Dominion

North Anna Power Station

Annual Radiological Environmental Operating Report

January 1, 2008 to December 31, 2008

Prepared by
Dominion, North Anna Power Station

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1. EXECUTIVE SUMMARY

This document is a detailed report of the 2008 North Anna Power Station Radiological Environmental Monitoring Program (REMP). It is submitted in accordance with North Anna Unit 1 and 2 Technical Specification 5.6.2 and North Anna Independent Spent Fuel Storage Installation (ISFSI) Technical Specification 5.5.2b. Radioactivity levels from January 1 through December 31, 2008, in water, silt, shoreline sediment, milk, aquatic biota, food products, vegetation, and direct exposure pathways have been analyzed, evaluated and summarized. The REMP is designed to confirm that radiological effluent releases are As Low As is Reasonably Achievable (ALARA), no undue environmental effects occur and the health and safety of the public are protected. The program also detects any unexpected environmental processes that could allow radiation accumulations in the environment or food pathway chains.

Radiation and radioactivity in the environment is monitored within a 25-mile radius of the station. North Anna Power Station personnel collect a variety of samples within this area. A number of sampling locations for each medium are selected using available meteorological, land use, and water use data. Two types of samples are obtained. The first type, control samples, is collected from areas that are beyond the measurable influence of North Anna Power Station or any other nuclear facility. These samples are used as reference data. Normal background radiation levels, or radiation present due to causes other than North Anna Power Station, can be compared to the environment surrounding the station. Indicator samples are the second sample type obtained. These samples show how much radiation is contributed to the environment by the station. Indicator samples are taken from areas close to the station where any station contribution will be at the highest concentration.

Prior to station operation, samples were collected and analyzed to determine the amount of radioactivity present in the area. The resulting values are used as a "pre-operational baseline." Analysis results from the indicator samples are compared to both current control sample values and the pre-operational baseline to determine if changes in radioactivity levels are attributable to station operations, or causes such as the Chernobyl accident or natural variation.

Global Dosimetry Solutions provided thermoluminescent dosimetry (TLD) services and GEL Laboratories, LLC provided radioanalytical services. Participation in an Interlaboratory Comparison Program provides an independent check of sample measurement precision and accuracy. Typically, radioactivity levels in the environment are so low that analysis values frequently fall below the minimum detection limits of state-of-the-art measurement methods. Because of this, the Nuclear Regulatory Commission (NRC) requires that equipment used for

radiological environmental monitoring must be able to detect specified minimum Lower Limits of Detection (LLDs). This ensures that analyses are as accurate as possible. The NRC also mandates a reporting level for certain radionuclides. Licensed nuclear facilities must report the radionuclide activities in those environmental samples that are equal to or greater than the specified reporting level. Environmental radiation levels are sometimes referred to as a percent of the reporting level.

Analytical results are reported for all possible radiation exposure pathways to man. These pathways include airborne, water, aquatic, terrestrial, and direct radiation exposure. The airborne exposure pathway includes radioactive airborne iodine, particulates, and precipitation. The 2008 airborne results were similar to previous years. No plant related radioactivity was detected and fallout or natural radioactivity levels remained at levels consistent with past years' results.

Water and aquatic exposure pathway samples include surface, river and well water, silt and shoreline sediments, and fish. No plant related isotopes were detected in Lake Anna surface water except for tritium. The average tritium activity in surface water for 2008 was 3580 pCi/liter. River water collected from the North Anna River, 5.8 miles downstream of the site had an average tritium level of 3660 pCi/liter. No plant related isotopes were detected in well water. This trend is consistent throughout the environmental operational monitoring program. Both silt samples indicated the presence of naturally occurring potassium-40 and thorium and uranium decay daughters at levels consistent with the natural background. Shoreline soil, which may provide a direct exposure pathway, indicated the presence of potassium-40 and thorium and uranium decay daughters also at levels consistent with natural levels. No plant related isotopes were detected in shoreline soil. Cs-137 was detected in one indicator sample and one sample from the control location of sediment silt. Cs-137 was detected in the indicator location at a level of 21.2 pCi/kg and at the control location sediment sample at 120 pCi/kg. This Cs-137 level is consistent with historic levels. The terrestrial exposure pathway includes milk and food/vegetation products. Iodine-131 was not detected in any 2008 milk samples and has not been detected in milk prior to or since the 1986 Chernobyl accident. No plant related radioisotopes were detected in any milk or vegetation samples. Naturally occurring beryllium-7, potassium-40 and thorium 228 were detected at environmental levels consistent with historical data.. Low levels of Cs-137 have been detected intermittently in past years. The direct exposure pathway measures environmental radiation doses by use of thermoluminescent dosimeters (TLDs). TLD results have remained essentially constant over the years.

The vendor failed to perform sets of analyses as requested by North Anna in accordance with program requirements. The samples were disposed of by the

vendor before the analyses could be performed. These analyses were:

- Gamma spectrometry on the 1st half-year composite of precipitation from Station 01A
- Sr-89/90 analyses on the 2nd quarter composite of air particulate patches from Stations 01-07 and 21-24
- Sr-89/90 analyses on the 2nd quarter composite of river water samples from Station 11.
- Sr-89/90 analyses on the 2nd quarter composite of surface water samples from Stations 08 and 09A.

Due to these and other issues associated with this vendor, beginning January 2009, a new vendor will be used for performance of environmental analyses.

During 2008, as in previous years, operation of the North Anna Power Station and the Independent Spent Fuel Storage Installation (ISFSI) created no adverse environmental effects or health hazards. The maximum dose calculated for a hypothetical individual at the station site boundary due to liquid and gaseous effluents released from the station during 2008 was 0.38 millirem. For reference, this dose may be compared to the 360 millirem average annual exposure to every person in the United States from natural and man-made sources. Natural sources in the environment provide approximately 82% of radiation exposure to man, while nuclear power contributes less than 0.1%. These results demonstrate not only compliance with federal and state regulations but also demonstrate the adequacy of radioactive effluent control at North Anna Power Station.

2. PROGRAM DESCRIPTION

2.1 Introduction

This report documents the 2008 North Anna Power Station operational Radiological Environmental Monitoring Program (REMP).

The North Anna Power Station of Dominion Virginia Power Company is located on Lake Anna in Mineral, Virginia, approximately 35 miles southwest of Fredericksburg, Virginia. The site consists of two units, each with a pressurized water reactor (PWR) nuclear steam supply system and turbine generator furnished by Westinghouse Electric Corporation. Each unit was designed with a gross electrical output of 979 megawatts electric (MWe). Unit 1 achieved commercial operation on June 6, 1978 and Unit 2 on December 14, 1980. An independent spent fuel storage facility was licensed for dry cask storage of spent fuel in 1998.

The United States Nuclear Regulatory Commission (USNRC) regulations require that nuclear power plants be designed, constructed, and operated to keep levels of radioactive material in effluents to unrestricted areas as low as is reasonably achievable (ALARA). To ensure these criteria are met, the operating license for North Anna Power Station includes Technical Specifications, which address the release of radioactive effluents. In-plant monitoring is used to ensure release limits are not exceeded. As a precaution against unexpected or undefined environmental processes which might allow undue accumulation of radioactivity in the environment, a program for monitoring the plant environs is also included in North Anna Power Station Offsite Dose Calculation Manual (ODCM).

North Anna Power Station is responsible for collecting the various indicator and control environmental samples. Global Dosimetry Solutions is responsible for processing the TLDs. GEL Laboratories, LLC is responsible for sample analyses. The results of the analyses are used to determine if changes in radioactivity levels may be attributable to station operations. Measured values are compared with control levels, which vary with time due to external events, such as cosmic ray bombardment, nuclear weapons test fallout and seasonal variations of naturally occurring radioisotopes. Data collected prior to station operation is used to indicate the degree of natural variation to be expected. This pre-operational data is compared with data collected during the operational phase to assist in evaluating any radiological impact of station operation.

Occasional samples of environment media show the presence of man-made isotopes. As a method of referencing the measured radionuclide concentrations in the sample media to a dose consequence to man, the data is compared to the reporting level concentrations listed in the USNRC Regulatory Guide 4.8 and

North Anna's ODCM. These concentrations are based upon the annual dose commitment recommended by 10CFR50, Appendix I, to meet the criterion of "As Low As Is Reasonably Achievable".

This report documents the results of the Radiological Environmental Monitoring Program for 2008 and satisfies the following objectives of the program:

- To provide measurements of radiation and of radioactive materials in those exposure pathways and for those radionuclides that lead to the highest potential radiation exposure of the maximum exposed member of the public resulting from station operations.

- To supplement the radiological effluent monitoring program by verifying that radioactive effluents are within allowable limits.

- To identify changes in radioactivity in the environment.

- To verify that station operations have no detrimental effect on the health and safety of the public.

2.2 Sampling and Analysis Program

Table 2-1 summarizes the 2008 sampling program for North Anna Power Station. All samples listed in Table 2-1 are taken at indicator locations except those labeled "control." The North Anna Radiological Monitoring Locations maps denote sample locations for North Anna Power Station. The locations are color coded to designate sample types. Table 2-2 summarizes the analysis program conducted by GEL Laboratories, LLC for North Anna Power Station during the year 2008.

TABLE 2-1
North Anna Power Station - 2008
RADIOLOGICAL SAMPLING STATION
DISTANCE AND DIRECTION FROM UNIT NO. 1

Sample Media	Location	Station	Distance	Direction	Degrees	Collection Frequency	Remarks
Environmental	NAPS Sewage Treatment Plant	01	0.20	NE	42°	Quarterly & Annually	
Thermoluminescent	Fredericks Hall	02	5.30	SSW	203°	Quarterly & Annually	
Dosimetry (TLD)	Mineral, Va	03	7.10	WSW	243°	Quarterly & Annually	
	Wares Crossroads	04	5.10	WNW	287°	Quarterly & Annually	
	Route 752	05	4.20	NNE	20°	Quarterly & Annually	
	Sturgeon's Creek Marina	05A	2.04	N	11°	Quarterly & Annually	
	Levy, VA	06	4.70	ESE	115°	Quarterly & Annually	
	Bumpass, VA	07	7.30	SSE	167°	Quarterly & Annually	
	End of Route 685	21	1.00	WNW	301°	Quarterly & Annually	
	Route 700	22	1.00	WSW	242°	Quarterly & Annually	
	"Aspen Hills"	23	0.93	SSE	158°	Quarterly & Annually	
	Orange, VA	24	22.00	NW	325°	Quarterly & Annually	Control
	Bearing Cooling Tower	N-1/33	0.06	N	10°	Quarterly	
	Sturgeon's Creek Marina	N-2/34	2.04	N	11°	Quarterly	
	Parking Lot "C" (on-site)	NNE-3/35	0.24	NNE	32°	Quarterly	
	Good Hope Church	NNE-4/36	3.77	NNE	25°	Quarterly	
	Parking Lot "B"	NE-5/37	0.20	NE	42°	Quarterly	
	Lake Anna Marina (Bogg's Dr)	NE-6/38	1.46	NE	34°	Quarterly	
	Weather Tower Fence	ENE-7/39	0.36	ENE	74°	Quarterly	
	Route 689	ENE-8/40	2.43	ENE	65°	Quarterly	
	Near Training Facility	E-9/41	0.30	E	91°	Quarterly	
	"Morning Glory Hill"	E-10/42	2.85	E	93°	Quarterly	
	Island Dike	ESE-11/43	0.12	ESE	103°	Quarterly	
	Route 622	ESE-12/44	4.70	ESE	115°	Quarterly	
	DVP Biology Lab	SE-13/45	0.64	SE	138°	Quarterly	
	Route 701 (Dam Entrance)	SE-14/46	5.88	SE	137°	Quarterly	
	"Aspen Hills"	SSE-15/47	0.93	SSE	158°	Quarterly	
	Elk Creek	SSE-16/48	2.33	SSE	165°	Quarterly	
	NAPS Access Rd.	S-17/49	0.47	S	173°	Quarterly	

* In October 1991 the Surface Water Sample location at station 09 was moved to 09A.
** Shoreline soil was changed from station 09 to 08 effective with the August 1996 sample.
*** Air Sample Station at 01A was added in October 2007.
**** Station at 14a was added in October 2008 and Station 14 was deleted.

TABLE 2-1
North Anna Power Station - 2008
RADIOLOGICAL SAMPLING STATION
DISTANCE AND DIRECTION FROM UNIT NO. 1

Sample Media	Location	Station	Distance	Direction	Degrees	Collection Frequency	Remarks
Environmental Thermoluminescent Dosimetry (TLD)	Elk Creek Church	S-18/50	1.55	S	178°	Quarterly	
	NAPS Access Rd.	SSW-19/51	0.42	SSW	197°	Quarterly	
	Route 618	SSW-20/52	5.30	SSW	205°	Quarterly	
	500kv Tower	SW-21/53	0.6	SW	218°	Quarterly	
	Route 700	SW-22/54	3.96	SW	232°	Quarterly	
	NAPS Radio Tower	WSW-23/55	0.38	WSW	237°	Quarterly	
	Route 700 (Exclusion Boundary)	WSW-24/56	1.00	WSW	242°	Quarterly	
	South Gate Switchyard	W-25/57	0.32	W	279°	Quarterly	
	Route 685	W-26/58	1.55	W	274°	Quarterly	
	End of Route 685	WNW-27/59	1.00	WNW	301°	Quarterly	
	Route 685	WNW-28/60	1.40	WNW	303°	Quarterly	
	North Gate - Construction Side Laydown Area	NW-29/61	0.45	NW	321°	Quarterly	
	Lake Anna Campground	NW-30/62	2.54	NW	319°	Quarterly	
	#1/#2 Intake	NNW-31/63	0.07	NNW	349°	Quarterly	
	Route 208	NNW-32/64	2.21	NNW	344°	Quarterly	
	Bumpass Post Office	C-1/2	7.30	SSE	167°	Quarterly	
	Orange, VA	C-3/4	22.00	NW	325°	Quarterly	Control
	Mineral, VA	C-5/6	7.10	WSW	243°	Quarterly	
	Louisa, VA	C-7/8	11.54	WSW	257°	Quarterly	Control
Airborne Particulate and Radioiodine	NAPS Sewage Treatment Plant	01	0.20	NE	42°	Weekly	
	Biology Lab***	01A	0.64	SE	138°	Weekly	
	Mineral, VA	03	7.10	WSW	243°	Weekly	
	Wares Crossroads	04	5.10	WNW	287°	Weekly	
	Route 752	05	4.20	NNE	20°	Weekly	
	Sturgeon's Creek Marina	05A	2.04	N	11°	Weekly	
	Levy, VA	06	4.70	ESE	115°	Weekly	
	Bumpass, VA	07	7.30	SSE	167°	Weekly	

* In October 1991 the Surface Water Sample location at station 09 was moved to 09A.
** Shoreline soil was changed from station 09 to 08 effective with the August 1996 sample.
*** Air Sample Station at 01A was added in October 2007.
**** Station at 14a was added in October 2008 and Station 14 was deleted.

TABLE 2-1
North Anna Power Station - 2008
RADIOLOGICAL SAMPLING STATION
DISTANCE AND DIRECTION FROM UNIT NO. 1

Sample Media	Location	Station	Distance	Direction	Degrees	Collection Frequency	Remarks
Airborne Particulate and Radioiodine	End of Route 685	21	1.00	WNW	301°	Weekly	
	Route 700	22	1.00	WSW	242°	Weekly	
	"Aspen Hills"	23	0.93	SSE	158°	Weekly	
	Orange, VA	24	22.00	NW	325°	Weekly	Control
Surface Water	Waste Heat Treatment Facility (Second Cooling Lagoon)	08	3.37	SSE	148°	Monthly	
	*Lake Anna (upstream) (Route 669 Bridge)	09A	12.90	WNW	295°	Monthly	Control
River Water	North Anna River (downstream)	11	5.80	SE	128°	Monthly	
Ground Water (Well Water)	Biology Lab	01A	0.64	SE	138°	Quarterly	
Precipitation	Biology Lab	01A	0.64	SE	138°	Monthly	
Aquatic Sediment	Waste Heat Treatment Facility (Second Cooling Lagoon)	08	3.37	SSE	148°	Semi-Annually	
	Lake Anna (upstream) (Route 669 Bridge)	09A	12.90	WNW	295°	Semi-Annually	Control
	North Anna River (downstream)	11	5.80	SE	128°	Semi-Annually	
Shoreline Soil	Waste Heat Treatment Facility (Second Cooling Lagoon)	08 **	3.37	SSE	148°	Semi-Annually	
Soil	NAPS Sewage Treatment Plant	01	0.20	NE	42°	Once/3 years	
	Fredericks Hall	02	5.30	SSW	203°	Once/3 years	
	Mineral, VA	03	7.10	WSW	243°	Once/3 years	
	Wares Crossroads	04	5.10	WNW	287°	Once/3 years	

* In October 1991 the Surface Water Sample location at station 09 was moved to 09A.
** Shoreline soil was changed from station 09 to 08 effective with the August 1996 sample.
*** Air Sample Station at 01A was added in October 2007.
**** Station at 14a was added in October 2008 and Station 14 was deleted.

TABLE 2-1
North Anna Power Station - 2008
RADIOLOGICAL SAMPLING STATION
DISTANCE AND DIRECTION FROM UNIT NO. 1

Sample Media	Location	Station	Distance	Direction	Degrees	Collection Frequency	Remarks
Soil	Route 752	05	4.20	NNE	20°	Once/3 years	
	Sturgeon's Creek Marina	05A	2.04	N	11°	Once/3 years	
	Levy, VA	06	4.70	ESE	115°	Once/3 years	
	Bumpass, VA	07	7.30	SSE	167°	Once/3 years	
	End of Route 685	21	1.00	WNW	301°	Once/3 years	
	Route 700 (Exclusion Boundary)	22	1.00	WSW	242°	Once/3 years	
	"Aspen Hills"	23	0.93	SSE	158°	Once/3 years	
	Orange, VA	24	22.00	NW	325°	Once/3 years	Control
Milk	Holladay Dairy (R.C. Goodwin)	12	8.30	NW	310°	Monthly	
	Terrell's Dairy (Fredericks Hall)	13	5.60	SSW	205°	Monthly	
	Anderson's Farm	27	2.49	ENE	66°	Monthly	
Fish	Waste Heat Treatment Facility (Second Cooling Lagoon)	08	3.37	SSE	148°	Semi-Annually	
	Lake Orange	25	16.5	NW	312°	Semi-Annually	Control
Food Products Vegetation)	Bel Aire Plantation	14	1.20	NE	43°	Monthly if available or at harvest	
	Moody Lane****	14a	1.70	ESE	103°	Monthly if available or at harvest	
	Route 614	15	1.37	SE	133°	Monthly if available or at harvest	
	Route 629/522	16	12.60	NW	314°	Monthly if available or at harvest	Control
	Aspen Hills	23	0.93	SSE	158°	Monthly if available or at harvest	

* In October 1991 the Surface Water Sample location at station 09 was moved to 09A.
** Shoreline soil was changed from station 09 to 08 effective with the August 1996 sample.
*** Air Sample Station at 01A was added in October 2007.
**** Station at 14a was added in October 2008 and Station 14 was deleted.

TABLE 2-2
North Anna Power Station
SAMPLE ANALYSIS PROGRAM

SAMPLE MEDIA	FREQUENCY	ANALYSIS	LLD	REPORT UNITS
Thermoluminescent Dosimetry (TLD)				
(84 TLDs)	Quarterly	Gamma Dose	2 mR±2mR	mR/std. Month
(12 TLDs)	Annually	Gamma Dose	2 mR±2mR	mR/std. Month
Airborne Radioiodine	Weekly	I-131	0.07	pCi/m^3
Airborne Particulate	Weekly	Gross Beta	0.01	pCi/m^3
	Quarterly (a)	Gamma Isotopic		pCi/m^3
		Cs-134	0.05	
		Cs-137	0.06	
	2nd Quarter	Sr-89	(b)	pCi/m^3
	Composite	Sr-90	(b)	
Surface Water	Monthly	I-131	1(c)	pCi/L
		Gamma Isotopic		pCi/L
		Mn-54	15	
		Fe-59	30	
		Co-58	15	
		Co-60	15	
		Zn-65	30	
		Zr-95	30	
		Nb-95	15	
		Cs-134	15	
		Cs-137	18	
		Ba-140	60	
		La-140	15	
	Quarterly(a)	Tritium (H-3)	2000	pCi/L
	2nd Quarter	Sr-89	(b)	pCi/L
	Composite	Sr-90	(b)	
River Water	Monthly	I-131	1(c)	pCi/L
		Gamma Isotopic		pCi/L
		Mn-54	15	
		Fe-59	30	
		Co-58	15	
		Co-60	15	
		Zn-65	30	
		Zr-95	30	
		Nb-95	15	
		Cs-134	15	
		Cs-137	18	
		Ba-140	60	
		La-140	15	

*LLDs indicate those levels to which environmental samples are required to be analyzed. Actual analysis of samples may be lower than the listed values.
(a) Quarterly composite of each location's samples are used for the required analysis
(b) There are no required LLDs for Sr-89/90
(c) LLD for non-drinking water is 10 pCi/liter.

TABLE 2-2
North Anna Power Station
SAMPLE ANALYSIS PROGRAM

SAMPLE MEDIA	FREQUENCY	ANALYSIS	LLD	REPORT UNITS
River Water	Quarterly(a)	Tritium (H-3)	2000	pCi/L
	2nd Quarter	Sr-89	(b)	pCi/L
	Composite	Sr-90	(b)	
Ground Water (Well Water)	Quarterly	Gamma Isotopic		pCi/L
		Mn-54	15	
		Fe-59	30	
		Co-58	15	
		Co-60	15	
		Zn-65	30	
		Zr-95	30	
		Nb-95	15	
		I-131	1(c)	
		Cs-134	15	
		Cs-137	18	
		Ba-140	60	
		La-140	15	
	Quarterly(a)	Tritium (H-3)	2000	pCi/L
	2nd Quarter	Sr-89	(b)	pCi/L
		Sr-90	(b)	
Aquatic Sediment	Semi-Annually	Gamma Isotopic		pCi/kg (dry)
		Cs-134	150	
		Cs-137	180	
	Annually	Sr-89	(b)	pCi/kg (dry)
		Sr-90	(b)	
Precipitation	Monthly	Gross Beta	4	pCi/L
	Semi-Annual	Gamma Isotopic		pCi/L
	Composite	Mn-54	15	
		Fe-59	30	
		Co-58	15	
		Co-60	15	
		Zn-65	30	
		Zr-95	30	
		Nb-95	15	
		I-131	1(c)	
		Cs-134	15	
		Cs-137	18	
		Ba-140	60	
		La-140	15	
Shoreline Soil	Semi-Annually	Gamma Isotopic		pCi/kg (dry)
		Cs-134	150	
		Cs-137	180	
	Annually	Sr-89	(b)	pCi/kg (dry)
		Sr-90	(b)	

*LLDs indicate those levels to which environmental samples are required to be analyzed. Actual analysis of samples may be lower than the listed values.
(a) Quarterly composite of each location's samples are used for the required analysis
(b) There are no required LLDs for Sr-89/90
(c) LLD for non-drinking water is 10 pCi/liter.

