

PRELIMINARY FINDINGS  
 RADIOACTIVE CONTAMINATION FROM THE VOGTLE NUCLEAR PLANT  
 AND CANCER RISK FOR THE LOCAL POPULATION

Joseph Mangano, MPH MBA  
 Radiation and Public Health Project  
 June 20, 2007

1. ENVIRONMENTAL LEVELS OF RADIOACTIVITY NEAR VOGTLE

<u>Type of Radioactivity</u>	<u>Annual Avg. 1987-1990</u>	<u>Annual Avg. 1991-2003</u>	<u>% Ch</u>
Beta in Raw Drinking Water			
- Indicator <sup>1</sup>	2.583	3.540	+ 37.1%
- Control <sup>2</sup>	3.535	3.202	- 9.4%
Beta in Finished Drinking Water			
- Indicator <sup>1</sup>	2.205	2.597	+ 17.8%
- Control <sup>2</sup>	2.113	2.230	+ 5.6%
Beryllium-7 in Sediment			
- Indicator <sup>3</sup>	930.5	1297.8	+ 39.5%
- Control <sup>4</sup>	578.3	1229.8	+112.7%
Cobalt-60 in Sediment			
- Indicator <sup>3</sup>	51.33	138.3	+169.5%
- Control <sup>4</sup>	No detectable radioactivity reported		
Cesium-137 in Sediment			
- Indicator <sup>3</sup>	192.3	264.2	+ 37.4%
- Control <sup>4</sup>	137.8	112.5	- 18.3%

Beta expressed in picocuries per liter, others expressed in picocuries per kilogram dry.

<sup>1</sup>Beaufort/Jasper County Water Treatment Plant, Beaufort SC, 112 miles downriver, plus Cherokee Hill Water Treatment Plant, Port Wentworth SC, 122 miles downriver

<sup>2</sup>Augusta Water Treatment Plant, Augusta GA, 56 miles upriver

<sup>3</sup>Savannah River, 0.8 miles ENE of Vogtle plant

<sup>4</sup>Savannah River, 2.5 miles N of Vogtle plant

Source: Vogtle Electric Generating Plant Annual Radiological Environmental Operating Report for 2005, [www.nrc.gov](http://www.nrc.gov).

2. CANCER MORTALITY, AGE 0-24, 1987-1990 to 1991-2003  
COUNTIES WITHIN 40 MILES OF VOGTLE NUCLEAR PLANT

County	Cancer Deaths		Population 0-24		Deaths/100000		
	'87-90	'91-03	'87-90	'91-03	'87-90	'91-03	% Ch
Burke GA	1	5	36207	116431	2.8	4.3	+
Columbia GA	4	16	99333	314050	4.0	5.1	+
Jefferson GA	0	4	29350	86979	0.0	4.6	+
Jenkins GA	0	2	13283	42225	0.0	4.7	+
Richmond GA	7	31	310380	1015605	2.3	3.1	+
Screven GA	1	3	22145	71597	4.5	4.2	-
Aiken SC	7	36	179246	641639	3.9	5.6	+
Allendale SC	0	5	19536	57571	0.0	8.7	+
Bamberg SC	0	1	30389	87493	0.0	1.1	+
Barnwell SC	1	4	32783	111774	3.1	3.6	+
Edgefield SC	0	3	28504	103016	0.0	2.9	+
11 Counties	21	110	801156	2648380	2.62	4.15	+58.5%
United States					4.33	3.72	- 14.1%
6 GA Counties	13	61	510698	1646887	2.55	3.70	+45.5%
5 SC Counties	8	49	290458	1001493	2.75	4.89	+77.9%
3 Largest Cos.	18	83	588959	1971294	3.06	4.21	+ 37.8%
8 Smallest Cos.	3	27	212197	677086	1.41	3.99	+182.8%

1987-1990 represents the most recent period when Vogtle was not yet fully operational. The period 1991-2003 represents the period of full operation. The difference in rate changes between the local area and the nation is significant at  $p < .001$ .

Source: National Centers for Disease Control and Prevention, <http://wonder.cdc.gov>, underlying cause of death. Uses codes for all cancers combined; ICD-9 codes 140.0-239.9 (until 1998), and ICD-10 codes C00-D48.9 (after 1998).