: Mn-54, Co-58, Co-60, Cs-134: 150 pCi/kg (dry) and Cs-137: 180 pCi/kg (dry); the Cs-134/-137 LLD are as specified in their Technical Specifications. The contract LLD specified for Cs-134/-137 is 150 pCi/kg and 180 pCi/kg respectively.

Location	Date	MSDH (pCi/kg)	Licensee (pCi/kg)
MRU	6/09/92	<LLD	
SEDCONT	6/09/92		<LLD
SEDCONT-F	6/09/92		<LLD
MRD	6/09/92	<LLD	
SEDHAM	6/09/92		<LLD
SEDHAM-F	6/09/92		<LLD
MRU	12/11/92	<LLD	
SEDCONT	12/11/92		<LLD
SEDCONT-F	12/11/92		<LLD
MRD	12/11/92	<LLD	
SEDHAM	12/11/92		<LLD
SEDHAM-F	12/11/92		<LLD

F Duplicate sample for Licensee Quality Control program.

GRAND GULF NUCLEAR STATION  
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CY 1992

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 GCNS. Samples are labeled RH for Radiological Health and GG for Licensee. The Licensee's Lower Limits of Detection for Milk are as follows: Cs-134, La-140: 15 pCi/l; Cs-137: 18 pCi/l; Ba-140: 60 pCi/l. The Licensee's LLD are in accordance with their Technical Specifications. The contract LLD specified for Cs-134/-137 and Ba/La-140 is 15, 18, 60 and 15 pCi/l respectively.

Sample	Date	MSDH (pCi/l)	Licensee (pCi/l)
RH	6/10/92	<15	
GG	6/10/92		<15
GG-F	6/10/92		<15
RH	12/09/92	<15	
GG	12/09/92		<15

F Duplicate sample for Licensee Quality Control program.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

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. The MSDH's Lower Limit of Detection for iodine in milk is 1 pCi/l, as specified in the contract.

Sample	Date	MSDH (pCi/l)	Licensee (pCi/l)
RH	6/10/92	<1	
GG	6/10/92		<0.2
GG-F	6/10/92		<0.2
RH	12/09/92	<1	
GG	12/09/92		<0.3

F Duplicate sample for Licensee Quality Control program.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

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. The Licensee's Lower Limits of Detection are: Mn-54, Co-58, Co-60, Cs-134: 130 pCi/kg; Cs-137: 150 pCi/kg; and Fe-59, Zn-65: 260 pCi/kg. The LLD used by the Licensee in these analyses are in accordance with their Technical Specifications. The LLD specified in the MSDH contract are: Mn-54, Co-58/60, Cs-134: 130 pCi/kg; Cs-137 : 150 pCi/kg; Fe-59, Zn-65: 260 pCi/kg.

Location	Date	MSDH (pCi/kg)	Licensee (pCi/kg)
MRU	6/28/92	<LLD	<LLD
MRU-F	6/28/92		<LLD
MRD	6/28/92	<LLD	<LLD
MRD-F	6/28/92		<LLD
MRU	12/12/92	<LLD	<LLD
MRD	12/12/92	<LLD	<LLD

F Duplicate Sample for Licensee Quality Control program.

GRAND GULF NUCLEAR STATION  
CLAIBORNE COUNTY, MISSISSIPPI  
CY 1992

Gamma Isotopic Analysis

These results are for vegetation samples taken from Sectors R, K, and J. These samples were analyzed by Gamma Isotopic methods. The Licensee's Lower Limits of Detection are: I-131, Cs-134: 60 pCi/kg; and Cs-137: 80 pCi/kg, as specified in their Technical Specifications. The contract specifications for the MSDH are: I-131, Cs-134: 60 pCi/kg each; and Cs-137: 80 pCi/kg.

Vegetable	Sector	Date	MSDH (pCi/kg)	Licensee (pCi/kg)
Collards	J	1/08/92	<60	<60
Rape	K	1/08/92	<60	<60
Collards	R	1/08/92	<60	<60
Swuss Chard	J	4/13/92	<60	<60
Swiss Chard	K	4/13/92	<60	<60
Collards	R	4/13/92	<60	<60
Swiss Chard	J	7/14/92	<60	<60
Collards	K	7/14/92	<60	<60
Swiss Chard	R	7/14/92	<60	<60
Swiss Chard	J	10/13/92	<60	<60
Cabbage	K	10/13/92	<60	<60
Swiss Chard	R	10/13/92	<60	<60

GRAND GULF NUCLEAR STATION  
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EPA Cross-Check Results--1992

All values reported in pCi/l unless otherwise indicated.