TABLE 2-2
North Anna Power Station
SAMPLE ANALYSIS PROGRAM

SAMPLE MEDIA	FREQUENCY	ANALYSIS	LLD	REPORT UNITS
Soil	Once per 3 years	Gamma Isotopic		pCi/kg (dry)
		Cs-134	150	
		Cs-137	180	
		Sr-89	(b)	pCi/kg (dry)
		Sr-90	(b)	
Milk	Monthly	I-131	1	pCi/L
	Monthly	Gamma Isotopic		
		Cs-134	15	
		Cs-137	18	
		Ba-140	60	
		La-140	15	
	Quarterly	Sr-89	(b)	pCi/L
		Sr-90	(b)	
Fish	Semi-Annually	Gamma Isotopic		pCi/kg (wet)
		Mn-54	130	
		Fe-59	260	
		Co-58	130	
		Co-60	130	
		Zn-65	260	
		Cs-134	130	
		Cs-137	150	
Food Products (Broadleaf Vegetation)	Monthly, if available, or at harvest	Gamma Isotopic		pCi/kg (wet)
		Cs-134	60	
		Cs-137	80	
		I-131	60	

*LLDs indicate those levels to which environmental samples are required to be analyzed. Actual analysis of samples may be lower than the listed values.
(a) Quarterly composite of each location's samples are used for the required analysis
(b) There are no required LLDs for Sr-89/90
(c) LLD for non-drinking water is 10 pCi/liter.

Legend For The North Anna Power Station
Environmental Monitoring Stations Overview Maps

Map Designation	Environmental Station Identification	Map Designation	Environmental Station Identification
1 (a)	01,NE-5/37	27	27-Milk
1A	01A,SE-13/45	7/8	C-7/8
2 (a)	02,SSW-20/52	1/33	N-1/33
3 (a)	03,C-5/6	31/63	NNW-31/63
4 (a)	04	29/61	NW-29/61
5 (a)	05	3/35	NNE-3/35
5A (a)	05A,N-2/34	7/39	ENE-7/39
6 (a)	06,ESE-12/44	9/41	E-9/41
7 (a)	07,C-1/2	11/43	ESE-11/43
8	08-Water, Fish Sediment,	17/49	S-17/49
	Shoreline Soil	19/51	SSW-19/51
9A	09A-Water sample, sediment	21/53	SW-21/53
11	11-River Water, Sediment	23/55	WSW-23/55
12	12-Milk	25/57	W-25/57
13	13-Milk	16/48	SSE-16/48
14 (d)	14-Vegetation, NE-6/38	18/50	S-18/50
14a (d)	14a-Vegetation	14/46	SE-14/46
15	15-Vegetation	22/54	SW-22/54
16	16-Vegetation	26/58	W-26/58
21 (a)	21,WNW-27/59	28/60	WNW-28/60
22 (a)	22,WSW-24/56	32/64	NNW-32/64
23 (a)	23-SSE-15/47	8/40	ENE-8/40
24 (a)(b)	24,C-3/4	4/36	NNE-4/36
25 (c)	25-Fish	10/42	E-10/42
26	26-Vegetation		

(a) Indicates air sample station, annual and quarterly TLD, Triennial soil.
(b) In Orange
(c) In Lake Orange
(d) Station 14a replaced 14 in October 2008

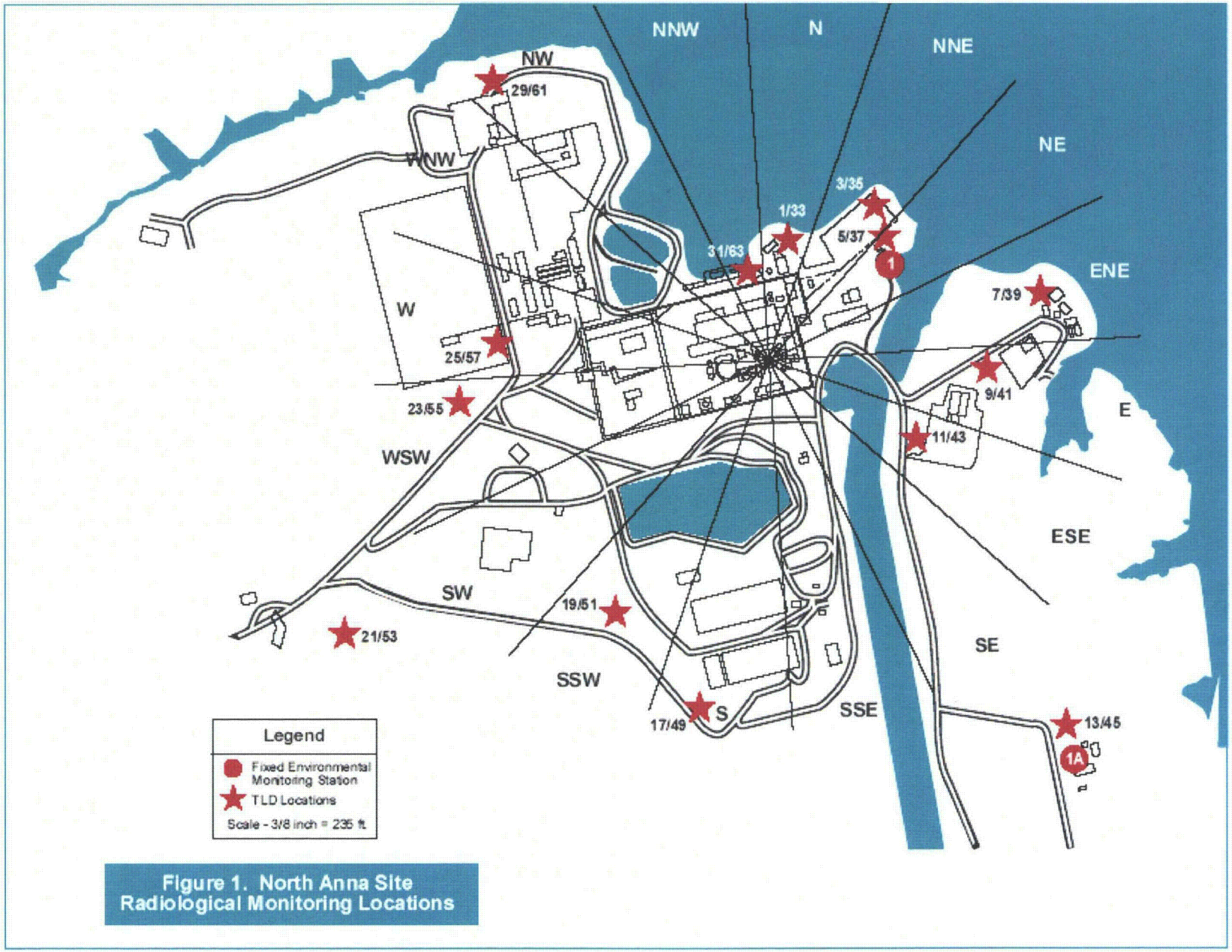
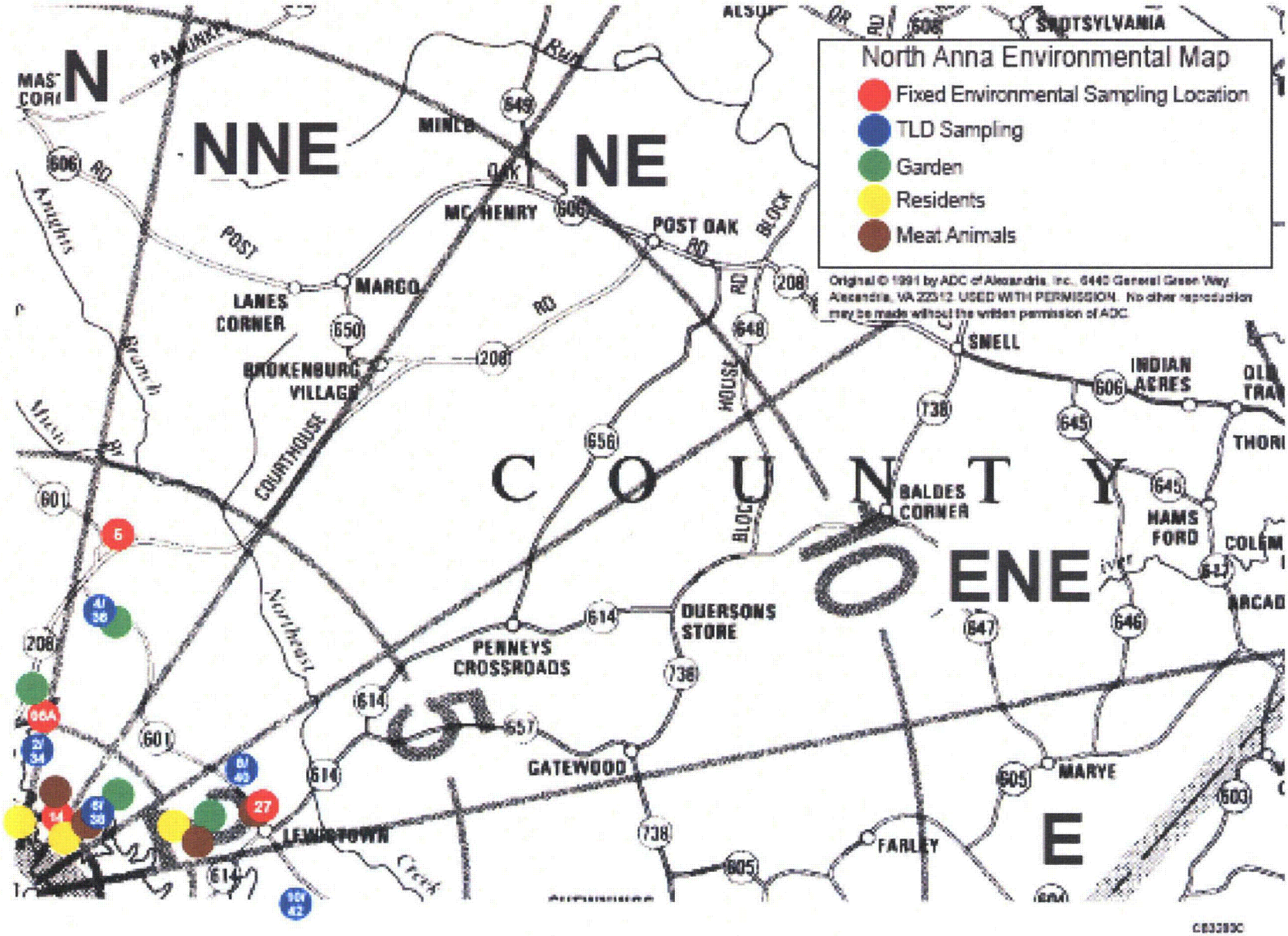


Figure 1. North Anna Site Radiological Monitoring Locations

S/V641


North Anna Environmental Map
Fixed Environmental Sampling Location
TLD Sampling
Garden
Residents
Meat Animals
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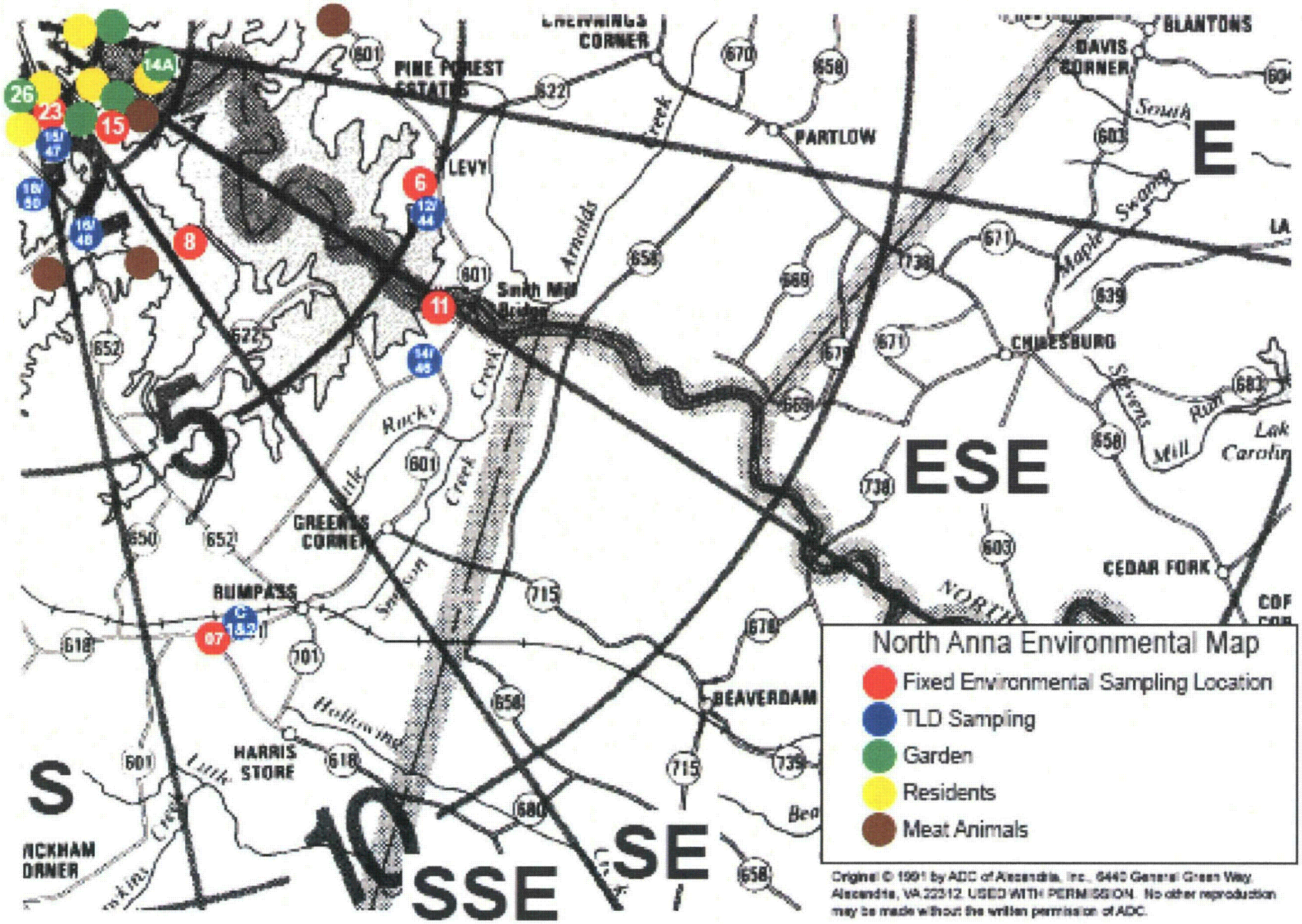
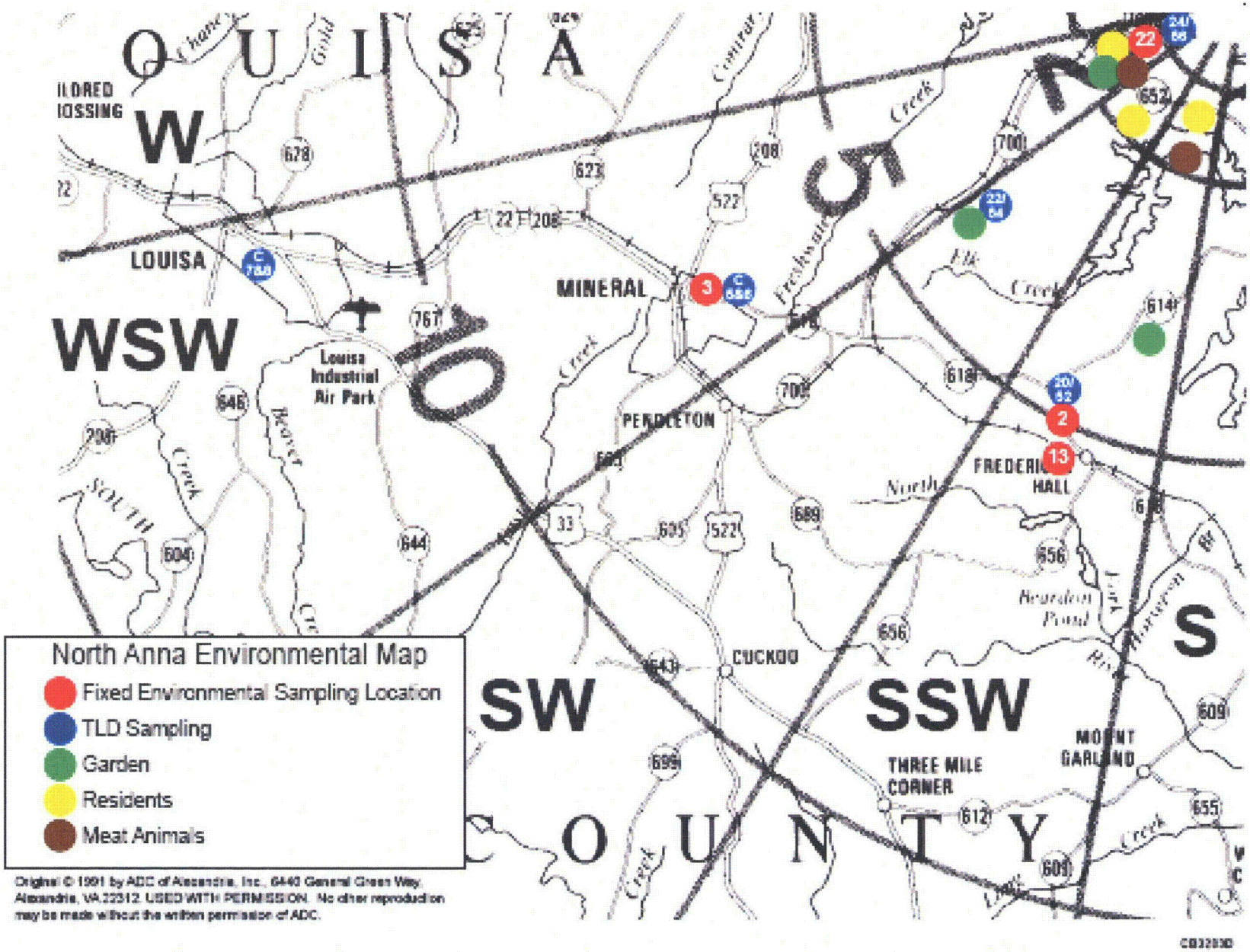
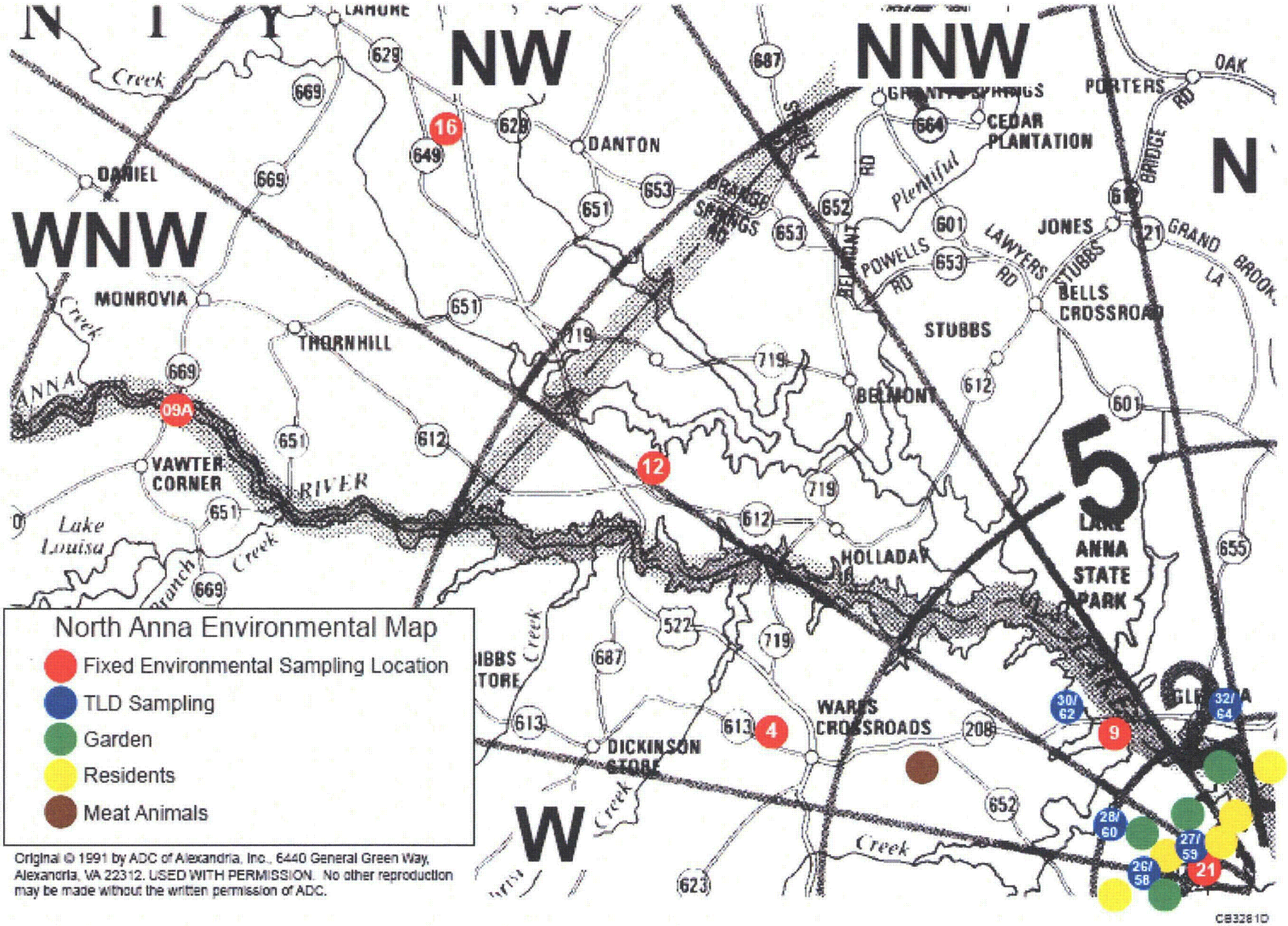
N
NNE
NE
ENE
E
COUNTY
MARCO
LANES CORNER
BROKENBURG VILLAGE
COURTHOUSE
MC HENRY
POST OAK
SMELL
INDIAN ACRES
BALDES CORNER
HAMS FORD
DUERSONS STORE
PENNEYS CROSSROADS
GATEWOOD
MARYE
FARLEY
LEWISTOWN
Northeast
Meat Br
Creek
6
27
66A
14


North Anna Environmental Map
Fixed Environmental Sampling Location
TLD Sampling
Garden
Residents
Meat Animals
Original © 1991 by ADC of Alexandria, Inc., 6440 General Green Way, Alexandria, VA 22312. USED WITH PERMISSION. No other reproduction may be made without the written permission of ADC.
E
ESE
SE
SSE
S
5
10
PINE FOREST ESTATES
LEVY
PARTLOW
BLANTONS
DAVIS CORNER
CHIESBURG
CEDAR FORK
GREENES CORNER
BUMPASS
HARRIS STORE
BEAVERDAM
Smith Mill Bridge
Arnolds Creek
Rocky Creek
Little Creek
Hollowing
Maple Swamp
Mill Run
14A
26
23
15
6
8
11
07


North Anna Environmental Map
Fixed Environmental Sampling Location
TLD Sampling
Garden
Residents
Meat Animals
Original © 1991 by ADC of Alexandria, Inc., 6440 General Green Way, Alexandria, VA 22312. USED WITH PERMISSION. No other reproduction may be made without the written permission of ADC.
LOUISA
MINERAL
PENDLETON
CUCKOO
THREE MILE CORNER
MOUNT GARLAND
Louisa Industrial Air Park
WSW
SW
SSW
S
COUNTY
22
3
2
13


North Anna Environmental Map
Fixed Environmental Sampling Location
TLD Sampling
Garden
Residents
Meat Animals
NW
NNW
WNW
N
W
5
DANTON
DANIEL
MONROVIA
THORNHILL
VAWTER CORNER
Lake Louisa
RIVER
CEDAR PLANTATION
PORTERS
OAK
JONES
BELLS CROSSROAD
STUBBS
BELMONT
HOLLADAY
LAKE ANNA STATE PARK
WARES CROSSROADS
DICKINSON STORE
16
09A
12
4
9
21
30/62
32/64
28/60
27/59
26/58
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CB3281D

3. ANALYTICAL RESULTS

3.1 Summary of Results

In accordance with the North Anna Offsite Dose Calculation Manual (ODCM), a summary table of the analytical results has been prepared and is presented in Table 3-1. This data is presented in accordance with the format of the USNRC Branch Technical Position, "Acceptable Radiological Environmental Monitoring Program", Rev. 1, November 1979. The LLD listed value is taken from the ODCM. For radioanalytic analyses, the values listed in the columns indicated as "Mean/Range" include any results above the Minimum Detectable Activity. Results are considered positive when the measured value exceeds 1.5 times the listed 2σ error (i.e., the measured value exceeds 3σ). For TLDs the mean and range include all values.

A more detailed analysis of the data is given in Section 4 where a discussion of the variations in the data explains many aspects that are not evident in the Summary Table because of the basic limitation of data summaries.

TABLE 3-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

North Anna Nuclear Power Station, Louisa County, Virginia – 2008

Docket No. 50-338/339

Medium or Pathway Sampled (Unit)	Analysis		LLD[1] (pCi/unit)	All Indicator Locations	Location with Highest Mean			Control Location	Non-routine Reported Measure-ments
	Type	Total No.		Mean Range	Name	Distance Direction	Mean Range	Mean Range	
Direct Radiation (mR/std. Month) (Sector TLDs)	Gamma Dose	256	2	5.2(256/256) (1.1-46.9)	19/51[2]	0.42 mi. SSW	34.0(8/8) (9.0-46.9)	3.3(16/16)* (2.0-4.8)	0
Direct Radiation (mR/std. Month) (Pre-operational TLDs)	Gamma Dose	32	2	2.6(16/16) (1.6-4.0)	C-1/2	7.3 mi. SSE	3.1(16/16) (2.5-4.0)	3.3(16/16)* (2.0-4.8)	0
Direct Radiation (mR/std. Month) (Emergency Sector TLDs)	Gamma Dose	40	2	5.1(40/40) (2.5-8.9)	EPSP-09/10	0.37 mi. ENE	7.3(8/8) (5.5-8.9)	3.3(16/16)* (2.0-4.8)	0
Direct Radiation (mR/std. month) (Environmental TLDs)	Gamma Dose	48	2	3.3(44/44) (1.6-5.8)	23	0.93 mi. SSE	4.7(4/4) (3.6-5.8)	2.9(4/4) (2.0-4.2)	0
Direct Radiation (mR/std. Month) (Annual TLDs)	Gamma Dose	12	2	3.2(11/11) (1.9-4.8)	23	0.93 mi. SSE	4.8(1/1) (4.8)	2.9(1/1) (2.9)	0
Airborne Particulates (1E-03 pCi/m^3)	Gross Beta	676	0.01	33.2(624/624) (6.77- 72.4)	01	0.20 mi. NE	35.2(52/52) (7.63-72.0)	32.2(52/52) (10.9-64.6)	0
Air Iodine (pCi/m^3)	I-131	675	0.07	6.95(1/623) (6.95)	04	5.1 mi. WNW	6.95(1/52) (6.95)	(0/52)	0
Airborne Particulates (1E-03 pCi/m^3)	Gamma	52							
	Be-7	52	-	165(48/48) (105-253)	07	7.3 mi. SSE	175(4/4) (121-253)	169(4/4) (118-254)	1
	Cs-134	52	0.05	(0/48)	N/A	N/A	N/A	(0/4)	1
	Cs-137	52	0.06	(0/48)	N/A	N/A	N/A	(0/4)	1

(1) mR/std month for TLDs
(2) 19/51 located onsite near ISFSI.
* Results of C-3/4 and C-7/8 used as control location

TABLE 3-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
North Anna Nuclear Power Station, Louisa County, Virginia – 2008
Docket No. 50-338/339

Medium or Pathway Sampled (Unit)	Analysis Type	Analysis Total No.	LLD (pCi/unit)	All Indicator Locations Mean Range	Location with Highest Mean: Name	Location with Highest Mean: Distance Direction	Location with Highest Mean: Mean Range	Control Location Mean Range	Non-routine Reported Measure-ments
Airborne Particulates	Sr-89	0	-	(0/0)	N/A	N/A	N/A	(0/0)	0
(1E-03 pCi/m^3)	Sr-90	0	-	(0/0)	N/A	N/A	N/A	(0/0)	0
Soil	Triennial								
(pCi/Kg) (dry)	Gamma	N/A							
	Be-7	N/A	-	N/A	N/A	N/A	N/A	N/A	0
	K-40	N/A	-	N/A	N/A	N/A	N/A	N/A	0
	Cs-134	N/A	150	N/A	N/A	N/A	N/A	N/A	0
	Cs-137	N/A	180	N/A	N/A	N/A	N/A	N/A	0
	Th-228	N/A	-	N/A	N/A	N/A	N/A	N/A	0
	Sr-89	N/A	-	N/A	N/A	N/A	N/A	N/A	0
	Sr-90	N/A	-	N/A	N/A	N/A	N/A	N/A	0
Precipitation	Monthly								
(pCi/liter)	Gross Beta	12	4	50.8(7/12) (2.25-316)	01A	0.64 mi. SE	50.8(7/12) (2.25-316)	N/A	0
	Semiannual								
	Gamma	1							
	Mn-54	1	15	(0/1)	N/A	N/A	N/A	N/A	0
	Fe-59	1	30	(0/1)	N/A	N/A	N/A	N/A	0
	Co-58	1	15	(0/1)	N/A	N/A	N/A	N/A	0
	Co-60	1	15	(0/1)	N/A	N/A	N/A	N/A	0

TABLE 3-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
North Anna Nuclear Power Station, Louisa County, Virginia – 2008
Docket No. 50-338/339

Medium or Pathway Sampled (Unit)	Analysis		LLD (pCi/unit)	All Indicator Locations	Location with Highest Mean			Control Location	Non-routine Reported Measure-ments
	Type	Total No.		Mean Range	Name	Distance Direction	Mean Range	Mean Range	
Precipitation (pCi/liter)	Zn-65	1	30	(0/1)	N/A	N/A	N/A	N/A	0
	Zr-95	1	30	(0/1)	N/A	N/A	N/A	N/A	0
	Nb-95	1	15	(0/1)	N/A	N/A	N/A	N/A	0
	I-131	1	10	(0/1)	N/A	N/A	N/A	N/A	0
	Cs-134	1	15	(0/1)	N/A	N/A	N/A	N/A	0
	Cs-137	1	18	(0/1)	N/A	N/A	N/A	N/A	0
	Ba-140	1	60	(0/1)	N/A	N/A	N/A	N/A	0
	La-140	1	15	(0/1)	N/A	N/A	N/A	N/A	0
Milk (pCi/liter)	Gamma	24							
	K-40	24	-	1390(24/24) (1260-1550)	12	8.3 mi. NW	1410(12/12) (1320-1510)	N/A	0
	I-131	24	1	(0/24)	N/A	N/A	N/A	N/A	0
	Cs-134	24	15	(0/24)	N/A	N/A	N/A	N/A	0
	Cs-137	24	18	(0/24)	N/A	N/A	N/A	N/A	0
	Ba-140	24	60	(0/24)	N/A	N/A	N/A	N/A	0
	La-140	24	15	(0/24)	N/A	N/A	N/A	N/A	0
	Sr-89 (Quarterly)	8	-	(0/8)	N/A	N/A	N/A	N/A	0

TABLE 3-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

North Anna Nuclear Power Station, Louisa County, Virginia – 2008

Docket No. 50-338/339

Medium or Pathway Sampled (Unit)	Analysis		LLD (pCi/unit)	All Indicator Locations	Location with Highest Mean			Control Location	Non-routine Reported Measure-ments
	Type	Total No.		Mean Range	Name	Distance Direction	Mean Range	Mean Range	
Milk (pCi/liter)	Sr-90 (Quarterly)	8	-	(0/8)	N/A	N/A	N/A	N/A	0
Food Vegetation (pCi/kg) (wet)	Gamma	31							
	Be-7	31	-	1110(25/25) (412-2200)	14a	varies ESE	2090(1/1) (2090)	749(6/6) (344-1250)	0
	K-40	31	-	3910(25/25) (3320-17600)	15	varies SE	5040(6/6) (3520-7410)	4810(6/6) (3720-6600)	0
	I-131	31	60	(0/25)	N/A	N/A	N/A	(0/6)	0
	Cs-134	31	60	(0/25)	N/A	N/A	N/A	(0/6)	0
	Cs-137	31	80	(0/25)	N/A	N/A	N/A	(0/6)	0
Ground Well Water (pCi/liter)	Tritium	4	2000	(0/4)	01A	0.64 mi. SE	(0/4)	N/A	0
	Gamma	4							
	Mn-54	4	15	(0/4)	N/A	N/A	N/A	N/A	0
	Fe-59	4	30	(0/4)	N/A	N/A	N/A	N/A	0
	Co-58	4	15	(0/4)	N/A	N/A	N/A	N/A	0
	Co-60	4	15	(0/4)	N/A	N/A	N/A	N/A	0

TABLE 3-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
North Anna Nuclear Power Station, Louisa County, Virginia – 2008
Docket No. 50-338/339

Medium or Pathway Sampled (Unit)	Analysis		LLD (pCi/unit)	All Indicator Locations	Location with Highest Mean			Control Location	Non-routine Reported Measure-ments
	Type	Total No.		Mean Range	Name	Distance Direction	Mean Range	Mean Range	
Ground Well Water (pCi/liter)	Zn-65	4	30	(0/4)	N/A	N/A	N/A	N/A	0
	Zr-95	4	30	(0/4)	N/A	N/A	N/A	N/A	0
	Nb-95	4	15	(0/4)	N/A	N/A	N/A	N/A	0
	I-131	4	1	(0/4)	N/A	N/A	N/A	N/A	0
	Cs-134	4	15	(0/4)	N/A	N/A	N/A	N/A	0
	Cs-137	4	18	(0/4)	N/A	N/A	N/A	N/A	0
	Ba-140	4	60	(0/4)	N/A	N/A	N/A	N/A	0
	La-140	4	15	(0/4)	N/A	N/A	N/A	N/A	0
	Sr-89	1	-	(0/1)	N/A	N/A	N/A	N/A	0
	Sr-90	1	-	(0/1)	N/A	N/A	N/A	N/A	0
River Water (pCi/liter)	Tritium	4	2000	3660(4/4) (2850-4100)	11	5.80 mi. SE	3660(4/4) (2850-4100)	(0/4)*	0
	Gamma	12							
	Mn-54	12	15	(0/12)	N/A	N/A	N/A	(0/12)*	0
	Fe-59	12	30	(0/12)	N/A	N/A	N/A	(0/12)*	0

*Results of surface water taken at Location 09A used as control value for river water.

TABLE 3-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
North Anna Nuclear Power Station, Louisa County, Virginia – 2008
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Medium or Pathway Sampled (Unit)	Analysis Type	Analysis Total No.	LLD (pCi/unit)	All Indicator Locations Mean Range	Location with Highest Mean: Name	Location with Highest Mean: Distance Direction	Location with Highest Mean: Mean Range	Control Location Mean Range	Non-routine Reported Measure-ments
River Water (pCi/liter)	Co-58	12	15	(0/12)	N/A	N/A	N/A	(0/12)*	0
	Co-60	12	15	(0/12)	N/A	N/A	N/A	(0/12)*	0
	Zn-65	12	30	(0/12)	N/A	N/A	N/A	(0/12)*	0
	Zr-95	12	30	(0/12)	N/A	N/A	N/A	(0/12)*	0
	Nb-95	12	15	(0/12)	N/A	N/A	N/A	(0/12)*	0
	I-131	12	1	(0/12)	N/A	N/A	N/A	(0/12)*	0
	Cs-134	12	15	(0/12)	N/A	N/A	N/A	(0/12)*	0
	Cs-137	12	18	(0/12)	N/A	N/A	N/A	(0/12)*	0
	Ba-140	12	60	(0/12)	N/A	N/A	N/A	(0/12)*	0
	La-140	12	15	(0/12)	N/A	N/A	N/A	(0/12)*	0
	Sr-89	0	-	(0/0)	N/A	N/A	N/A	(0/0)*	0
	Sr-90	0	-	(0/0)	N/A	N/A	N/A	(0/0)*	0

*Results of surface water taken at Location 09A used as control value for river water.

TABLE 3-1

RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

North Anna Nuclear Power Station, Louisa County, Virginia – 2008

Docket No. 50-338/339

Medium or Pathway Sampled (Unit)	Analysis		LLD (pCi/unit)	All Indicator Locations	Location with Highest Mean			Control Location	Non-routine Reported Measure-ments
	Type	Total No.		Mean Range	Name	Distance Direction	Mean Range	Mean Range	
Surface Water (pCi/liter)	Tritium	8	2000	3580(4/4) (2730-4140)	08	3.37 mi. SSE	3580(4/4) (2730-4140)	(0/4)	0
	Gamma	24							
	Mn-54	24	15	(0/12)	N/A	N/A	N/A	(0/12)	0
	Fe-59	24	30	(0/12)	N/A	N/A	N/A	(0/12)	0
	Co-58	24	15	(0/12)	N/A	N/A	N/A	(0/12)	0
	Co-60	24	15	(0/12)	N/A	N/A	N/A	(0/12)	0
	Zn-65	24	30	(0/12)	N/A	N/A	N/A	(0/12)	0
	Zr-95	24	30	(0/12)	N/A	N/A	N/A	(0/12)	0
	Nb-95	24	15	(0/12)	N/A	N/A	N/A	(0/12)	0
	I-131	24	1	(0/12)	N/A	N/A	N/A	(0/12)	0
	Cs-134	24	15	(0/12)	N/A	N/A	N/A	(0/12)	0
	Cs-137	24	18	(0/12)	N/A	N/A	N/A	(0/12)	0
	Ba-140	24	60	(0/12)	N/A	N/A	N/A	(0/12)	0

TABLE 3-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY
North Anna Nuclear Power Station, Louisa County, Virginia – 2008
Docket No. 50-338/339

Medium or Pathway Sampled (Unit)	Analysis		LLD (pCi/unit)	All Indicator Locations	Location with Highest Mean			Control Location	Non-routine Reported Measure-ments
	Type	Total No.		Mean Range	Name	Distance Direction	Mean Range	Mean Range	
Surface Water (pCi/liter)	La-140	24	15	(0/12)	N/A	N/A	N/A	(0/12)	0
	Sr-89	0	-	(0/0)	N/A	N/A	N/A	(0/0)	0
	Sr-90	0	-	(0/0)	N/A	N/A	N/A	(0/0)	0
Sediment Silt (pCi/kg) (dry)	Gamma	6							
	K-40	6	-	10300(4/4) (4690-18100)	11	5.80 mi. SSE	14700(2/2) (11200-18100)	10500(2/2) (8100-12800)	0
	Cs-134	6	150	(0/4)	N/A	N/A	(0/2)	(0/2)	0
	Cs-137	6	180	21.2(1/4) 21.2	11	5.80 mi. SSE	21.2(1/2) (21.2)	120(1/2) (120)	0
	Sr-89 (Annually)	3	-	(0/2)	N/A	N/A	N/A	(0/1)	0
	Sr-90 (Annually)	3	-	(0/2)	N/A	N/A	N/A	(0/1)	0
Shoreline Soil (pCi/kg) (dry)	Gamma	2							
	K-40	2	-	2990(2/2) (2240-3730)	08	3.37 mi. SSE	2990(2/2) (2240-3730)	N/A	0
	Cs-134	2	150	(0/2)	N/A	N/A	(0/2)	N/A	0
	Cs-137	2	180	N/A	N/A	N/A	(0/2)	N/A	0

TABLE 3-1
RADIOLOGICAL ENVIRONMENTAL MONITORING PROGRAM SUMMARY

North Anna Nuclear Power Station, Louisa County, Virginia – 2008

Docket No. 50-338/339

Medium or Pathway Sampled (Unit)	Analysis		LLD (pCi/unit)	All Indicator Locations	Location with Highest Mean			Control Location	Non-routine Reported Measure-ments
	Type	Total No.		Mean Range	Name	Distance Direction	Mean Range	Mean Range	
Shoreline Soil (pCi/kg) (dry)	Sr-89 (Annually)	1	-	(0/1)	N/A	N/A	N/A	N/A	0
	Sr-90 (Annually)	1	-	(0/1)	N/A	N/A	N/A	N/A	0
Fish (pCi/kg) (wet)	Gamma	8							
	K-40	8	-	1500(2/4) (1490-1510)	08	3.37 mi. SSE	1500(2/4) (1490-1510)	1480(2/4) (1380-1580)	0
	Mn-54	8	130	(0/4)	N/A	N/A	N/A	(0/4)	0
	Fe-59	8	260	(0/4)	N/A	N/A	N/A	(0/4)	0
	Co-58	8	130	(0/4)	N/A	N/A	N/A	(0/4)	0
	Co-60	8	130	(0/4)	N/A	N/A	N/A	(0/4)	0
	Zn-65	8	260	(0/4)	N/A	N/A	N/A	(0/4)	0
	Cs-134	8	130	(0/4)	N/A	N/A	N/A	(0/4)	0
	Cs-137	8	150	(0/4)	N/A	N/A	(0/4)	(0/4)	0

3.2 Analytical Results of 2008 REMP Samples

Radiological analyses of environmental media characteristically approach and frequently fall below the detection limits of state-of-the-art measurement methods. The data reported in the following tables are strictly counting statistics. The reported error is two times the standard deviation (2σ) of the net activity. Unless otherwise noted, the overall error (counting, sample size, chemistry, errors, etc.) is estimated to be 2 to 5 times that listed. Results are considered positive when the measured value exceeds 1.5 times the listed 2σ error (i.e., the measured value exceeds 3σ).

Because of counting statistics, negative values, zeros and numbers below the Minimum Detectable Level (MDL) are statistically valid pieces of data[1]. For clarity of this report only detectable results are presented. GEL Laboratories, LLC's analytical methods meet the Lower Limit of Detection (LLD) requirements given in Table 2 of the USNRC Branch Technical Position, "An Acceptable Radiological Environmental Monitoring Program", (November 1979, Revision 1) and the North Anna ODCM.

Data are given according to sample type as indicated below.

1. Gamma Exposure Rate
2. Air Particulates, Gross Beta Radioactivity
3. Air Particulates, Weekly I-131
4. Air Particulates, Quantitative Gamma Spectra
5. Air Particulate Strontium
6. Soil
7. Precipitation
8. Cow Milk
9. Food Products and Vegetation
10. Well Water
11. River Water
12. Surface Water
13. Bottom Sediment/Silt
14. Shoreline Soil
15. Fish

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[1] Analytical results are handled as recommended by HASL *("Reporting of Analytical Results from HASL,"* letter by Leo B. Higginbotham) and NUREG/CR-4007 (Sept. 1984).

TABLE 3-2

DIRECT RADIATION MEASURMENTS - SECTOR QUARTERLY TLD RESULTS

mR/Std. Month (30.4 days) ± 2 Sigma

Station	First Quarter 12/28/2007 04/01/2008	Second Quarter 04/01/2008 06/26/2008	Third Quarter 06/27/2008 09/30/2008	Fourth Quarter 10/01/2008 12/31/2008	Quarterly* Average +/- 2 s.d.
N-1	4.4	3.6	3.3	4.5	4.1 +/- 1.6
N-33	5.7	4.3	3.3	4.0	
N-2	4.5	2.2	2.5	2.9	3.2 +/- 1.7
N-34	3.8	3.4	2.1	3.8	
NNE-3	8.5	6.3	6.1	7.7	7.0 +/- 2.3
NNE-35	7.2	5.3	6.8	8.4	
NNE-4	4.2	4.1	3.7	3.8	4.1 +/- 1.1
NNE 36	5.2	4.2	3.3	3.9	
NE-5	6.0	3.5	2.9	4.3	4.0 +/- 2.4
NE-37	5.0	3.5	2.3	4.4	
NE-6	3.6	2.9	2.1	3.1	3.2 +/- 1.5
NE-38	4.6	3.4	2.5	3.4	
ENE-7	6.8	5.6	4.5	5.7	5.5 +/- 2.1
ENE-39	7.0	4.3	4.3	5.8	
ENE-8	3.6	3.5	3.0	2.5	3.1 +/- 1.3
ENE-40	4.3	2.5	2.6	2.8	
E-9	6.5	6.1	4.3	4.5	5.1 +/- 2.0
E-41	6.2	4.7	4.0	4.5	
E-10	6.4	4.5	3.7	5.0	4.9 +/- 1.9
E-42	5.5	5.4	3.5	4.8	
ESE-11	5.5	3.1	2.9	4.1	4.2 +/- 2.0
ESE-43	5.6	4.6	4.3	3.6	
ESE-12	5.2	4.3	3.1	3.9	4.2 +/- 1.4
ESE-44	5.0	4.2	3.6	4.6	
SE-13	5.2	4.1	3.3	4.2	4.2 +/- 1.7
SE-45	5.8	3.6	3.6	4.0	
SE-14	6.3	6.2	5.7	6.3	6.3 +/- 1.3
SE-46	7.7	6.3	5.5	6.6	
SSE-15	5.9	4.9	3.5	4.7	4.7 +/- 1.6
SSE-47	5.3	4.5	3.8	5.0	
SSE-16	4.3	2.0	2.2	3.0	2.9 +/- 1.7
SSE-48	3.8	2.8	2.1	2.6	

*Average of collocated TLDs.