		Reported	Known
January	Strontium in Water		
	Strontium 89	45, 45, 46	51±8.7
	Strontium 90	22, 22, 22	20±8.7
	Gross Alpha/Beta in Water		
	Alpha	25, 25, 26	30±13.9
	Beta	34, 34, 35	30±8.7
February	Iodine in Water		
	Iodine	59, 59, 60	59±10.4
	Gamma in Water		
	Cobalt 60	40, 40, 41	40±8.7
	Zinc 65	150, 150, 150	148±26
	Ruthenium 106	196, 197, 197	203±34.7
	Cesium 134	28, 28, 29	31±8.7
	Cesium 137	52, 52, 52	49±8.7
	Barium 133	72, 73, 73	76±13.9
	Tritium in Water		
	Tritium	7526, 7534, 7542	7904±790
March	Radium in Water		
	Radium 226	9.4, 9.4, 9.5	10.1±2.6
	Radium 228	20.9, 20.9, 20.5	15.5±6.8
	Uranium in Water		
	Uranium	20.0, 20.2, 20.3	25.3±5.2
	Air Filter		
	Alpha	7, 7, 7	7±8.7-H
	Beta	39, 39, 39	41±8.7-H
	Strontium 90	10, 11, 11	15±8.7-H
	Cesium 137	8, 8, 9	10±8.7-H

GRAND GULF NUCLEAR STATION  
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EPA Cross-Check Results (cont'd)

		Reported	Known
April	Performance Evaluation Intercomparison Study		
	Alpha	31, 32, 33	40±17.3
	Radium 226	15.1, 15.2, 15.3	14.9±3.8
	Radium 228	17.6, 17.9, 17.7	14.0±6.1
	Uranium	4.5, 4.7, 4.8	4.0±5.2
	Beta	113, 113, 114	140±36.4
	Strontium 89	10, 10, 10	15±8.7
	Strontium 90	14, 15, 15	17±8.7
	Cesium 134	24, 24, 24	24±8.7
	Cesium 137	26, 26, 26	22±8.7
	Cobalt 60	57, 57, 57	56±8.7
	Radionuclides in Milk		
	Strontium 89	12, 13, 13	38±8.7
	Strontium 90	25, 26, 26	29±8.7
	Iodine 131	71, 71, 71	78±10.4
	Cesium 137	42, 42, 42	39±8.7
	Potassium	1932, 1947, 1956	1710±150
May	Strontium in Water		
	Strontium 89	24, 24, 24	29±8.7
	Strontium 90	6, 6, 6	8±8.7
	Gross Alpha/Beta in Water		
	Alpha	9, 11, 12	15±8.7
	Beta	43, 43, 44	44±8.7
June	Radionuclides in Water		
	Cobalt 60	20, 20, 20	20±8.7
	Zinc 65	105, 105, 105	99±17.3
	Ruthenium 106	125, 128, 128	141±24.3
	Barium 133	99, 100, 101	98±17.3
	Cesium 134	15, 15, 16	15±8.7
	Cesium 137	15, 16, 16	15±8.7
	Tritium in Water		
	Tritium	2087, 2088, 2090	2125±347

GRAND GULF NUCLEAR STATION  
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EPA Cross-Check Results (cont'd)

		Reported	Known
July			
	Radium in Water		
	Radium 226	22.6, 22.6, 22.7	24.9±6.4
	Radium 228	15.2, 15.2, 15.3	16.7±7.3
	Uranium in Water		
	Uranium	4.4, 4.5, 4.7	4±5.2
August			
	Iodine in Water		
	Iodine	41, 42, 42	45±10.4
	Air Filter		
	Alpha	25, 25, 25	30±13.9-H
	Beta	74, 74, 74	69±17.3-H
	Strontium 90	17, 18, 18	25±8.7-H
	Cesium 137	20, 20, 21	18±8.7-H
September			
	Gross Alpha/Beta		
	in Water		
	Alpha	26, 26, 26	45±19.1
	Beta	46, 48, 48	50±8.6
	Strontium in Water		
	Strontium 89	18, 18, 19	20±8.7
	Strontium 90	15, 15, 15	15±8.7
	Radionuclides in Milk		
	Strontium 89	4, 5, 5	15±8.7
	Strontium 90	7, 7, 8	15±8.7
	Iodine 131	98, 99, 100	100±17.3
	Potassium	1770, 1770, 1770	1750±152
	Cesium 137	18, 18, 18	15±8.7

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EPA Cross-Check Results (cont'd)

October		Reported	Known
	Radionuclides in Water		
	Cobalt 60	10, 10, 10	10±8.7
	Zinc 65	145, 145, 145	148±26
	Ruthenium 106	153, 154, 154	175±31.2
	Cesium 134	7, 7, 8	8±8.7
	Cesium 137	8, 8, 8	8±8.7
	Barium 133	65, 65, 65	74±12
	Tritium in Water		
	Tritium	5447, 5479, 5515	5962±1034
	Performance Evaluation Intercomparison Study		
	Alpha	35, 35, 36	29±12.1
	Radium 226	6.6, 6.5, 6.5	7.4±1.92
	Radium 228	9.9, 9.9, 9.8	10.0±4.3
	Uranium	10.5, 10.5, 10.5	10.2±5.2
	Beta	52, 52, 52	53±17.3
	Strontium 89	7, 7, 7	8±8.7
	Strontium 90	11, 12, 12	10±8.7
	Cobalt 60	13, 13, 13	15±8.7
	Cesium 134	5, 5, 5	5±8.7
	Cesium 137	8, 8, 8	8±8.7
November			
	Radium in Water		
	Ra 226	6.3, 6.3, 6.4	7.5±1.9
	Ra 228	5.5, 5.6, 5.6	5.0±1.3
	Uranium in Water		
	Uranium	16, 16.1, 16.2	15.2±5.2

H Values are reported as pCi/filter.