TABLE 3-2

DIRECT RADIATION MEASURMENTS - SECTOR QUARTERLY TLD RESULTS

mR/Std. Month (30.4 days) ± 2 Sigma

Station	First Quarter 12/28/2007 04/01/2008	Second Quarter 04/01/2008 06/26/2008	Third Quarter 06/27/2008 09/30/2008	Fourth Quarter 10/01/2008 12/31/2008	Quarterly* Average +/- 2 s.d.
S-17	9.0	7.5	7.0	7.6	7.7 +/- 1.2
S-49	7.8	7.8	7.7	7.2	
S-18	3.9	1.9	1.1	3.3	2.4 +/- 2.0
S-50	3.3	1.7	1.6	2.2	
SSW-19	21.0	39.3	39.4	9.2	34.0 +/- 24.8
SSW-51	46.9	38.7	37.1	40.0	
SSW-20	3.6	2.4	1.6	2.4	2.5 +/- 1.5
SSW-52	3.4	2.6	1.5	2.2	
SW-21	5.7	4.5	3.6	4.6	4.6 +/- 1.6
SW-53	5.8	4.3	3.6	4.5	
SW-22	5.4	4.2	3.4	3.8	4.2 +/- 1.6
SW-54	5.4	4.2	3.2	4.0	
WSW-23	6.2	5.7	5.8	5.7	5.5 +/- 1.7
WSW-55	6.8	4.1	4.6	5.4	
WSW-24	5.1	4.4	3.6	4.1	4.2 +/- 1.4
WSW-56	5.3	4.1	3.2	4.1	
W-25	7.9	7.2	5.6	6.6	6.7 +/- 2.1
W-57	8.3	5.3	6.2	6.4	
W-26	4.0	2.1	2.9	3.4	2.9 +/- 1.6
W-58	4.0	2.4	1.9	2.7	
WNW-27	4.2	3.3	2.8	2.7	3.2 +/- 1.3
WNW-59	4.1	3.1	2.3	3.3	
WNW-28	3.6	2.2	2.5	2.9	2.7 +/- 1.4
WNW-60	3.8	2.1	1.8	2.7	
NW-29	7.2	6.3	5.3	6.1	6.3 +/- 1.5
NW-61	7.5	6.4	5.6	6.1	
NW-30	2.4	2.3	1.8	1.7	2.1 +/- 1.5
NW-62	3.2	2.1	0.6	2.5	
NNW-31	4.6	3.4	2.6	3.5	3.4 +/- 1.6
NNW-63	4.3	2.5	2.6	3.6	
NNW-32	3.6	3.3	3.0	3.3	3.2 +/- 1.1
NNW-64	4.2	2.5	2.7	3.2	
Mean					5.2 +/- 5.8

*Average of collocated TLDs.

TABLE 3-2

DIRECT RADIATION MEASURMENTS - SECTOR QUARTERLY TLD RESULTS

mR/Std. Month (30.4 days) ± 2 Sigma

Station	First Quarter 12/28/2007 04/01/2008	Second Quarter 04/01/2008 06/26/2008	Third Quarter 06/27/2008 09/30/2008	Fourth Quarter 10/01/2008 12/31/2008	Quarterly* Average +/- 2 s.d.	
C-1	4.0	3.2	2.5	2.7	3.1	+/- 1.1
C-2	3.8	3.0	2.5	3.1		
C-3**	4.1	3.1	2.5	3.3	3.1	+/- 1.2
C-4**	3.4	3.1	2.0	3.0		
C-5	2.9	2.4	1.8	2.2	2.1	+/- 0.9
C-6	2.3	1.6	1.7	2.0		
C-7**	4.8	3.6	2.3	3.4	3.6	+/- 1.5
C-8**	4.3	3.7	2.9	3.4		
				Mean		
				Indicator	2.6	+/- 0.7
				Control**	3.3	+/- 0.7
EPSA-01***	6.7	3.5	3.5	4.8	4.6	+/- 2.6
EPSA-02***	6.3	3.5	3.9	4.9		
EPSF-03***	5.8	4.8	3.8	4.2	4.7	+/- 1.6
EPSF-04***	6.0	4.8	3.9	4.4		
EPSR-05***	6.2	5.7	4.3	4.1	4.8	+/- 1.6
EPSR-06***	5.0	4.4	3.8	4.7		
EPSJ-07***	4.8	4.9	4.0	3.9	4.2	+/- 1.7
EPSJ-08***	5.0	4.6	2.5	3.8		
EPSP-09***	7.7	7.6	5.8	7.3	7.3	+/- 2.2
EPSP-10***	8.9	7.9	5.5	7.6		
Mean					5.1	+/- 1.5

*Average of collocated TLDs.
** Control Station
*** Emergency Plan TLDs.

TABLE 3-2

DIRECT RADIATION MEASURMENTS - SECTOR QUARTERLY TLD RESULTS

mR/Std. Month (30.4 days) ± 2 Sigma

Station	First Quarter 12/28/2007 04/01/2008	Second Quarter 04/01/2008 06/26/2008	Third Quarter 06/27/2008 09/30/2008	Fourth Quarter 10/01/2008 12/31/2008	Quarterly Average +/- 2 s.d.	Annual TLD
STA-01	4.4	5.0	3.9	4.2	4.4 +/- 0.9	4.5
STA-02	3.3	2.2	1.6	2.4	2.4 +/- 1.4	1.9
STA-03	3.1	2.3	1.8	1.9	2.3 +/- 1.2	1.9
STA-04	3.4	3.5	1.6	1.9	2.6 +/- 2.0	2.3
STA-05	4.3	3.1	2.4	3.1	3.2 +/- 1.6	3.0
STA-05A	4.1	2.1	1.9	2.8	2.7 +/- 2.0	2.9
STA-06	5.0	4.4	3.1	4.1	4.2 +/- 1.6	3.7
STA-07	3.5	3.2	2.7	2.5	3.0 +/- 0.9	2.7
STA-21	3.5	3.3	2.4	3.0	3.1 +/- 1.0	3.0
STA-22	4.2	4.1	3.5	3.8	3.9 +/- 0.6	4.3
STA-23	5.8	4.9	3.6	4.5	4.7 +/- 1.8	4.8
Mean					3.3 +/- 1.0	3.2 +/- 2.0
STA-24*	4.2	2.6	2.0	2.8	2.9 +/- 0.9	2.9

*Control

Table 3-3
Air Particulate
Gross Beta Radioactivity
[10^{-3} pCi/m^3]

Period Ending	Station 01			Station 01A			Station 02			Station 03			Station 04			Station 05			Station 05A		
01/02/08	6.23E+01	+/-	5.34E+00	3.53E+01	+/-	4.20E+00	4.98E+01	+/-	4.94E+00	5.43E+01	+/-	5.05E+00	4.73E+01	+/-	4.83E+00	5.62E+01	+/-	5.17E+00	3.83E+01	+/-	4.38E+00
01/09/08	5.67E+01	+/-	5.10E+00	3.79E+01	+/-	4.28E+00	4.85E+01	+/-	4.78E+00	4.16E+01	+/-	4.48E+00	4.08E+01	+/-	4.39E+00	4.22E+01	+/-	4.50E+00	4.02E+01	+/-	4.41E+00
01/16/08	2.74E+01	+/-	1.15E+01	3.02E+01	+/-	1.15E+01	3.46E+01	+/-	1.15E+01	3.59E+01	+/-	1.16E+01	3.69E+01	+/-	1.18E+01	2.96E+01	+/-	1.15E+01	3.24E+01	+/-	1.16E+01
01/23/08	2.60E+01	+/-	1.50E+01	3.15E+01	+/-	1.50E+01	3.28E+01	+/-	1.50E+01	2.89E+01	+/-	1.50E+01	2.83E+01	+/-	1.50E+01	2.28E+01	+/-	1.49E+01	2.30E+01	+/-	1.49E+01
01/30/08	7.20E+01	+/-	1.42E+01	5.89E+01	+/-	1.42E+01	5.89E+01	+/-	1.40E+01	6.01E+01	+/-	1.40E+01	6.43E+01	+/-	1.42E+01	5.58E+01	+/-	1.40E+01	5.54E+01	+/-	1.41E+01
02/05/08	3.76E+01	+/-	1.79E+01	2.23E+01	+/-	1.77E+01	3.22E+01	+/-	1.75E+01	2.76E+01	+/-	1.78E+01	3.41E+01	+/-	1.78E+01	3.10E+01	+/-	1.76E+01	3.42E+01	+/-	1.77E+01
02/13/08	4.17E+01	+/-	1.00E+01	2.94E+01	+/-	9.78E+00	4.16E+01	+/-	1.01E+01	3.84E+01	+/-	9.95E+00	3.09E+01	+/-	9.79E+00	3.27E+01	+/-	9.85E+00	3.43E+01	+/-	9.87E+00
02/20/08	3.34E+01	+/-	1.39E+01	2.80E+01	+/-	1.39E+01	3.22E+01	+/-	1.40E+01	3.32E+01	+/-	1.40E+01	2.67E+01	+/-	1.39E+01	2.99E+01	+/-	1.40E+01	2.73E+01	+/-	1.40E+01
02/27/08	3.55E+01	+/-	1.54E+01	2.76E+01	+/-	1.51E+01	3.53E+01	+/-	1.51E+01	3.15E+01	+/-	1.53E+01	2.80E+01	+/-	1.51E+01	3.10E+01	+/-	1.51E+01	2.50E+01	+/-	1.49E+01
03/04/08	3.42E+01	+/-	1.56E+01	3.20E+01	+/-	1.56E+01	2.76E+01	+/-	1.35E+01	2.66E+01	+/-	1.55E+01	3.02E+01	+/-	1.58E+01	3.71E+01	+/-	1.57E+01	3.17E+01	+/-	1.56E+01
03/11/08	2.60E+01	+/-	1.31E+01	2.36E+01	+/-	1.31E+01	2.76E+01	+/-	1.39E+01	2.43E+01	+/-	1.30E+01	2.11E+01	+/-	1.33E+01	2.54E+01	+/-	1.30E+01	2.57E+01	+/-	1.30E+01
03/18/08	3.74E+01	+/-	1.28E+01	4.27E+01	+/-	1.27E+01	3.94E+01	+/-	1.26E+01	3.74E+01	+/-	1.27E+01	4.18E+01	+/-	1.28E+01	3.96E+01	+/-	1.27E+01	2.77E+01	+/-	1.25E+01
03/25/08	2.17E+01	+/-	1.36E+01	1.77E+01	+/-	1.36E+01	2.29E+01	+/-	1.38E+01	2.22E+01	+/-	1.36E+01	2.29E+01	+/-	1.36E+01	2.63E+01	+/-	1.38E+01	2.78E+01	+/-	1.38E+01
04/01/08	4.29E+01	+/-	4.53E+00	3.93E+01	+/-	4.36E+00	3.12E+01	+/-	3.93E+00	3.57E+01	+/-	4.17E+00	4.23E+01	+/-	4.47E+00	3.72E+01	+/-	4.25E+00	3.24E+01	+/-	4.00E+00
04/08/08	1.85E+01	+/-	1.27E+01	1.55E+01	+/-	1.24E+01	1.72E+01	+/-	1.32E+01	2.18E+01	+/-	1.27E+01	1.89E+01	+/-	1.31E+01	1.28E+01	+/-	1.28E+01	1.65E+01	+/-	1.28E+01
04/15/08	1.47E+01	+/-	1.16E+01	1.63E+01	+/-	1.20E+01	1.56E+01	+/-	1.17E+01	1.67E+01	+/-	1.18E+01	1.75E+01	+/-	1.18E+01	1.57E+01	+/-	1.21E+01	1.41E+01	+/-	1.20E+01
04/22/08	7.63E+00	+/-	7.35E+00	9.01E+00	+/-	7.39E+00	1.28E+01	+/-	7.33E+00	1.21E+01	+/-	7.40E+00	2.37E+01	+/-	7.71E+00	3.44E+01	+/-	7.83E+00	3.50E+01	+/-	7.85E+00
04/29/08	1.81E+01	+/-	7.39E+00	2.11E+01	+/-	7.43E+00	9.50E+00	+/-	7.10E+00	1.39E+01	+/-	7.24E+00	1.41E+01	+/-	7.17E+00	1.34E+01	+/-	7.21E+00	2.02E+01	+/-	7.40E+00
05/06/08	5.33E+01	+/-	5.05E+00	3.99E+01	+/-	4.42E+00	4.68E+01	+/-	4.75E+00	4.60E+01	+/-	4.71E+00	4.93E+01	+/-	4.84E+00	4.95E+01	+/-	4.87E+00	4.79E+01	+/-	4.80E+00
05/13/08	1.37E+01	+/-	1.40E+01	2.27E+01	+/-	1.41E+01	1.92E+01	+/-	1.36E+01	2.23E+01	+/-	1.26E+01	2.90E+01	+/-	1.35E+01	1.92E+01	+/-	1.34E+01	2.17E+01	+/-	1.34E+01
05/20/08	2.20E+01	+/-	1.38E+01	1.96E+01	+/-	1.38E+01	2.16E+01	+/-	1.31E+01	2.47E+01	+/-	1.38E+01	2.26E+01	+/-	1.33E+01	2.47E+01	+/-	1.35E+01	2.09E+01	+/-	1.34E+01
05/27/08	2.94E+01	+/-	9.64E+00	1.85E+01	+/-	9.38E+00	2.70E+01	+/-	9.58E+00	2.53E+01	+/-	9.54E+00	2.61E+01	+/-	9.66E+00	3.03E+01	+/-	9.62E+00	2.60E+01	+/-	9.53E+00
06/04/08	2.92E+01	+/-	1.26E+01	1.93E+01	+/-	1.25E+01	2.71E+01	+/-	1.28E+01	2.32E+01	+/-	1.23E+01	3.23E+01	+/-	1.26E+01	3.37E+01	+/-	1.28E+01	3.27E+01	+/-	1.28E+01
06/10/08	3.62E+01	+/-	1.63E+01	2.75E+01	+/-	1.61E+01	2.74E+01	+/-	1.66E+01	3.65E+01	+/-	1.68E+01	3.34E+01	+/-	1.67E+01	3.29E+01	+/-	1.69E+01	3.24E+01	+/-	1.69E+01
06/18/08	3.23E+01	+/-	3.78E+00	3.06E+01	+/-	3.69E+00	3.96E+01	+/-	4.05E+00	3.43E+01	+/-	3.86E+00	3.07E+01	+/-	4.24E+00	3.58E+01	+/-	3.92E+00	3.86E+01	+/-	4.06E+00
06/25/08	3.19E+01	+/-	1.29E+01	2.60E+01	+/-	1.28E+01	2.50E+01	+/-	1.28E+01	2.65E+01	+/-	1.30E+01	2.55E+01	+/-	1.30E+01	2.43E+01	+/-	1.28E+01	2.36E+01	+/-	1.28E+01
07/01/08	Sample lost by carrier during delivery to vendor for analysis.																				

Table 3-3
Air Particulate
Gross Beta Radioactivity
[10^{-3} pCi/m^3]

Period Ending	Station 06			Station 07			Station 21			Station 22			Station 23			Station 24*		
01/02/08	5.23E+01	+/-	5.03E+00	5.32E+01	+/-	5.07E+00	5.02E+01	+/-	4.90E+00	4.68E+01	+/-	4.75E+00	5.29E+01	+/-	4.95E+00	4.89E+01	+/-	4.88E+00
01/09/08	4.18E+01	+/-	4.48E+00	4.09E+01	+/-	4.44E+00	3.99E+01	+/-	4.38E+00	4.04E+01	+/-	4.40E+00	3.25E+01	+/-	4.01E+00	3.82E+01	+/-	4.27E+00
01/16/08	2.68E+01	+/-	1.15E+01	3.27E+01	+/-	1.15E+01	1.98E+01	+/-	1.13E+01	3.29E+01	+/-	1.16E+01	2.99E+01	+/-	1.16E+01	2.95E+01	+/-	1.17E+01
01/23/08	2.71E+01	+/-	1.49E+01	2.65E+01	+/-	1.49E+01	2.76E+01	+/-	1.50E+01	3.99E+01	+/-	1.52E+01	3.04E+01	+/-	1.50E+01	2.85E+01	+/-	1.50E+01
01/30/08	6.27E+01	+/-	1.42E+01	5.86E+01	+/-	1.40E+01	5.85E+01	+/-	1.40E+01	6.10E+01	+/-	1.43E+01	5.53E+01	+/-	1.39E+01	5.53E+01	+/-	1.40E+01
02/05/08	3.96E+01	+/-	1.77E+01	3.06E+01	+/-	1.75E+01	3.08E+01	+/-	1.78E+01	3.34E+01	+/-	1.78E+01	3.70E+01	+/-	1.73E+01	2.68E+01	+/-	1.78E+01
02/13/08	3.96E+01	+/-	1.00E+01	3.69E+01	+/-	9.97E+00	3.68E+01	+/-	1.00E+01	3.30E+01	+/-	9.84E+00	3.65E+01	+/-	1.02E+01	3.50E+01	+/-	9.79E+00
02/20/08	2.99E+01	+/-	1.40E+01	2.47E+01	+/-	1.39E+01	3.58E+01	+/-	1.40E+01	3.61E+01	+/-	1.40E+01	3.24E+01	+/-	1.40E+01	2.83E+01	+/-	1.40E+01
02/27/08	3.29E+01	+/-	1.51E+01	3.10E+01	+/-	1.50E+01	2.89E+01	+/-	1.52E+01	3.67E+01	+/-	1.54E+01	2.89E+01	+/-	1.49E+01	3.02E+01	+/-	1.52E+01
03/04/08	3.59E+01	+/-	1.56E+01	3.33E+01	+/-	1.56E+01	3.04E+01	+/-	1.56E+01	3.52E+01	+/-	1.56E+01	2.96E+01	+/-	1.56E+01	2.37E+01	+/-	1.55E+01
03/11/08	2.37E+01	+/-	1.30E+01	2.10E+01	+/-	1.31E+01	2.39E+01	+/-	1.31E+01	3.20E+01	+/-	1.32E+01	2.72E+01	+/-	1.31E+01	2.14E+01	+/-	1.30E+01
03/18/08	3.21E+01	+/-	1.25E+01	3.96E+01	+/-	1.27E+01	3.53E+01	+/-	1.26E+01	4.20E+01	+/-	1.27E+01	3.78E+01	+/-	1.26E+01	3.06E+01	+/-	1.26E+01
03/25/08	2.37E+01	+/-	1.38E+01	2.08E+01	+/-	1.37E+01	2.18E+01	+/-	1.36E+01	2.56E+01	+/-	1.36E+01	2.66E+01	+/-	1.38E+01	2.02E+01	+/-	1.35E+01
04/01/08	4.57E+01	+/-	4.62E+00	3.83E+01	+/-	4.28E+00	3.77E+01	+/-	4.27E+00	3.70E+01	+/-	4.25E+00	4.12E+01	+/-	4.41E+00	3.90E+01	+/-	4.32E+00
04/08/08	1.63E+01	+/-	1.28E+01	1.58E+01	+/-	1.28E+01	1.71E+01	+/-	1.28E+01	2.23E+01	+/-	1.29E+01	1.29E+01	+/-	1.28E+01	1.41E+01	+/-	1.28E+01
04/15/08	1.37E+01	+/-	1.21E+01	1.35E+01	+/-	1.21E+01	1.17E+01	+/-	1.16E+01	1.99E+01	+/-	1.17E+01	1.29E+01	+/-	1.19E+01	1.37E+01	+/-	1.19E+01
04/22/08	3.39E+01	+/-	7.79E+00	2.25E+01	+/-	7.48E+00	1.23E+01	+/-	7.44E+00	1.52E+01	+/-	7.53E+00	2.27E+01	+/-	7.58E+00	2.56E+01	+/-	7.67E+00
04/29/08	6.77E+00	+/-	1.03E+01	1.28E+01	+/-	1.04E+01	1.39E+01	+/-	1.02E+01	9.96E+00	+/-	1.03E+01	1.15E+01	+/-	1.04E+01	1.78E+01	+/-	1.05E+01
05/06/08	4.57E+01	+/-	4.69E+00	4.56E+01	+/-	4.69E+00	4.12E+01	+/-	4.42E+00	5.17E+01	+/-	4.96E+00	4.62E+01	+/-	4.72E+00	4.27E+01	+/-	4.56E+00
05/13/08	3.27E+01	+/-	1.36E+01	2.28E+01	+/-	1.34E+01	2.21E+01	+/-	1.32E+01	1.95E+01	+/-	1.31E+01	2.36E+01	+/-	1.34E+01	2.32E+01	+/-	1.34E+01
05/20/08	2.89E+01	+/-	1.35E+01	2.45E+01	+/-	1.34E+01	3.01E+01	+/-	9.80E+00	2.53E+01	+/-	9.70E+00	2.96E+01	+/-	9.53E+00	3.55E+01	+/-	9.71E+00
05/27/08	2.58E+01	+/-	9.54E+00	2.76E+01	+/-	9.59E+00	2.37E+01	+/-	9.50E+00	2.33E+01	+/-	9.50E+00	2.93E+01	+/-	9.65E+00	2.41E+01	+/-	9.51E+00
06/04/08	3.32E+01	+/-	1.30E+01	2.40E+01	+/-	1.27E+01	2.41E+01	+/-	1.25E+01	2.45E+01	+/-	1.25E+01	3.06E+01	+/-	1.29E+01	2.77E+01	+/-	1.25E+01
06/10/08	3.75E+01	+/-	1.65E+01	3.62E+01	+/-	1.63E+01	2.49E+01	+/-	1.58E+01	3.28E+01	+/-	1.59E+01	3.25E+01	+/-	1.58E+01	3.30E+01	+/-	1.62E+01
06/18/08	3.89E+01	+/-	4.06E+00	4.09E+01	+/-	4.26E+00	3.25E+01	+/-	3.77E+00	3.25E+01	+/-	3.78E+00	3.67E+01	+/-	3.95E+00	3.73E+01	+/-	3.99E+00
06/25/08	2.84E+01	+/-	1.28E+01	3.48E+01	+/-	1.29E+01	2.04E+01	+/-	1.27E+01	2.63E+01	+/-	1.28E+01	3.49E+01	+/-	1.29E+01	2.66E+01	+/-	1.28E+01
07/01/08	Sample lost during delivery by carrier.																	

* Control Station

Table 3-3
Air Particulate
Gross Beta Radioactivity
[10^{-3} pCi/m^3]

Period Ending	Station 01			Station 01A			Station 02			Station 03			Station 04			Station 05			Station 05A		
07/08/08	2.45E+01	+/-	1.39E+01	2.79E+01	+/-	1.39E+01	2.05E+01	+/-	1.39E+01	2.26E+01	+/-	1.39E+01	2.34E+01	+/-	1.39E+01	2.85E+01	+/-	1.39E+01	2.95E+01	+/-	1.39E+01
07/16/08	3.23E+01	+/-	1.09E+01	3.56E+01	+/-	1.10E+01	3.42E+01	+/-	1.12E+01	2.77E+01	+/-	1.11E+01	3.00E+01	+/-	1.11E+01	4.00E+01	+/-	1.14E+01	1.51E+01	+/-	1.10E+01
07/23/08	4.59E+01	+/-	1.39E+01	5.10E+01	+/-	1.39E+01	3.83E+01	+/-	1.33E+01	4.58E+01	+/-	1.34E+01	3.41E+01	+/-	1.34E+01	4.54E+01	+/-	1.35E+01	5.12E+01	+/-	1.36E+01
07/30/08	4.20E+01	+/-	1.31E+01	4.69E+01	+/-	1.32E+01	4.19E+01	+/-	1.35E+01	3.61E+01	+/-	1.35E+01	4.26E+01	+/-	1.34E+01	5.08E+01	+/-	1.36E+01	3.50E+01	+/-	1.33E+01
08/05/08	3.82E+01	+/-	1.63E+01	4.51E+01	+/-	1.62E+01	3.91E+01	+/-	1.57E+01	4.00E+01	+/-	1.57E+01	3.20E+01	+/-	1.56E+01	4.58E+01	+/-	1.58E+01	4.05E+01	+/-	1.57E+01
08/12/08	3.68E+01	+/-	1.30E+01	4.47E+01	+/-	1.28E+01	3.21E+01	+/-	1.32E+01	4.03E+01	+/-	1.28E+01	3.21E+01	+/-	1.29E+01	4.09E+01	+/-	1.31E+01	3.87E+01	+/-	1.31E+01
08/19/08	4.23E+01	+/-	1.13E+01	5.64E+01	+/-	1.19E+01	4.92E+01	+/-	1.12E+01	4.09E+01	+/-	1.15E+01	4.48E+01	+/-	1.14E+01	5.48E+01	+/-	1.15E+01	4.41E+01	+/-	1.13E+01
08/26/08	3.17E+01	+/-	9.34E+00	3.97E+01	+/-	9.53E+00	3.73E+01	+/-	9.53E+00	3.95E+01	+/-	9.50E+00	2.90E+01	+/-	9.29E+00	3.59E+01	+/-	9.41E+00	3.03E+01	+/-	9.31E+00
09/02/08	3.37E+01	+/-	8.80E+00	6.83E+01	+/-	1.86E+01	2.80E+01	+/-	8.89E+00	3.18E+01	+/-	8.72E+00	3.37E+01	+/-	8.78E+00	2.90E+01	+/-	8.65E+00	3.16E+01	+/-	8.76E+00
09/09/08	3.37E+01	+/-	1.30E+01	3.29E+01	+/-	1.30E+01	3.44E+01	+/-	1.30E+01	3.37E+01	+/-	1.30E+01	3.62E+01	+/-	1.30E+01	4.74E+01	+/-	1.32E+01	3.37E+01	+/-	1.30E+01
09/16/08	3.01E+01	+/-	1.23E+01	2.05E+01	+/-	1.20E+01	2.22E+01	+/-	1.21E+01	3.08E+01	+/-	1.22E+01	2.38E+01	+/-	1.21E+01	2.02E+01	+/-	1.21E+01	2.70E+01	+/-	1.22E+01
09/23/08	4.64E+01	+/-	1.05E+01	4.11E+01	+/-	1.02E+01	2.06E+01	+/-	1.01E+01	3.23E+01	+/-	1.03E+01	3.88E+01	+/-	1.05E+01	3.79E+01	+/-	1.04E+01	3.94E+01	+/-	1.04E+01
09/30/08	2.56E+01	+/-	1.11E+01	1.51E+01	+/-	1.14E+01	2.44E+01	+/-	1.10E+01	2.80E+01	+/-	1.11E+01	1.77E+01	+/-	1.09E+01	2.37E+01	+/-	1.10E+01	2.59E+01	+/-	1.10E+01
10/07/08	4.89E+01	+/-	1.28E+01	4.38E+01	+/-	1.24E+01	2.62E+01	+/-	1.25E+01	3.19E+01	+/-	1.26E+01	4.26E+01	+/-	1.29E+01	4.67E+01	+/-	1.28E+01	3.54E+01	+/-	1.27E+01
10/14/08	4.74E+01	+/-	1.16E+01	5.09E+01	+/-	1.19E+01	4.71E+01	+/-	1.19E+01	4.55E+01	+/-	1.19E+01	3.84E+01	+/-	1.18E+01	4.42E+01	+/-	1.18E+01	4.73E+01	+/-	1.19E+01
10/22/08	3.48E+01	+/-	1.10E+01	4.09E+01	+/-	1.11E+01	3.82E+01	+/-	1.09E+01	3.94E+01	+/-	1.09E+01	3.84E+01	+/-	1.08E+01	4.16E+01	+/-	1.08E+01	3.41E+01	+/-	1.08E+01
10/28/08	2.45E+01	+/-	1.54E+01	1.51E+01	+/-	1.53E+01	2.23E+01	+/-	1.57E+01	1.74E+01	+/-	1.54E+01	2.10E+01	+/-	1.54E+01	1.56E+01	+/-	1.54E+01	1.98E+01	+/-	1.55E+01
11/04/08	5.28E+01	+/-	8.02E+00	5.19E+01	+/-	7.99E+00	4.66E+01	+/-	7.25E+00	4.69E+01	+/-	7.90E+00	5.38E+01	+/-	8.08E+00	7.24E+01	+/-	8.53E+00	5.66E+01	+/-	8.11E+00
11/12/08	4.38E+01	+/-	7.84E+00	3.93E+01	+/-	7.82E+00	4.22E+01	+/-	8.11E+00	3.59E+01	+/-	7.86E+00	3.40E+01	+/-	7.77E+00	4.57E+01	+/-	8.12E+00	3.96E+01	+/-	7.96E+00
11/18/08	2.31E+01	+/-	1.26E+01	1.71E+01	+/-	1.24E+01	1.81E+01	+/-	1.19E+01	2.31E+01	+/-	1.22E+01	1.82E+01	+/-	1.22E+01	2.25E+01	+/-	1.21E+01	1.90E+01	+/-	1.21E+01
11/26/08	1.92E+01	+/-	1.02E+01	1.51E+01	+/-	9.93E+00	1.63E+01	+/-	1.01E+01	1.66E+01	+/-	1.02E+01	1.86E+01	+/-	1.02E+01	1.69E+01	+/-	1.02E+01	1.13E+01	+/-	1.01E+01
12/02/08	3.73E+01	+/-	1.21E+01	3.10E+01	+/-	1.24E+01	2.94E+01	+/-	1.23E+01	2.71E+01	+/-	1.18E+01	3.93E+01	+/-	1.21E+01	3.28E+01	+/-	1.22E+01	4.74E+01	+/-	1.24E+01
12/09/08	4.13E+01	+/-	1.11E+01	3.01E+01	+/-	1.10E+01	4.16E+01	+/-	1.13E+01	3.41E+01	+/-	1.15E+01	4.05E+01	+/-	1.15E+01	4.23E+01	+/-	1.13E+01	2.81E+01	+/-	1.11E+01
12/17/08	2.82E+01	+/-	8.90E+00	2.16E+01	+/-	8.52E+00	2.73E+01	+/-	8.62E+00	3.38E+01	+/-	8.75E+00	3.10E+01	+/-	8.87E+00	2.30E+01	+/-	8.73E+00	2.65E+01	+/-	8.90E+00
12/23/08	4.90E+01	+/-	1.13E+01	4.08E+01	+/-	1.14E+01	4.93E+01	+/-	1.14E+01	2.97E+01	+/-	1.10E+01	4.95E+01	+/-	1.13E+01	4.05E+01	+/-	1.11E+01	4.60E+01	+/-	1.13E+01
12/30/08	5.42E+01	+/-	9.08E+00	6.22E+01	+/-	9.31E+00	5.83E+01	+/-	8.96E+00	5.89E+01	+/-	9.12E+00	4.14E+01	+/-	8.64E+00	5.05E+01	+/-	8.88E+00	4.92E+01	+/-	8.82E+00
Annual Mean	35.2	+/-	11.4	32.8	+/-	11.5	32.5	+/-	11.3	32.5	+/-	11.3	32.8	+/-	11.4	35.0	+/-	11.4	32.4	+/-	11.4

Table 3-3
Air Particulate
Gross Beta Radioactivity
[10^{-3} pCi/m^3]

Period Ending	Station 06			Station 07			Station 21			Station 22			Station 23			Station 24*		
07/08/08	3.38E+01	+/-	1.40E+01	2.51E+01	+/-	1.40E+01	2.59E+01	+/-	1.37E+01	2.47E+01	+/-	1.36E+01	3.14E+01	+/-	1.41E+01	2.76E+01	+/-	1.39E+01
07/16/08	2.75E+01	+/-	1.13E+01	3.33E+01	+/-	1.12E+01	2.67E+01	+/-	1.10E+01	3.53E+01	+/-	1.13E+01	3.57E+01	+/-	1.12E+01	2.60E+01	+/-	1.11E+01
07/23/08	5.02E+01	+/-	1.35E+01	4.97E+01	+/-	1.35E+01	4.70E+01	+/-	1.38E+01	5.03E+01	+/-	1.39E+01	5.27E+01	+/-	1.36E+01	3.81E+01	+/-	1.33E+01
07/30/08	3.41E+01	+/-	1.33E+01	4.12E+01	+/-	1.34E+01	4.08E+01	+/-	1.31E+01	4.75E+01	+/-	1.32E+01	4.12E+01	+/-	1.35E+01	3.09E+01	+/-	1.33E+01
08/05/08	4.94E+01	+/-	1.59E+01	3.40E+01	+/-	1.56E+01	3.57E+01	+/-	1.60E+01	4.43E+01	+/-	1.62E+01	4.76E+01	+/-	1.58E+01	3.41E+01	+/-	1.56E+01
08/12/08	3.80E+01	+/-	1.31E+01	2.99E+01	+/-	1.30E+01	3.32E+01	+/-	1.27E+01	4.10E+01	+/-	1.28E+01	4.27E+01	+/-	1.34E+01	3.70E+01	+/-	1.29E+01
08/19/08	4.89E+01	+/-	1.13E+01	4.64E+01	+/-	1.12E+01	4.64E+01	+/-	1.16E+01	4.43E+01	+/-	1.16E+01	6.07E+01	+/-	1.14E+01	2.99E+01	+/-	1.11E+01
08/26/08	4.52E+01	+/-	9.61E+00	2.13E+01	+/-	9.16E+00	2.67E+01	+/-	9.23E+00	3.98E+01	+/-	9.56E+00	2.75E+01	+/-	9.26E+00	3.03E+01	+/-	9.30E+00
09/02/08	2.54E+01	+/-	8.62E+00	2.94E+01	+/-	8.64E+00	2.74E+01	+/-	8.60E+00	3.05E+01	+/-	8.62E+00	3.40E+01	+/-	8.77E+00	2.48E+01	+/-	8.52E+00
09/09/08	3.60E+01	+/-	1.30E+01	3.23E+01	+/-	1.29E+01	3.61E+01	+/-	1.29E+01	4.89E+01	+/-	1.32E+01	2.95E+01	+/-	1.29E+01	3.31E+01	+/-	1.30E+01
09/16/08	2.59E+01	+/-	1.22E+01	2.53E+01	+/-	1.22E+01	1.72E+01	+/-	1.22E+01	2.50E+01	+/-	1.21E+01	2.64E+01	+/-	1.22E+01	2.69E+01	+/-	1.21E+01
09/23/08	2.84E+01	+/-	1.02E+01	3.87E+01	+/-	1.04E+01	3.64E+01	+/-	1.04E+01	3.41E+01	+/-	1.04E+01	2.98E+01	+/-	1.02E+01	3.91E+01	+/-	1.06E+01
09/30/08	2.35E+01	+/-	1.10E+01	1.80E+01	+/-	1.09E+01	2.45E+01	+/-	1.11E+01	2.39E+01	+/-	1.10E+01	1.57E+01	+/-	1.09E+01	2.89E+01	+/-	1.11E+01
10/07/08	4.95E+01	+/-	1.29E+01	4.20E+01	+/-	1.28E+01	4.28E+01	+/-	1.27E+01	3.54E+01	+/-	1.26E+01	3.96E+01	+/-	1.28E+01	4.29E+01	+/-	1.27E+01
10/14/08	5.46E+01	+/-	1.20E+01	4.86E+01	+/-	1.19E+01	3.83E+01	+/-	1.15E+01	4.58E+01	+/-	1.16E+01	5.10E+01	+/-	1.19E+01	5.17E+01	+/-	1.19E+01
10/22/08	3.42E+01	+/-	1.07E+01	4.11E+01	+/-	1.08E+01	3.04E+01	+/-	1.09E+01	3.92E+01	+/-	1.11E+01	4.15E+01	+/-	1.08E+01	3.64E+01	+/-	1.07E+01
10/28/08	1.84E+01	+/-	1.56E+01	1.72E+01	+/-	1.56E+01	1.82E+01	+/-	1.54E+01	1.61E+01	+/-	1.53E+01	2.07E+01	+/-	1.56E+01	1.91E+01	+/-	1.54E+01
11/04/08	3.73E+01	+/-	7.64E+00	6.13E+01	+/-	8.21E+00	4.04E+01	+/-	7.72E+00	5.01E+01	+/-	7.97E+00	5.28E+01	+/-	7.97E+00	5.45E+01	+/-	8.02E+00
11/12/08	3.78E+01	+/-	7.95E+00	3.38E+01	+/-	7.91E+00	4.03E+01	+/-	7.88E+00	4.60E+01	+/-	7.99E+00	2.67E+01	+/-	7.67E+00	3.83E+01	+/-	7.88E+00
11/18/08	1.54E+01	+/-	1.20E+01	1.82E+01	+/-	1.20E+01	2.07E+01	+/-	1.24E+01	1.47E+01	+/-	1.23E+01	2.12E+01	+/-	1.23E+01	2.14E+01	+/-	1.22E+01
11/26/08	2.51E+01	+/-	1.02E+01	1.34E+01	+/-	1.01E+01	7.94E+00	+/-	1.01E+01	1.57E+01	+/-	1.01E+01	1.02E+01	+/-	1.01E+01	1.09E+01	+/-	1.01E+01
12/02/08	4.56E+01	+/-	1.26E+01	4.84E+01	+/-	1.26E+01	4.86E+01	+/-	1.24E+01	5.54E+01	+/-	1.26E+01	4.64E+01	+/-	1.24E+01	3.95E+01	+/-	1.22E+01
12/09/08	3.60E+01	+/-	1.12E+01	2.66E+01	+/-	1.11E+01	3.89E+01	+/-	1.12E+01	2.53E+01	+/-	1.10E+01	3.36E+01	+/-	1.13E+01	3.11E+01	+/-	1.13E+01
12/17/08	2.20E+01	+/-	9.91E+00	3.46E+01	+/-	8.87E+00	1.79E+01	+/-	8.66E+00	3.09E+01	+/-	8.92E+00	3.82E+01	+/-	8.73E+00	3.58E+01	+/-	8.78E+00
12/23/08	3.43E+01	+/-	1.10E+01	4.13E+01	+/-	1.12E+01	4.07E+01	+/-	1.12E+01	3.87E+01	+/-	1.11E+01	3.95E+01	+/-	1.12E+01	4.42E+01	+/-	1.13E+01
12/30/08	4.88E+01	+/-	8.76E+00	4.63E+01	+/-	8.70E+00	4.62E+01	+/-	8.79E+00	6.24E+01	+/-	9.14E+00	4.44E+01	+/-	8.72E+00	6.46E+01	+/-	9.14E+00
Annual Mean	34.2	+/-	11.5	32.8	+/-	11.4	30.9	+/-	11.3	34.6	+/-	11.4	33.9	+/-	11.3	32.2	+/-	11.3
Indicator Mean	33.2	+/-	11.4															

* Control Station

Table 3-4
Airborne Iodine
I-131
[10^{-3} pCi/m^3]

Period Ending	Station 01	Station 01A	Station 02	Station 03	Station 04	Station 05	Station 05A
01/02/08	< 1.19E+01	< 1.18E+01	< 8.13E+00	< 9.80E+00	< 1.41E+01	< 9.40E+00	< 1.07E+01
01/09/08	< 1.21E+01	< 9.60E+00	< 1.01E+01	< 1.00E+01	< 7.95E+00	< 7.34E+00	< 1.31E+01
01/16/08	< 1.32E+01	< 1.56E+01	< 1.41E+01	< 1.55E+01	< 1.52E+01	< 1.78E+01	< 2.07E+01
01/23/08	< 1.05E+01	< 1.13E+01	< 8.29E+00	< 9.28E+00	< 1.11E+01	< 1.10E+01	< 1.33E+01
01/30/08	< 1.27E+01	< 1.26E+01	< 7.81E+00	< 1.16E+01	< 1.54E+01	< 1.37E+01	< 8.82E+00
02/05/08	< 8.74E+00	< 1.15E+01	< 1.16E+01	< 1.11E+01	< 9.51E+00	< 1.33E+01	< 9.25E+00
02/13/08	< 8.92E+00	< 7.28E+00	< 1.18E+01	< 1.14E+01	< 7.43E+00	< 1.23E+01	< 9.93E+00
02/20/08	< 9.45E+00	< 9.43E+00	< 9.83E+00	< 8.48E+00	< 6.94E+00	< 7.04E+00	< 1.03E+01
02/27/08	< 9.61E+00	< 9.33E+00	< 8.26E+00	< 7.39E+00	< 1.57E+01	< 1.19E+01	< 1.40E+01
03/04/08	< 9.81E+00	< 8.83E+00	< 1.02E+01	< 1.06E+01	< 1.60E+01	< 1.18E+01	< 1.10E+01
03/11/08	< 1.57E+01	< 1.60E+01	< 1.12E+01	< 1.30E+01	< 1.11E+01	< 1.11E+01	< 1.37E+01
03/18/08	< 9.05E+00	< 8.20E+00	< 6.79E+00	< 8.97E+00	< 8.00E+00	< 3.75E+00	< 8.82E+00
03/25/08	< 8.68E+00	< 7.24E+00	< 8.03E+00	< 8.71E+00	< 7.37E+00	< 5.48E+00	< 8.16E+00
04/01/08	< 1.25E+01	< 9.81E+00	< 1.07E+01	< 1.31E+01	< 9.76E+00	< 1.21E+01	< 1.54E+01
04/08/08	< 9.68E+00	< 8.01E+00	< 9.10E+00	< 9.72E+00	< 5.87E+00	< 8.30E+00	< 1.28E+01
04/15/08	< 8.73E+00	< 8.79E+00	< 1.26E+01	< 7.78E+00	< 8.50E+00	< 5.83E+00	< 1.29E+01
04/22/08	< 1.11E+01	< 1.09E+01	< 8.79E+00	< 1.10E+01	< 1.18E+01	< 1.07E+01	< 1.14E+01
04/29/08	No charcoal in sampler.	< 1.05E+01	< 9.76E+00	< 9.33E+00	< 8.97E+00	< 6.74E+00	< 9.48E+00
05/06/08	< 7.87E+00	< 1.03E+01	< 1.07E+01	< 8.71E+00	< 1.05E+01	< 1.08E+01	< 7.97E+00
05/13/08	< 7.84E+00	< 8.94E+00	< 7.49E+00	< 6.45E+00	< 1.61E+01	< 9.94E+00	< 1.06E+01
05/20/08	< 1.76E+01	< 1.25E+01	< 1.51E+01	< 1.41E+01	< 1.34E+01	< 1.25E+01	< 1.37E+01
05/27/08	< 7.18E+00	< 7.85E+00	< 6.51E+00	< 7.52E+00	< 9.47E+00	< 6.12E+00	< 7.43E+00
06/04/08	< 7.26E+00	< 4.75E+00	< 1.23E+01	< 7.14E+00	< 7.67E+00	< 8.07E+00	< 7.79E+00
06/10/08	< 1.03E+01	< 1.06E+01	< 9.99E+00	< 6.56E+00	6.95E+00 +/- 6.95E+00	< 4.93E+00	< 1.37E+01
06/18/08	< 8.03E+00	< 8.44E+00	< 1.00E+01	< 8.66E+00	< 1.82E+01	< 8.94E+00	< 1.48E+01
06/25/08	< 1.12E+01	< 1.15E+01	< 1.11E+01	< 1.09E+01	< 1.26E+01	< 9.60E+00	< 8.78E+00
07/01/08			Sample lost during delivery by carrier.				

Table 3-4
Airborne Iodine
I-131
[10^{-3} pCi/m^3]

Period Ending	Station 06	Station 07	Station 21	Station 22	Station 23	Station 24*
01/02/08	< 7.89E+00	< 1.02E+01	< 1.24E+01	< 1.26E+01	< 1.11E+01	< 9.16E+00
01/09/08	< 1.04E+01	< 1.06E+01	< 1.10E+01	< 9.60E+00	< 7.96E+00	< 1.10E+01
01/16/08	< 1.84E+01	< 1.48E+01	< 1.67E+01	< 1.89E+01	< 1.70E+01	< 2.03E+01
01/23/08	< 8.07E+00	< 1.11E+01	< 9.39E+00	< 6.63E+00	< 1.10E+01	< 1.18E+01
01/30/08	< 1.16E+01	< 1.20E+01	< 6.53E+00	< 9.17E+00	< 1.49E+01	< 1.18E+01
02/05/08	< 7.18E+00	< 1.03E+01	< 1.31E+01	< 8.96E+00	< 1.03E+01	< 1.00E+01
02/13/08	< 7.76E+00	< 1.02E+01	< 7.71E+00	< 9.89E+00	< 8.70E+00	< 1.30E+01
02/20/08	< 1.60E+01	< 1.02E+01	< 1.49E+01	< 1.33E+01	< 8.47E+00	< 1.21E+01
02/27/08	< 1.01E+01	< 1.03E+01	< 8.36E+00	< 1.04E+01	< 9.03E+00	< 1.08E+01
03/04/08	< 1.52E+01	< 1.01E+01	< 1.54E+01	< 1.08E+01	< 1.59E+01	< 1.23E+01
03/11/08	< 8.51E+00	< 1.17E+01	< 9.13E+00	< 1.75E+01	< 1.36E+01	< 1.11E+01
03/18/08	< 1.02E+01	< 9.04E+00	< 1.37E+01	< 1.14E+01	< 8.52E+00	< 7.70E+00
03/25/08	< 7.09E+00	< 1.08E+01	< 8.61E+00	< 7.16E+00	< 8.44E+00	< 6.70E+00
04/01/08	< 8.79E+00	< 1.33E+01	< 6.32E+00	< 9.85E+00	< 9.63E+00	< 1.00E+01
04/08/08	< 1.07E+01	< 7.37E+00	< 1.15E+01	< 8.30E+00	< 1.24E+01	< 1.15E+01
04/15/08	< 1.23E+01	< 1.14E+01	< 7.08E+00	< 1.10E+01	< 8.61E+00	< 8.05E+00
04/22/08	< 6.90E+00	< 9.48E+00	< 7.63E+00	< 9.39E+00	< 1.28E+01	< 9.05E+00
04/29/08	< 1.10E+01	< 7.13E+00	< 9.98E+00	< 1.07E+01	< 9.52E+00	< 1.27E+01
05/06/08	< 7.90E+00	< 1.10E+01	< 9.52E+00	< 1.41E+01	< 1.25E+01	< 8.08E+00
05/13/08	< 8.05E+00	< 7.45E+00	< 8.80E+00	< 6.81E+00	< 1.04E+01	< 6.92E+00
05/20/08	< 1.54E+01	< 1.49E+01	< 1.63E+01	< 1.67E+01	< 1.37E+01	< 1.24E+01
05/27/08	< 9.17E+00	< 6.21E+00	< 8.49E+00	< 1.23E+01	< 9.46E+00	< 6.91E+00
06/04/08	< 6.00E+00	< 6.67E+00	< 8.38E+00	< 5.79E+00	< 1.04E+01	< 5.98E+00
06/10/08	< 1.17E+01	< 1.15E+01	< 6.87E+00	< 1.15E+01	< 6.57E+00	< 1.09E+01
06/18/08	< 8.15E+00	< 1.36E+01	< 1.18E+01	< 1.02E+01	< 9.69E+00	< 1.17E+01
06/25/08	< 1.08E+01	< 1.09E+01	< 9.08E+00	< 1.22E+01	< 1.18E+01	< 1.24E+01
07/01/08			Sample lost during delivery by carrier.			

* Control Station

Table 3-4
Airborne Iodine
I-131
[10^{-3} pCi/m^3]

Period Ending	Station 01	Station 01A	Station 02	Station 03	Station 04	Station 05	Station 05A
07/08/08	< 8.19E+00	< 7.01E+00	< 7.35E+00	< 7.56E+00	< 1.26E+01	< 1.14E+01	< 9.83E+00
07/16/08	< 9.01E+00	< 1.06E+01	< 8.13E+00	< 8.59E+00	< 6.66E+00	< 7.43E+00	< 9.10E+00
07/23/08	< 1.28E+01	< 1.08E+01	< 8.42E+00	< 1.13E+01	< 1.56E+01	< 1.12E+01	< 1.11E+01
07/30/08	< 7.55E+00	< 6.27E+00	< 8.12E+00	< 6.81E+00	< 9.44E+00	< 7.63E+00	< 9.30E+00
08/05/08	< 1.61E+01	< 1.41E+01	< 1.13E+01	< 1.30E+01	< 1.75E+01	< 1.33E+01	< 1.02E+01
08/12/08	< 9.13E+00	< 7.53E+00	< 1.30E+01	< 7.07E+00	< 1.04E+01	< 8.13E+00	< 9.94E+00
08/19/08	< 8.56E+00	< 1.12E+01	< 8.97E+00	< 1.14E+01	< 9.94E+00	< 7.46E+00	< 8.53E+00
08/26/08	< 1.04E+01	< 1.19E+01	< 1.06E+01	< 1.06E+01	< 9.75E+00	< 1.11E+01	< 1.24E+01
09/02/08	< 1.35E+01	< 1.82E+01	< 1.12E+01	< 1.86E+01	< 9.69E+00	< 1.87E+01	< 1.61E+01
09/09/08	< 1.05E+01	< 1.21E+01	< 1.03E+01	< 1.21E+01	< 9.26E+00	< 9.98E+00	< 7.75E+00
09/16/08	< 1.11E+01	< 9.51E+00	< 7.97E+00	< 9.19E+00	< 9.76E+00	< 8.86E+00	< 9.20E+00
09/23/08	< 7.99E+00	< 8.36E+00	< 7.53E+00	< 8.84E+00	< 7.29E+00	< 8.93E+00	< 1.00E+01
09/30/08	< 9.17E+00	< 8.07E+00	< 7.93E+00	< 8.82E+00	< 8.46E+00	< 1.19E+01	< 8.31E+00
10/07/08	< 1.00E+01	< 7.85E+00	< 7.27E+00	< 7.18E+00	< 6.80E+00	< 7.58E+00	< 7.70E+00
10/14/08	< 1.28E+01	< 1.16E+01	< 1.06E+01	< 1.24E+01	< 9.73E+00	< 1.15E+01	< 8.13E+00
10/22/08	< 9.80E+00	< 1.27E+01	< 8.92E+00	< 1.06E+01	< 7.77E+00	< 1.02E+01	< 7.79E+00
10/28/08	< 1.27E+01	< 8.36E+00	< 1.20E+01	< 1.09E+01	< 1.20E+01	< 1.21E+01	< 1.00E+01
11/04/08	< 8.67E+00	< 1.13E+01	< 1.24E+01	< 1.30E+01	< 1.32E+01	< 7.73E+00	< 1.54E+01
11/12/08	< 8.70E+00	< 1.12E+01	< 1.29E+01	< 9.47E+00	< 9.10E+00	< 8.10E+00	< 1.02E+01
11/18/08	< 8.62E+00	< 1.00E+01	< 9.67E+00	< 1.18E+01	< 1.25E+01	< 8.75E+00	< 1.30E+01
11/26/08	< 1.68E+01	< 9.27E+00	< 7.99E+00	< 1.53E+01	< 1.17E+01	< 1.12E+01	< 1.08E+01
12/02/08	< 1.08E+01	< 1.34E+01	< 9.45E+00	< 1.46E+01	< 9.13E+00	< 9.40E+00	< 9.66E+00
12/09/08	< 1.04E+01	< 1.27E+01	< 9.97E+00	< 8.34E+00	< 8.88E+00	< 8.10E+00	< 9.88E+00
12/17/08	< 7.11E+00	< 5.74E+00	< 8.10E+00	< 8.54E+00	< 6.49E+00	< 8.15E+00	< 6.76E+00
12/23/08	< 1.70E+01	< 1.57E+01	< 2.02E+01	< 2.11E+01	< 1.70E+01	< 1.52E+01	< 2.20E+01
12/30/08	< 7.80E+00	< 1.22E+01	< 7.85E+00	< 1.11E+01	< 8.96E+00	< 1.29E+01	< 7.73E+00
Annual Mean					6.95 +/- 6.95		

Table 3-4
Airborne Iodine
I-131
[10^{-3} pCi/m^3]

Period Ending	Station 06	Station 07	Station 21	Station 22	Station 23	Station 24*
07/08/08	< 7.64E+00	< 9.81E+00	< 8.13E+00	< 7.33E+00	< 7.93E+00	< 1.15E+01
07/16/08	< 1.38E+01	< 1.29E+01	< 1.28E+01	< 8.89E+00	< 9.58E+00	< 1.10E+01
07/23/08	< 1.09E+01	< 9.63E+00	< 1.07E+01	< 8.75E+00	< 7.28E+00	< 9.04E+00
07/30/08	< 6.99E+00	< 7.38E+00	< 6.96E+00	< 7.00E+00	< 6.49E+00	< 7.46E+00
08/05/08	< 1.34E+01	< 1.69E+01	< 1.52E+01	< 1.18E+01	< 1.24E+01	< 1.24E+01
08/12/08	< 9.88E+00	< 1.04E+01	< 9.65E+00	< 1.07E+01	< 9.12E+00	< 9.84E+00
08/19/08	< 7.95E+00	< 9.34E+00	< 1.08E+01	< 7.61E+00	< 7.83E+00	< 7.96E+00
08/26/08	< 1.05E+01	< 1.55E+01	< 1.17E+01	< 1.20E+01	< 1.10E+01	< 9.49E+00
09/02/08	< 1.21E+01	< 1.68E+01	< 1.23E+01	< 1.77E+01	< 1.13E+01	< 1.48E+01
09/09/08	< 8.10E+00	< 1.00E+01	< 6.20E+00	< 1.06E+01	< 7.92E+00	< 7.56E+00
09/16/08	< 8.90E+00	< 9.81E+00	< 8.31E+00	< 1.27E+01	< 8.74E+00	< 8.52E+00
09/23/08	< 8.44E+00	< 1.01E+01	< 1.01E+01	< 8.89E+00	< 7.47E+00	< 1.02E+01
09/30/08	< 9.12E+00	< 6.38E+00	< 1.13E+01	< 8.52E+00	< 7.45E+00	< 6.69E+00
10/07/08	< 9.71E+00	< 9.29E+00	< 8.86E+00	< 1.05E+01	< 7.65E+00	< 8.94E+00
10/14/08	< 1.14E+01	< 8.92E+00	< 9.70E+00	< 9.60E+00	< 8.75E+00	< 1.04E+01
10/22/08	< 7.61E+00	< 1.25E+01	< 7.92E+00	< 1.08E+01	< 1.04E+01	< 8.69E+00
10/28/08	< 1.35E+01	< 9.94E+00	< 1.37E+01	< 1.02E+01	< 1.32E+01	< 1.35E+01
11/04/08	< 8.37E+00	< 1.35E+01	< 1.24E+01	< 1.44E+01	< 1.31E+01	< 1.31E+01
11/12/08	< 7.78E+00	< 8.69E+00	< 8.85E+00	< 1.01E+01	< 1.06E+01	< 9.00E+00
11/18/08	< 1.17E+01	< 7.01E+00	< 8.89E+00	< 9.85E+00	< 8.77E+00	< 1.12E+01
11/26/08	< 9.80E+00	< 1.57E+01	< 1.29E+01	< 1.14E+01	< 1.14E+01	< 9.33E+00
12/02/08	< 9.75E+00	< 1.24E+01	< 1.00E+01	< 9.99E+00	< 1.20E+01	< 9.53E+00
12/09/08	< 1.08E+01	< 1.29E+01	< 1.04E+01	< 8.96E+00	< 1.11E+01	< 9.00E+00
12/17/08	< 6.56E+00	< 8.33E+00	< 7.18E+00	< 5.84E+00	< 8.08E+00	< 6.21E+00
12/23/08	< 1.70E+01	< 1.71E+01	< 1.74E+01	< 1.89E+01	< 1.24E+01	< 1.84E+01
12/30/08	< 1.09E+01	< 8.86E+00	< 1.12E+01	< 6.71E+00	< 1.28E+01	< 8.49E+00
Annual Mean						
Indicator Mean	6.95 +/- 6.95					

* Control Station

Table 3-5
Airborne Particulate
Gamma Spectra
[pCi/m^3] x 10^{-3}

Quarter 1

Sampling Location	Be-7			Cs-134*		Cs-137*				
01	2.37E+02	+/-	3.51E+01	<	3.96E-01	<	4.51E-01			
01A	2.21E+02	+/-	3.11E+01	<	3.73E-01	<	3.21E-01			
02	2.19E+02	+/-	3.58E+01	<	7.32E-01	<	5.69E-01			
03	2.41E+02	+/-	3.40E+01	<	6.06E-01	<	4.82E-01			
04	2.24E+02	+/-	3.27E+01	<	5.24E-01	<	4.06E-01			
05	2.45E+02	+/-	3.24E+01	<	3.08E-01	<	3.93E-01			
05A	2.46E+02	+/-	4.15E+01	<	7.04E-01	<	5.20E-01			
06	2.19E+02	+/-	3.08E+01	<	4.58E-01	<	3.21E-01			
07	2.53E+02	+/-	3.61E+01	<	6.52E-01	<	4.13E-01			
21	2.42E+02	+/-	3.41E+01	<	5.62E-01	<	3.60E-01			
22	2.16E+02	+/-	3.45E+01	<	4.93E-01	<	6.73E-01			
23	2.31E+02	+/-	3.17E+01	<	4.25E-01	<	3.39E-01			
24	2.54E+02	+/-	3.47E+01	<	4.54E-01	<	4.76E-01			

Quarter 2

Sampling Location	Be-7			Cs-134*		Cs-137*		Sr-89	Sr-90
01	1.47E+02	+/-	2.36E+01	<	4.86E-01	<	5.31E-01		
01A	1.47E+02	+/-	2.19E+01	<	5.32E-01	<	4.50E-01		
02	1.52E+02	+/-	2.27E+01	<	3.78E-01	<	4.33E-01		
03	1.74E+02	+/-	2.34E+01	<	2.81E-01	<	2.96E-01		
04	1.70E+02	+/-	2.36E+01	<	4.81E-01	<	4.69E-01		
05	1.49E+02	+/-	2.51E+01	<	8.70E-01	<	7.21E-01		
05A	1.44E+02	+/-	2.20E+01	<	4.57E-01	<	3.84E-01		
06	2.01E+02	+/-	2.42E+01	<	4.45E-01	<	3.96E-01		
07	1.68E+02	+/-	2.23E+01	<	4.08E-01	<	4.32E-01		
21	1.50E+02	+/-	2.68E+01	<	6.86E-01	<	3.92E-01		
22	1.48E+02	+/-	2.20E+01	<	6.11E-01	<	4.56E-01		
23	1.69E+02	+/-	2.61E+01	<	5.80E-01	<	4.87E-01		
24	1.56E+02	+/-	2.30E+01	<	5.62E-01	<	4.54E-01		

Table 3-5
Airborne Particulate
Gamma Spectra
[10^{-3} pCi/m^3]

Quarter 3

Sampling Location	Be-7			Cs-134*		Cs-137*		
01	1.49E+02	+/-	2.27E+01	<	5.22E-01	<	4.20E-01	
01A	1.61E+02	+/-	2.45E+01	<	5.29E-01	<	3.56E-01	
02	1.37E+02	+/-	2.35E+01	<	6.55E-01	<	4.66E-01	
03	1.54E+02	+/-	2.99E+01	<	9.66E-01	<	7.45E-01	
04	1.39E+02	+/-	2.33E+01	<	6.50E-01	<	4.16E-01	
05	1.88E+02	+/-	2.71E+01	<	6.54E-01	<	5.08E-01	
05A	1.28E+02	+/-	2.04E+01	<	5.58E-01	<	4.63E-01	
06	1.48E+02	+/-	2.34E+01	<	4.34E-01	<	4.81E-01	
07	1.58E+02	+/-	2.36E+01	<	6.66E-01	<	3.88E-01	
21	1.39E+02	+/-	2.20E+01	<	4.95E-01	<	4.35E-01	
22	1.55E+02	+/-	2.32E+01	<	3.66E-01	<	4.91E-01	
23	1.51E+02	+/-	2.40E+01	<	6.36E-01	<	4.02E-01	
24	1.48E+02	+/-	2.51E+01	<	8.11E-01	<	6.94E-01	

Quarter 4

Sampling Location	Be-7			Cs-134*		Cs-137*			Be-7 Mean		
01	1.38E+02	+/-	2.02E+01	<	7.00E-01	<	4.85E-01		1.68E+02	+/-	2.54E+01
01A	1.07E+02	+/-	1.81E+01	<	5.21E-01	<	3.40E-01		1.59E+02	+/-	2.39E+01
02	1.30E+02	+/-	1.95E+01	<	6.21E-01	<	2.93E-01		1.60E+02	+/-	2.54E+01
03	1.05E+02	+/-	1.71E+01	<	5.28E-01	<	3.87E-01		1.69E+02	+/-	2.61E+01
04	1.26E+02	+/-	1.80E+01	<	5.33E-01	<	3.55E-01		1.65E+02	+/-	2.44E+01
05	1.17E+02	+/-	1.96E+01	<	7.43E-01	<	4.62E-01		1.75E+02	+/-	2.61E+01
05A	1.12E+02	+/-	1.72E+01	<	4.53E-01	<	3.63E-01		1.58E+02	+/-	2.53E+01
06	1.14E+02	+/-	1.87E+01	<	5.08E-01	<	3.92E-01		1.71E+02	+/-	2.43E+01
07	1.21E+02	+/-	1.81E+01	<	3.85E-01	<	3.09E-01		1.75E+02	+/-	2.50E+01
21	1.07E+02	+/-	1.88E+01	<	7.37E-01	<	4.69E-01		1.60E+02	+/-	2.54E+01
22	1.18E+02	+/-	1.66E+01	<	3.46E-01	<	3.72E-01		1.59E+02	+/-	2.41E+01
23	1.19E+02	+/-	1.85E+01	<	5.17E-01	<	5.23E-01		1.68E+02	+/-	2.51E+01
24*	1.18E+02	+/-	1.94E+01	<	5.88E-01	<	4.16E-01		1.69E+02	+/-	2.56E+01
								Indicator	1.65E+02	+/-	6.13E+00

*Control Station

Table 3-6
Soil
[pCi/kg]

Station	Sr-89	Sr-90	Be-7	K-40	Cs-134*	Cs-137*	AcTh-228
01							
02							
03							
04							
05*							
05A							
06							
07							
21							
22							
23							
24*							
Annual Mean							
Indicator Mean							

Soil samples collected triennially. Last collected 2007. Next samples due 2010.

*Control Station

Table 3-7
Precipitation
Gross Beta
[pCi/L]

Sampling Date	Gross Beta				Rainfall (inches)
01/30/08	1.70E+01	+/-	1.96E+00		2.41
02/27/08	2.25E+00	+/-	9.30E-01		1.65
03/25/08		<	1.11E+00		3.28
04/29/08	3.16E+02	+/-	7.94E+01		5.85
05/27/08		<	3.46E+00		5.55
06/25/08	4.57E+00	+/-	2.36E+00		4.54
07/30/08	4.69E+00	+/-	8.52E-01		3.69
08/28/08		<	2.30E+00		1.30
09/30/08		<	2.25E+00		7.22
10/28/08	4.31E+00	+/-	2.48E+00		0.94
11/26/08		<	3.48E+00		2.17
12/30/08	6.78E+00	+/-	2.23E+00		5.46
Mean	5.08E+01	+/-	8.57E+00	Total	44.06

* LLD identified in ODCM

Table 3-7
Precipitation
Gamma Spectra
[pCi/L]

Sampling Location	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Zr-95
01A	+/-	+/-	+/-	+/-	+/-	+/-

	Nb-95	Cs-134	Cs-137	Ba-140	La-140	
01A	+/-	+/-	+/-	+/-	+/-	+/-

12/30/2008

Sampling Location	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Zr-95
01A	< 2.01E+00	< 4.53E+00	< 2.03E+00	< 2.49E+00	< 3.84E+00	< 3.41E+00

	Nb-95	Cs-134	Cs-137	Ba-140	La-140	
01A	< 2.36E+00	< 2.53E+00	< 2.25E+00	< 9.99E+00	< 3.87E+00	+/-
Mean						

Table 3-8
Milk
Gamma Spectra

[pCi/L]

Station 12

Sampling Date	K-40	Sr-89	Sr-90	I-131*	Cs-134*	Cs-137*	Ba-140*	La-140*
01/17/08	1.44E+03 +/- 1.10E+02	[a]	[a]	< 9.07E-01	< 3.34E+00	< 2.84E+00	< 1.40E+01	< 3.90E+00
02/13/08	1.41E+03 +/- 1.21E+02	[a]	[a]	< 6.98E-01	< 2.40E+00	< 2.30E+00	< 9.21E+00	< 2.93E+00
03/11/08	1.35E+03 +/- 9.84E+01	< 5.97E-01	< 6.34E-01	< 7.25E-01	< 2.10E+00	< 2.02E+00	< 9.43E+00	< 2.60E+00
04/15/08	1.32E+03 +/- 1.16E+02	[a]	[a]	< 6.48E-01	< 2.67E+00	< 2.44E+00	< 1.17E+01	< 2.83E+00
05/13/08	1.45E+03 +/- 1.02E+02	[a]	[a]	< 4.48E-01	< 1.99E+00	< 1.85E+00	< 8.57E+00	< 2.85E+00
06/10/08	1.33E+03 +/- 1.00E+02	< 3.69E-01	< 3.16E-01	< 7.34E-01	< 2.69E+00	< 2.49E+00	< 1.22E+01	< 4.06E+00
07/16/08	1.37E+03 +/- 1.22E+02	[a]	[a]	< 5.46E-01	< 2.48E+00	< 2.41E+00	< 1.05E+01	< 3.38E+00
08/12/08	1.47E+03 +/- 1.29E+02	[a]	[a]	< 5.90E-01	< 3.42E+00	< 3.34E+00	< 1.49E+01	< 4.79E+00
09/16/08	1.40E+03 +/- 1.21E+02	< 4.22E-01	< 4.88E-01	< 8.36E-01	< 2.76E+00	< 2.52E+00	< 1.48E+01	< 4.19E+00
10/14/08	1.38E+03 +/- 1.04E+02	[a]	[a]	< 7.32E-01	< 2.89E+00	< 2.42E+00	< 1.29E+01	< 4.19E+00
11/12/08	1.43E+03 +/- 1.30E+02	[a]	[a]	< 8.65E-01	< 3.02E+00	< 2.56E+00	< 1.24E+01	< 3.43E+00
12/09/08	1.51E+03 +/- 1.15E+02	< 1.02E+00	< 1.20E+00	< 6.59E-01	< 2.42E+00	< 2.20E+00	< 1.01E+01	< 3.66E+00
Mean	1.41E+03 +/- 1.14E+02							

Station 13

Sampling Date	K-40	Sr-89	Sr-90	I-131*	Cs-134*	Cs-137*	Ba-140*	La-140*
01/17/08	1.34E+03 +/- 9.66E+01	[a]	[a]	< 9.81E-01	< 2.38E+00	< 2.27E+00	< 9.62E+00	< 3.24E+00
02/13/08	1.26E+03 +/- 1.38E+02	[a]	[a]	< 8.42E-01	< 2.62E+00	< 2.57E+00	< 9.96E+00	< 3.12E+00
03/11/08	1.46E+03 +/- 1.31E+02	< 6.82E-01	< 5.24E-01	< 8.74E-01	< 3.14E+00	< 2.99E+00	< 1.38E+01	< 4.55E+00
04/15/08	1.46E+03 +/- 1.08E+02	[a]	[a]	< 7.95E-01	< 2.98E+00	< 2.88E+00	< 1.26E+01	< 3.81E+00
05/13/08	1.47E+03 +/- 1.03E+02	[a]	[a]	< 4.65E-01	< 1.98E+00	< 1.73E+00	< 8.01E+00	< 2.54E+00
06/10/08	1.29E+03 +/- 9.06E+01	< 4.15E-01	< 4.80E-01	< 1.07E+00	< 2.00E+00	< 1.86E+00	< 9.67E+00	< 3.10E+00
07/16/08	1.39E+03 +/- 1.05E+02	[a]	[a]	< 6.29E-01	< 2.89E+00	< 2.59E+00	< 1.11E+01	< 3.61E+00
08/12/08	1.32E+03 +/- 1.11E+02	[a]	[a]	< 7.05E-01	< 3.29E+00	< 2.89E+00	< 1.35E+01	< 4.39E+00
09/16/08	1.31E+03 +/- 1.10E+02	< 2.84E-01	< 9.60E-01	< 8.80E-01	< 2.40E+00	< 2.17E+00	< 1.40E+01	< 3.99E+00
10/14/08	1.33E+03 +/- 1.22E+02	[a]	[a]	< 7.68E-01	< 3.23E+00	< 2.97E+00	< 1.68E+01	< 5.50E+00
11/12/08	1.26E+03 +/- 9.50E+01	[a]	[a]	< 7.93E-01	< 2.75E+00	< 2.21E+00	< 1.10E+01	< 3.38E+00
12/09/08	1.55E+03 +/- 1.26E+02	< 7.46E-01	< 1.06E+00	< 5.89E-01	< 3.65E+00	< 3.14E+00	< 4.91E+00	< 4.91E+00
Mean	1.37E+03 +/- 1.11E+02							
Indicator Mean	1.39E+03 +/- 1.13E+02							

* LLD identified in ODCM

[a] Sr-89/90 analyses performed on the last monthly sample of each quarter.

Table 3-9
Food and Vegetation
Gamma Spectra
[pCi/kg]

Sampling Location	Sampling Date	Be-7	K-40	I-131*	Cs-134*	Cs-137*
14	05/20/08	9.81E+02 +/- 1.28E+02	3.36E+03 +/- 3.16E+02	< 1.62E+01	< 9.53E+00	< 8.87E+00
	06/17/08	6.30E+02 +/- 1.28E+02	2.85E+03 +/- 3.19E+02	< 2.24E+01	< 1.44E+01	< 1.32E+01
	07/23/08	2.20E+03 +/- 2.28E+02	2.91E+03 +/- 3.76E+02	< 2.28E+01	< 1.62E+01	< 1.37E+01
	08/19/08	9.13E+02 +/- 1.31E+02	4.02E+03 +/- 4.12E+02	< 1.95E+01	< 1.64E+01	< 1.44E+01
	09/23/08	7.37E+02 +/- 1.30E+02	3.85E+03 +/- 3.90E+02	< 1.85E+01	< 1.91E+01	< 1.49E+01
	10/22/08	2.06E+03 +/- 1.97E+02	4.27E+03 +/- 3.55E+02	< 5.32E+01	< 1.37E+01	< 1.06E+01
	Mean	1.25E+03 +/- 1.57E+02	3.54E+03 +/- 3.61E+02			

Sampling Location	Sampling Date	Be-7	K-40	I-131*	Cs-134*	Cs-137*
14a	10/22/08	2.09E+03 +/- 2.32E+02	3.37E+03 +/- 3.86E+02	< 7.59E+01	< 1.76E+01	< 1.41E+01
	Mean	2.09E+03 +/- 2.32E+02	3.37E+03 +/- 3.86E+02			

Sampling Location	Sampling Date	Be-7	K-40	I-131*	Cs-134*	Cs-137*
15	05/20/08	1.18E+03 +/- 1.30E+02	3.52E+03 +/- 3.27E+02	< 1.84E+01	< 1.04E+01	< 1.05E+01
	06/17/08	6.46E+02 +/- 1.44E+02	6.85E+03 +/- 5.62E+02	< 2.20E+01	< 1.11E+01	< 1.24E+01
	07/23/08	1.30E+03 +/- 1.63E+02	3.87E+03 +/- 3.96E+02	< 2.11E+01	< 1.65E+01	< 1.38E+01
	08/19/08	1.11E+03 +/- 1.80E+02	4.48E+03 +/- 4.72E+02	< 2.16E+01	< 1.82E+01	< 1.59E+01
	09/23/08	6.74E+02 +/- 1.31E+02	7.41E+03 +/- 6.20E+02	< 2.06E+01	< 1.97E+01	< 1.58E+01
	10/22/08	7.02E+02 +/- 1.05E+02	4.09E+03 +/- 3.51E+02	< 4.81E+01	< 1.27E+01	< 9.37E+00
	Mean	9.35E+02 +/- 1.42E+02	5.04E+03 +/- 4.55E+02			

Sampling Location	Sampling Date	Be-7	K-40	I-131*	Cs-134*	Cs-137*
16**	05/20/08	6.27E+02 +/- 9.09E+01	4.31E+03 +/- 3.58E+02	< 1.65E+01	< 8.57E+00	< 7.54E+00
	06/17/08	6.11E+02 +/- 1.14E+02	4.33E+03 +/- 4.84E+02	< 2.43E+01	< 1.64E+01	< 1.36E+01
	07/23/08	7.23E+02 +/- 9.93E+01	3.72E+03 +/- 3.25E+02	< 1.56E+01	< 1.19E+01	< 1.11E+01
	08/19/08	9.41E+02 +/- 1.29E+02	4.77E+03 +/- 4.14E+02	< 1.92E+01	< 1.49E+01	< 1.42E+01
	09/23/08	3.44E+02 +/- 9.14E+01	6.60E+03 +/- 5.18E+02	< 1.48E+01	< 1.36E+01	< 1.16E+01
	10/22/08	1.25E+03 +/- 1.33E+02	5.11E+03 +/- 3.81E+02	< 4.50E+01	< 1.13E+01	< 9.37E+00
	Mean	7.49E+02 +/- 1.10E+02	4.81E+03 +/- 4.13E+02			

* LLD identified in ODCM

** Control Station.

Table 3-9
Food and Vegetation
Gamma Spectra
[pCi/kg]

Sampling Location	Sampling Date	Be-7			K-40			I-131*	Cs-134*	Cs-137*
23	05/20/08	4.42E+02	+/-	1.33E+02	3.78E+03	+/-	3.54E+02	< 2.28E+01	< 1.51E+01	< 1.32E+01
	06/17/08	6.70E+02	+/-	1.37E+02	2.94E+03	+/-	3.66E+02	< 2.54E+01	< 2.09E+01	< 1.60E+01
	07/23/08	1.46E+03	+/-	1.90E+02	2.91E+03	+/-	3.75E+02	< 2.51E+01	< 2.28E+01	< 1.67E+01
	08/19/08	1.80E+03	+/-	2.23E+02	4.50E+03	+/-	4.73E+02	< 2.48E+01	< 2.68E+01	< 1.84E+01
	09/23/08	7.44E+02	+/-	1.41E+02	5.76E+03	+/-	4.97E+02	< 1.62E+01	< 1.81E+01	< 1.21E+01
	10/22/08	1.42E+03	+/-	1.35E+02	3.09E+03	+/-	2.66E+02	< 4.58E+01	< 1.46E+01	< 9.59E+00
	Mean	1.09E+03	+/-	1.60E+02	3.83E+03	+/-	3.89E+02			

Sampling Location	Sampling Date	Be-7			K-40			I-131*	Cs-134*	Cs-137*
26	05/20/08	1.07E+03	+/-	1.44E+02	3.34E+03	+/-	3.14E+02	< 2.35E+01	< 1.15E+01	< 1.09E+01
	06/17/08	8.76E+02	+/-	1.87E+02	3.14E+03	+/-	3.78E+02	< 2.76E+01	< 2.25E+01	< 2.00E+01
	07/23/08	1.45E+03	+/-	1.99E+02	3.08E+03	+/-	3.82E+02	< 2.55E+01	< 1.79E+01	< 1.75E+01
	08/19/08	1.31E+03	+/-	2.27E+02	4.96E+03	+/-	6.00E+02	< 3.02E+01	< 2.50E+01	< 2.07E+01
	09/23/08	9.81E+02	+/-	1.17E+02	2.88E+03	+/-	2.94E+02	< 1.28E+01	< 1.28E+01	< 1.02E+01
	10/22/08	4.12E+02	+/-	9.64E+01	2.07E+03	+/-	2.28E+02	< 5.50E+01	< 1.31E+01	< 1.05E+01
	Mean	1.02E+03	+/-	1.62E+02	3.25E+03	+/-	3.66E+02			
	Mean Indicator	1.11E+03	+/-	1.58E+02	3.89E+03	+/-	3.92E+02			
	Control	7.49E+02	+/-	1.10E+02	4.81E+03	+/-	4.13E+02			

* LLD identified in ODCM

Table 3-10
Well Water
Gamma Spectra, Strontium, and Tritium
[pCi/L]

Sampling Date	H-3	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Sr-89	Station 01A Sr-90
03/25/08	< 3.13E+02	< 2.07E+00	< 4.13E+00	< 2.12E+00	< 2.00E+00	< 4.30E+00	[a]	[a]
06/25/08	< 4.55E+02	< 1.43E+00	< 3.22E+00	< 1.58E+00	< 1.43E+00	< 3.29E+00	< 1.36E+00	< 9.87E-01
09/29/08	< 4.75E+02	< 2.43E+00	< 4.82E+00	< 2.43E+00	< 2.66E+00	< 5.18E+00	[a]	[a]
12/30/08	< 4.26E+02	< 2.82E+00	< 6.20E+00	< 2.77E+00	< 2.94E+00	< 5.91E+00	[a]	[a]
Mean								

Sampling Date	Zr-95	Nb-95	I-131	Cs-134	Cs-137	Ba-140	La-140
03/25/08	< 3.64E+00	< 2.39E+00	< 7.08E-01	< 2.21E+00	< 2.18E+00	< 9.74E+00	< 3.71E+00
06/25/08	< 2.74E+00	< 1.82E+00	< 8.78E-01	< 1.69E+00	< 1.52E+00	< 9.93E+00	< 3.51E+00
09/29/08	< 4.32E+00	< 3.25E+00	< 7.35E-01	< 2.87E+00	< 2.68E+00	< 1.29E+01	< 4.31E+00
12/30/08	< 5.08E+00	< 3.35E+00	< 7.35E-01	< 3.53E+00	< 3.05E+00	< 1.43E+01	< 5.16E+00
Mean							

[a] Sr-89/90 analyses performed on the second quarter sample.

Table 3-11
River Water
Gamma Spectra, Strontium, and Tritium
[pCi/L]

Station 11

Sampling Date	H-3	Mn-54	Fe-59	Co-58	Co-60	Zn-65	Sr-89	Sr-90
01/14/08	[a]	< 1.52E+00	< 3.32E+00	< 1.57E+00	< 1.62E+00	< 3.13E+00		
02/14/08	[a]	< 1.86E+00	< 3.68E+00	< 1.57E+00	< 2.16E+00	< 3.72E+00		
03/11/08	3.89E+03 +/- 5.06E+02	< 1.75E+00	< 3.57E+00	< 1.75E+00	< 1.93E+00	< 3.54E+00		
04/15/08	[a]	< 1.81E+00	< 3.49E+00	< 1.60E+00	< 2.02E+00	< 3.42E+00		
05/13/08	[a]	< 1.99E+00	< 4.07E+00	< 1.99E+00	< 2.23E+00	< 4.04E+00		
06/11/08	2.85E+03 +/- 4.42E+02	< 1.74E+00	< 3.65E+00	< 1.81E+00	< 2.06E+00	< 3.55E+00		
07/15/08	[a]	< 1.64E+00	< 3.36E+00	< 1.84E+00	< 1.72E+00	< 3.31E+00		
08/12/08	[a]	< 1.71E+00	< 3.53E+00	< 1.71E+00	< 2.14E+00	< 3.43E+00		
09/16/08	3.81E+03 +/- 2.91E+02	< 1.95E+00	< 4.65E+00	< 2.03E+00	< 2.11E+00	< 4.21E+00		
10/14/08	[a]	< 1.24E+00	< 2.76E+00	< 1.28E+00	< 1.27E+00	< 2.74E+00		
11/12/08	[a]	< 1.61E+00	< 3.43E+00	< 1.63E+00	< 1.62E+00	< 3.50E+00		
12/16/08	4.10E+03 +/- 5.39E+02	< 1.35E+00	< 2.97E+00	< 1.26E+00	< 1.39E+00	< 2.85E+00		
Mean	3.66E+03 +/- 4.45E+02							

Sampling Date	Zr-95	Nb-95	I-131	Cs-134	Cs-137	Ba-140	La-140
01/14/08	< 2.75E+00	< 1.70E+00	< 9.67E-01	< 1.62E+00	< 1.66E+00	< 8.03E+00	< 2.45E+00
02/14/08	< 3.17E+00	< 2.11E+00	< 9.08E-01	< 2.11E+00	< 1.78E+00	< 8.02E+00	< 2.59E+00
03/11/08	< 3.22E+00	< 2.01E+00	< 9.09E-01	< 1.97E+00	< 1.85E+00	< 8.82E+00	< 3.38E+00
04/15/08	< 2.87E+00	< 1.85E+00	< 9.26E-01	< 1.75E+00	< 1.86E+00	< 8.86E+00	< 3.42E+00
05/13/08	< 3.43E+00	< 2.09E+00	< 5.09E-01	< 2.38E+00	< 2.22E+00	< 7.73E+00	< 2.79E+00
06/11/08	< 3.04E+00	< 1.84E+00	< 7.81E-01	< 1.91E+00	< 1.82E+00	< 8.80E+00	< 2.89E+00
07/15/08	< 3.13E+00	< 1.97E+00	< 4.53E-01	< 1.97E+00	< 1.99E+00	< 8.57E+00	< 2.84E+00
08/12/08	< 2.95E+00	< 1.75E+00	< 6.17E-01	< 1.80E+00	< 2.09E+00	< 8.45E+00	< 2.72E+00
09/16/08	< 3.47E+00	< 2.45E+00	< 4.84E-01	< 2.16E+00	< 2.20E+00	< 1.26E+01	< 4.69E+00
10/14/08	< 2.30E+00	< 1.58E+00	< 8.06E-01	< 1.55E+00	< 1.38E+00	< 7.90E+00	< 2.41E+00
11/12/08	< 2.93E+00	< 1.72E+00	< 6.98E-01	< 1.76E+00	< 1.61E+00	< 7.90E+00	< 3.05E+00
12/16/08	< 2.37E+00	< 1.60E+00	< 4.64E-01	< 1.69E+00	< 1.47E+00	< 7.77E+00	< 2.85E+00
Mean							

* LLD identified in ODCM
[a] Tritium analyses on quarterly composite.

Table 3-12
Surface Water
Gamma Spectra, Strontium, Tritium
[pCi/L]

Station 08

Sampling Date	H-3*	Mn-54*	Fe-59*	Co-58*	Co-60*	Zn-65*	Sr-89	Sr-90
01/14/08	[a]	< 1.52E+00	< 3.73E+00	< 1.69E+00	< 1.79E+00	< 3.35E+00	[a]	[a]
02/14/08	[a]	< 2.03E+00	< 4.23E+00	< 2.05E+00	< 2.14E+00	< 4.04E+00	[a]	[a]
03/11/08	3.58E+03 +/- 4.95E+02	< 1.79E+00	< 3.65E+00	< 1.81E+00	< 1.96E+00	< 3.37E+00	[a]	[a]
04/15/08	[a]	< 1.77E+00	< 3.48E+00	< 1.69E+00	< 1.72E+00	< 3.25E+00	[a]	[a]
05/13/08	[a]	< 1.62E+00	< 3.26E+00	< 1.43E+00	< 1.62E+00	< 3.36E+00	[a]	[a]
06/11/08	2.73E+03 +/- 4.36E+02	< 1.79E+00	< 4.02E+00	< 1.71E+00	< 2.02E+00	< 3.99E+00	[a]	[a]
07/15/08	[a]	< 1.71E+00	< 3.25E+00	< 1.73E+00	< 1.76E+00	< 3.24E+00	[a]	[a]
08/12/08	[a]	< 2.00E+00	< 4.10E+00	< 2.02E+00	< 2.17E+00	< 3.91E+00	[a]	[a]
09/16/08	3.88E+03 +/- 2.92E+02	< 1.99E+00	< 4.65E+00	< 2.07E+00	< 2.10E+00	< 4.62E+00	[a]	[a]
10/14/08	[a]	< 1.63E+00	< 3.52E+00	< 1.64E+00	< 1.80E+00	< 3.13E+00	[a]	[a]
11/12/08	[a]	< 1.57E+00	< 3.08E+00	< 1.55E+00	< 1.69E+00	< 3.05E+00	[a]	[a]
12/16/08	4.14E+03 +/- 5.52E+02	< 1.27E+00	< 2.78E+00	< 1.41E+00	< 1.39E+00	< 2.70E+00	[a]	[a]
Mean	3.58E+03 +/- 4.44E+02							

Sampling Date	Zr-95*	Nb-95*	I-131*	Cs-134*	Cs-137*	Ba-140*	La-140*
01/14/08	< 2.77E+00	< 1.87E+00	< 1.05E+00	< 1.86E+00	< 1.75E+00	< 8.71E+00	< 3.27E+00
02/14/08	< 3.39E+00	< 2.10E+00	< 7.63E-01	< 2.03E+00	< 2.09E+00	< 8.71E+00	< 2.94E+00
03/11/08	< 3.11E+00	< 1.92E+00	< 8.86E-01	< 1.89E+00	< 1.79E+00	< 8.22E+00	< 2.82E+00
04/15/08	< 3.04E+00	< 2.03E+00	< 5.18E-01	< 1.83E+00	< 1.74E+00	< 8.19E+00	< 2.84E+00
05/13/08	< 2.79E+00	< 1.70E+00	< 4.45E-01	< 1.78E+00	< 1.67E+00	< 6.58E+00	< 2.08E+00
06/11/08	< 3.24E+00	< 1.85E+00	< 5.63E-01	< 1.98E+00	< 1.80E+00	< 8.89E+00	< 3.15E+00
07/15/08	< 2.70E+00	< 1.86E+00	< 6.81E-01	< 1.86E+00	< 1.74E+00	< 7.81E+00	< 2.37E+00
08/12/08	< 3.37E+00	< 2.15E+00	< 4.46E-01	< 2.04E+00	< 2.18E+00	< 9.11E+00	< 3.29E+00
09/16/08	< 3.92E+00	< 2.40E+00	< 4.60E-01	< 2.33E+00	< 2.27E+00	< 1.28E+01	< 4.13E+00
10/14/08	< 2.83E+00	< 1.78E+00	< 7.98E-01	< 1.84E+00	< 2.17E+00	< 9.52E+00	< 3.82E+00
11/12/08	< 2.82E+00	< 1.93E+00	< 7.40E-01	< 2.08E+00	< 1.61E+00	< 7.97E+00	< 2.94E+00
12/16/08	< 2.35E+00	< 1.54E+00	< 9.47E-01	< 1.70E+00	< 1.33E+00	< 7.59E+00	< 2.79E+00
Mean							

* LLD identified in ODCM
[a] Tritium analyses on quarterly composite.

Table 3-12
Surface Water
Gamma Spectra, Strontium, Tritium
[pCi/L]

Station 09A**

Sampling Date	H-3*	Mn-54*	Fe-59*	Co-58*	Co-60*	Zn-65*	Sr-89	Sr-90
01/14/08	[a]	< 1.29E+00	< 2.77E+00	< 1.20E+00	< 1.31E+00	< 2.55E+00		
02/14/08	[a]	< 1.67E+00	< 3.38E+00	< 1.71E+00	< 1.75E+00	< 3.44E+00		
03/11/08	< 4.82E+02	< 1.50E+00	< 3.12E+00	< 1.45E+00	< 1.69E+00	< 3.34E+00		
04/15/08	[a]	< 1.66E+00	< 3.57E+00	< 1.71E+00	< 1.88E+00	< 3.34E+00		
05/13/08	[a]	< 1.40E+00	< 2.72E+00	< 1.45E+00	< 1.77E+00	< 3.07E+00		
06/11/08	< 4.59E+02	< 2.31E+00	< 4.86E+00	< 2.40E+00	< 2.73E+00	< 5.08E+00		
07/15/08	[a]	< 1.82E+00	< 3.97E+00	< 1.83E+00	< 1.99E+00	< 3.67E+00		
08/12/08	[a]	< 2.03E+00	< 4.14E+00	< 2.00E+00	< 2.26E+00	< 4.23E+00		
09/16/08	< 8.61E+01	< 1.84E+00	< 3.88E+00	< 2.09E+00	< 2.14E+00	< 3.66E+00		
10/14/08	[a]	< 1.45E+00	< 3.07E+00	< 1.54E+00	< 1.55E+00	< 3.15E+00		
11/12/08	[a]	< 1.81E+00	< 3.93E+00	< 1.68E+00	< 1.85E+00	< 3.44E+00		
12/16/08	< 2.82E+02	< 1.47E+00	< 3.15E+00	< 1.50E+00	< 1.53E+00	< 3.09E+00		
Mean								

Sampling Date	Zr-95*	Nb-95*	I-131*	Cs-134*	Cs-137*	Ba-140*	La-140*
01/14/08	< 2.11E+00	< 1.32E+00	< 7.42E-01	< 1.39E+00	< 1.28E+00	< 6.33E+00	< 2.45E+00
02/14/08	< 2.83E+00	< 1.59E+00	< 9.12E-01	< 1.96E+00	< 1.82E+00	< 7.17E+00	< 2.47E+00
03/11/08	< 2.80E+00	< 1.69E+00	< 9.20E-01	< 1.59E+00	< 1.53E+00	< 7.46E+00	< 2.30E+00
04/15/08	< 3.12E+00	< 1.95E+00	< 7.52E-01	< 1.83E+00	< 1.74E+00	< 9.18E+00	< 3.01E+00
05/13/08	< 2.54E+00	< 1.45E+00	< 3.18E-01	< 1.68E+00	< 1.49E+00	< 6.02E+00	< 2.22E+00
06/11/08	< 4.59E+00	< 2.65E+00	< 5.35E-01	< 2.73E+00	< 2.58E+00	< 1.19E+01	< 4.06E+00
07/15/08	< 3.08E+00	< 2.19E+00	< 6.10E-01	< 2.28E+00	< 2.14E+00	< 8.36E+00	< 3.32E+00
08/12/08	< 3.37E+00	< 2.25E+00	< 4.70E-01	< 2.22E+00	< 2.17E+00	< 9.58E+00	< 3.26E+00
09/16/08	< 3.71E+00	< 2.16E+00	< 6.98E-01	< 2.08E+00	< 1.94E+00	< 1.13E+01	< 3.82E+00
10/14/08	< 2.62E+00	< 1.43E+00	< 7.87E-01	< 1.85E+00	< 1.45E+00	< 8.59E+00	< 3.19E+00
11/12/08	< 3.18E+00	< 1.88E+00	< 5.02E-01	< 2.12E+00	< 2.03E+00	< 9.16E+00	< 3.11E+00
12/16/08	< 2.60E+00	< 1.69E+00	< 6.01E-01	< 1.82E+00	< 1.54E+00	< 8.49E+00	< 2.50E+00
Mean	+/- 3.12E+00	+/- 1.38E+00					

* LLD identified in ODCM
** Control Location
[a] Tritium analyses on quarterly composite.

Table 3-13
Sediment Silt
Gamma Spectra, and Strontium
[pCi/Kg]

Sample Date	Sr-89	Sr-90	K-40	Cs-134*	Cs-137*
03/11/2008					
Station 08	[a]	[a]	7.22E+03 +/- 7.39E+02	< 2.83E+01	< 1.97E+01
Station 09A**	[a]	[a]	8.11E+03 +/- 7.40E+02	< 1.98E+01	< 2.00E+01
Station 11	[a]	[a]	1.12E+04 +/- 8.46E+02	< 2.60E+01	2.12E+01 +/- 1.54E+01

Sample Date	Sr-89	Sr-90	K-40	Cs-134*	Cs-137*
10/20/2008					
Station 08	< 3.16E+02	< 9.11E+02	4.69E+03 +/- 9.53E+02	< 9.63E+01	< 5.72E+01
Station 09A**	< 3.93E+02	< 7.12E+02	1.28E+04 +/- 2.01E+03	< 1.28E+02	1.20E+02 +/- 6.34E+01
Station 11	< 3.70E+02	< 1.13E+03	1.81E+04 +/- 2.35E+03	< 1.10E+02	< 6.97E+01

Mean	Sr-89	Sr-90	K-40	Cs-134*	Cs-137*
Station 08	+/-	+/-	5.96E+03 +/- 8.46E+02	+/-	+/-
Station 09A**	+/-	+/-	1.05E+04 +/- 1.38E+03	+/-	1.20E+02 +/- 6.34E+01
Station 11	+/-	+/-	1.47E+04 +/- 1.60E+03	+/-	2.12E+01 +/- 1.54E+01
Indicator Mean			1.03E+04 +/- 1.22E+03		2.12E+01 +/- 1.54E+01

* LLD identified in ODCM
** Control Station
[a] Sr-89/90 analyses performed annually.

Table 3-14
Shoreline Soil
Gamma Spectra, and Strontium
[pCi/Kg]

Sample Date	Sr-89	Sr-90	K-40	Cs-134	Cs-137
03/11/2008					
Station 08	[a]	[a]	2.24E+03 +/- 3.35E+02	< 2.45E+01	< 1.97E+01
Sample Date					
10/20/2008					
Station 08	< 3.29E+02	< 6.72E+02	3.73E+03 +/- 9.38E+02	< 8.72E+01	< 7.58E+01
Mean			2.99E+03 +/- 6.37E+02		

* LLD identified in ODCM
[a] Sr-89/90 analyses performed annually.

Table 3-15
Fish
Gamma Spectra
[pCi/Kg]

Sampling Date	K-40	Mn-54*	Fe-59*	Co-58*	Co-60*	Zn-65*	Cs-134*	Fish [a] Station 08 Cs-137*
03/12/08		< 4.58E+01	< 1.38E+02	< 5.89E+01	< 5.99E+01	< 1.11E+02	< 6.30E+01	< 5.05E+01
10/21/08	1.49E+03 +/- 2.14E+02	< 1.23E+01	< 4.08E+01	< 1.68E+01	< 1.17E+01	< 2.82E+01	< 1.62E+01	< 1.43E+01
								+/- 5.05E+01

Sampling Date	K-40	Mn-54*	Fe-59*	Co-58*	Co-60*	Zn-65*	Cs-134*	Fish [a] Station 25** Cs-137*
03/12/08		< 8.15E+01	< 2.37E+02	< 9.78E+01	< 8.80E+01	< 1.89E+02	< 8.95E+01	< 8.43E+01
10/22/08	1.58E+03 +/- 2.22E+02	< 1.02E+01	< 3.08E+01	< 1.20E+01	< 1.15E+01	< 2.17E+01	< 1.12E+01	< 1.03E+01

Sampling Date	K-40	Mn-54*	Fe-59*	Co-58*	Co-60*	Zn-65*	Cs-134*	Catfish [b] Station 08 Cs-137*
03/12/08		< 4.41E+01	< 1.02E+02	< 4.73E+01	< 4.32E+01	< 6.57E+01	< 4.86E+01	< 4.34E+01
10/29/08	1.51E+03 +/- 2.11E+02	< 1.00E+01	< 3.21E+01	< 1.23E+01	< 1.19E+01	< 2.01E+01	< 1.41E+01	< 1.55E+01

Sampling Date	K-40	Mn-54*	Fe-59*	Co-58*	Co-60*	Zn-65*	Cs-134*	Catfish [b] Station 25** Cs-137*
03/18/08		< 5.74E+01	< 1.24E+02	< 5.54E+01	< 5.30E+01	< 1.14E+02	< 5.58E+01	< 5.08E+01
10/22/08	1.38E+03 +/- 2.11E+02	< 1.26E+01	< 3.96E+01	< 1.41E+01	< 1.41E+01	< 3.07E+01	< 1.31E+01	< 1.19E+01

Mean	
Indicator	1.50E+03 +/- 2.13E+02
Control	1.48E+03 +/- 2.17E+02

* LLD identified in ODCM
** Control Station
[a] Non-bottom dwelling species of gamefish.
[b] Bottom dwelling species of fish.

4. DISCUSSION OF RESULTS

Data from the radiological analyses of environmental media collected during 2008 and tabulated in Section 3, are discussed below. Except for TLDs, GEL analyzed all samples throughout the year. The procedures and specifications followed for these analyses are as required in the GEL quality assurance manuals and laboratory procedures. In addition to internal quality control measurements performed by each laboratory, they also participate in an Interlaboratory Comparison Program. Participation in this program ensures that independent checks on the precision and accuracy of the measurements of radioactive material in environmental samples are performed. The results of the Interlaboratory Comparison Programs are provided in Appendix B.

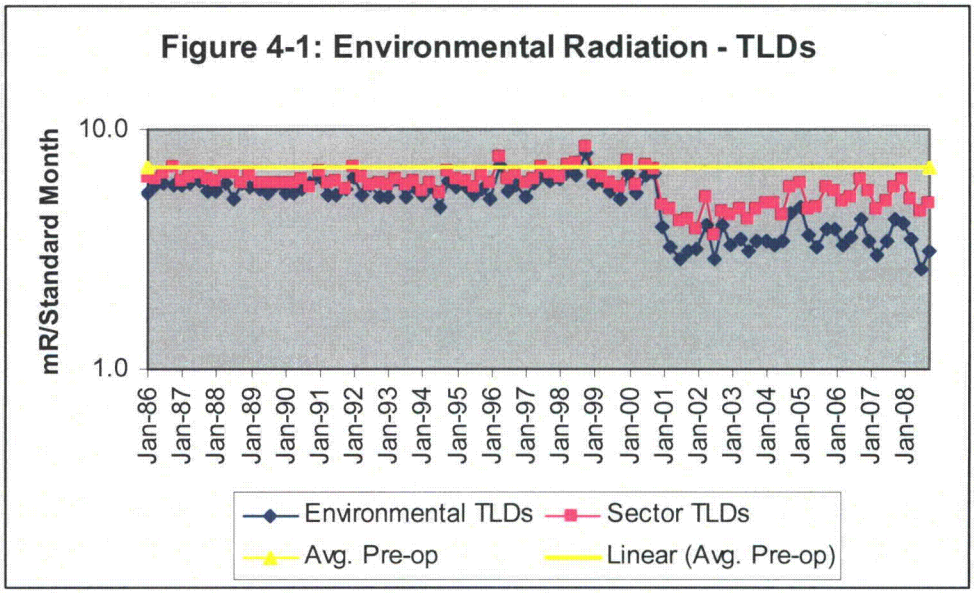
The predominant radioactivity detected throughout 2008 was that from external sources, such as fallout from nuclear weapons tests and naturally occurring radionuclides. Naturally occurring nuclides such as Be-7, K-40, and Th-228 were detected in numerous samples. Th-228 results were variable and are generally at levels higher than plant related radionuclides.

The following is a discussion and summary of the results of the environmental measurements taken during the 2008 reporting period.

4.1 Gamma Exposure Rate

A thermoluminescent dosimeter (TLD) is an inorganic crystal used to detect ambient radiation. TLDs are placed in two concentric rings around the station. The inner ring is located at the site boundary, and the outer ring is located at approximately five miles from the station. TLDs are also placed in special interest areas, such as population areas and nearby residences. Additional TLDs serve as controls. Ambient radiation comes from naturally occurring radioisotopes in the air and soil, radiation from cosmic origin, fallout from nuclear weapons testing, station effluents and direct radiation from the station.

The results of the analyses are presented in Table 3-2. Figure 4-1 shows the historical trend of TLD exposure rate measurements. Control and indicator averages indicate a steady relationship. Two dosimeters made of CaF and LiF sensitive elements are deployed at each sampling location. These TLDs replaced the previously used CaSO4:Dy in Teflon TLDs in January 2001. The dose with the replacement TLDs is lower than that of the previously used TLDs. This will continue to be monitored.



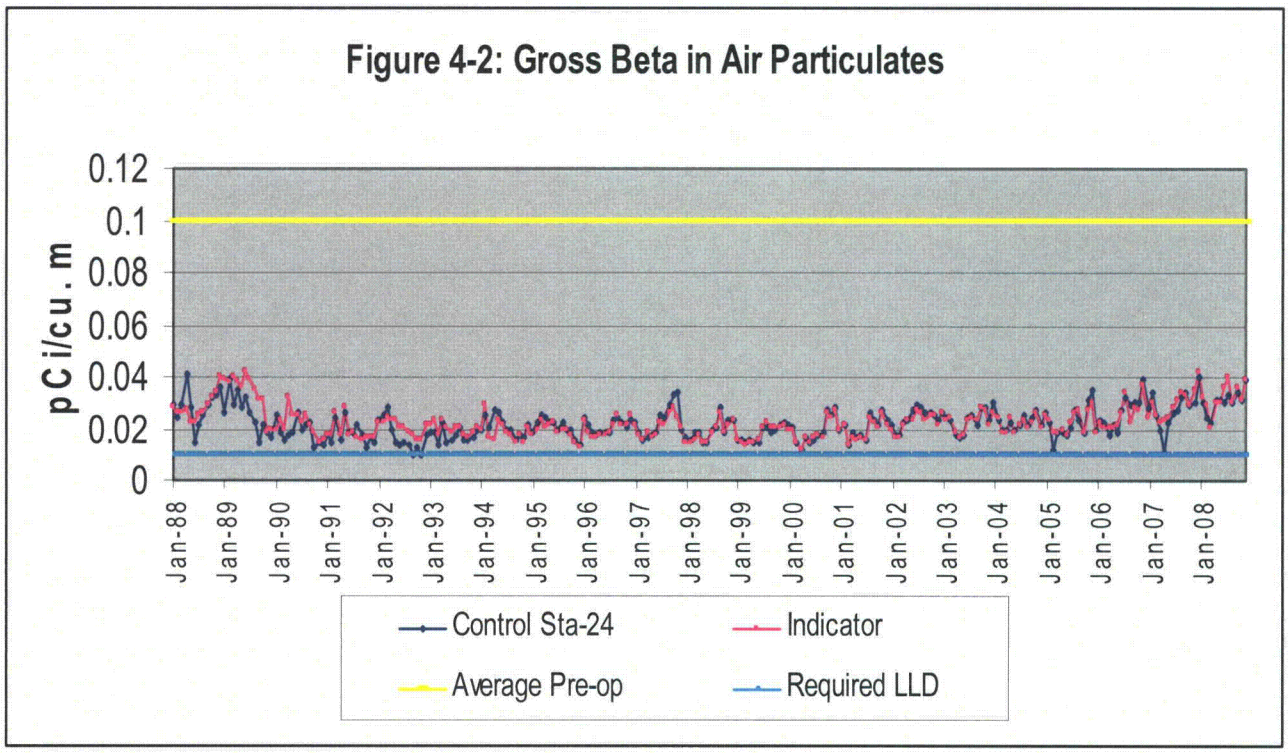
Sector TLDs are deployed quarterly at thirty-two locations in the environs of the North Anna site. Two badges are placed at each location. The average level of the 32 locations (two badges at each location) was 5.2 mR/standard month with a range of 1.1 to 46.9 mR/standard month. The highest quarterly average reading for any single location was obtained at location SSW-19/51. This value was 34.0 mR/standard month. This location is on site directly across the access road from the Independent Spent Fuel Storage Facility. The higher values can thus be attributed to the spent fuel stored in the ISFSI. Quarterly and annual TLDs are also located at each of the twelve environmental air sampling stations. For the twelve locations within 10 miles of the station the average quarterly reading was 3.3 mR/standard month with a range of 1.6 to 5.8 mR/standard month. The average annual reading for these locations was 3.2 mR/standard month with a range of from 1.9 to 4.8 mR/standard month. The control location showed a quarterly average of 2.9 mR/standard month with a range of 2.0 to 4.2 mR/standard month. Its annual reading was 2.9 mR/standard month. 10 emergency sector TLDs, which are all located onsite had a quarterly average of 5.1 mR/standard month with EPSP-9/10 having the highest quarterly average of 7.3 mR/standard month. Eight other TLDs, designated C-1 thru C-8, which were pre-operational controls, were collected quarterly from four locations. Stations C-3/4 and C-7/8 are designated controls. These had a quarterly average of 3.3, while Station C-1/2 and C-5/6 had a quarterly average of 2.6 mR/standard month with a range of 1.6 to 4.8 mR/standard month. During the pre-operational period (starting in 1977) the doses were measured between 4.3 and 8.8 mR/standard month.

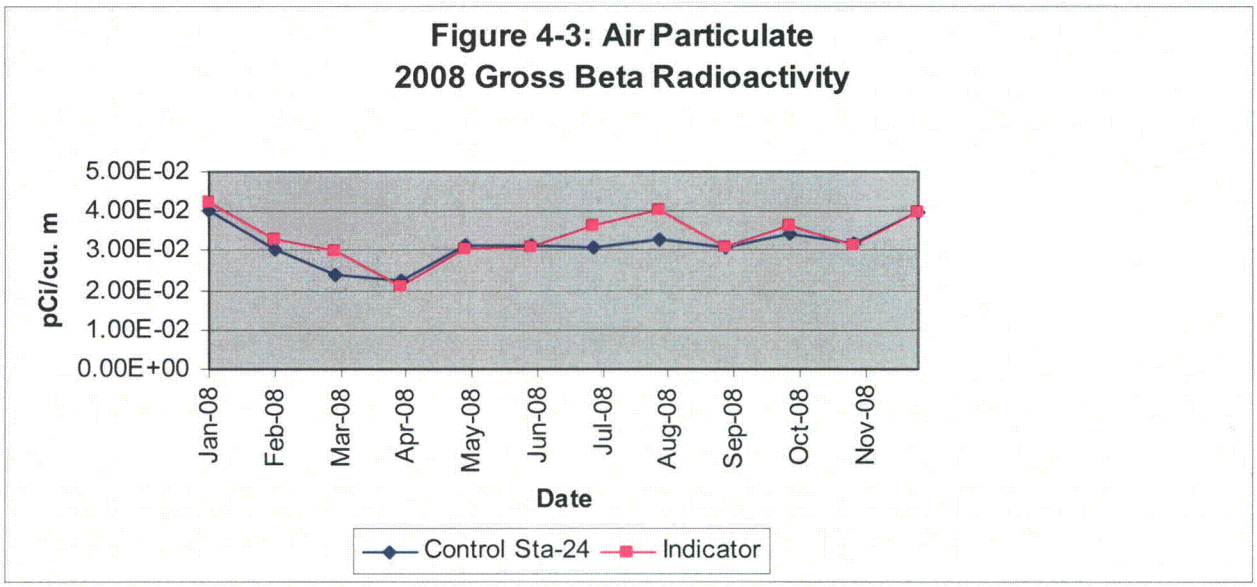
4.2 Airborne Gross Beta

Results of the weekly gross beta analyses are presented in Table 3-3. A review of the historical plot in Figure 4-2, indicates gross beta activity levels have remained relatively unchanged. Inner and outer ring monitoring locations continue to show no significant variation in measured activities (see Figure 4-3). This indicates that any station contribution is not measurable.

Gross beta activity found during the pre-operational and early operating period of North Anna Power Station was higher because of nuclear weapons testing. During that time, nearly 740 nuclear weapons were tested worldwide. In 1985 weapons testing ceased, and with the exception of the Chernobyl accident in 1986, airborne gross beta results have remained steady. During the preoperational period of July 1, 1974 through March 31, 1978 gross beta activities ranged from a low of 0.005 pCi/m^3 to a high of 0.75 pCi/m^3.

One set of samples, taken 07/01/08, were lost by the carrier during delivery to the vendor.





4.3 Airborne Radioiodine

Charcoal cartridges are used to collect airborne radioiodine. Once a week the samples are collected and analyzed. The results of the analyses are presented in Table 3-4. One result was above the minimum detectable activity however, none of the results are considered true positives. An investigation showed no releases of iodine I-131 in gaseous effluents during these periods. These results are similar to pre-operational data and the results of samples taken prior to and after the 1986 accident in the Soviet Union at Chernobyl.

4.4 Air Particulate Gamma

The air particulate filters that are utilized for the weekly gross beta analyses are composited by location and analyzed quarterly by gamma spectrometry. The results are listed in Table 3-5. The results indicate the presence of naturally occurring Be-7, which is produced by cosmic processes. Examination of pre-operational data indicates comparable measurements of Be-7, as would be expected. No other positive results were seen. These analyses indicate the lack of station effects on the environment.

4.5 Air Particulate Strontium

Strontium-89 and 90 analyses were not performed on the second quarter composites of air particulate filters from all monitoring stations as required. The request was made to the vendor for performance of these analyses, however, the vendor failed to perform them. The samples were discarded by the vendor before

the analyses could be performed. There has been no detection of these fission products at any of the indicator or control stations in recent years.

4.6 Soil

Soil samples, which are collected every three years from twelve stations, were collected in 2007 and thus were not collected in 2008.

4.7 Precipitation

A sample of rain water was collected monthly at on-site station 01A and analyzed for gross beta activity. The results are presented in Table 3-7. Twelve (12) precipitation samples were obtained in 2008. Seven (7) of the twelve precipitation samples showed detectable results in 2008. The average annual gross beta activity was 50.8 pCi/liter with a range from 2.25 to 316 pCi/liter. The 316 pCi/L was considered an anomalous result. The vendor verified the calculations re-analyzed the sample and the same result was obtained. No unusual gaseous effluents were reported during the month of the anomalous result. Semi-annual composites are prepared and analyzed for gamma emitting isotopes in accordance with program requirements. However, the vendor failed to perform the analysis as requested for the first half-of the year. The samples were discarded by the vendor before the analyses could be performed. No positive indications of plant related gamma emitting radioisotopes were observed in the 2nd semi-annual composite sample for 2008. During the pre-operational period gross beta activity in rain water was expressed in nCi per square meter of the collector surface, thus a direct comparison can not be made to the 2008 period. During the pre-operational period, tritium was measured in over half of the few quarterly composites made. This tritium activity ranged from 100 to 330 pCi/liter.

4.8 Cow Milk

Analysis of milk samples is generally the most sensitive indicator of fission product existence in the terrestrial environment. This, in combination with the fact that consumption of milk is significant, results in this pathway usually being a critical pathway from the plant release viewpoint. This pathway also shows measurable amounts of nuclear weapons testing fallout. Therefore, this media needs to be evaluated very carefully when trying to determine if there is any plant effect.

Analysis results for cow milk are contained in Table 3-8. All results show no

detectable I-131 above the LLD of 1 pCi/l. Results of gamma ray spectroscopy did not detect the presence of any plant related isotopes. In years past, Cs-137 has been detected sporadically. The occurrences were attributed to residual global fallout from past atmospheric weapons testing. Naturally occurring K-40 was detected in all samples.

Once each quarter a sample from each of the two collection stations is analyzed for strontium-89 and strontium-90. Neither Sr-89 nor Sr-90 was detected. Sr-90 has been observed in the past. Pre-operational levels of 2.2 to 5.4 pCi/liter were measured for Sr-90. There has been a long-term activity trend for Sr-90 showing a continuous decline. It should be noted that strontium-90 is not a part of station effluents. Its detection is the product of nuclear weapons testing fallout. This conclusion can be made based upon the fact that Sr-89 and Sr-90 have not been detected in gaseous effluents released from the station in many years, and the trend of consistent declining levels since the pre-operational period.

4.9 Food Products and Vegetation

Food/vegetation samples were collected from five locations and analyzed by gamma spectrometry. The results of the analyses are presented in Table 3-9. No plant related isotopes were detected in any samples. As expected, naturally occurring potassium-40 and, cosmogenic beryllium-7 were detected in all samples, and thorium-228 and other natural products, including Bi-214, were detected in some samples.

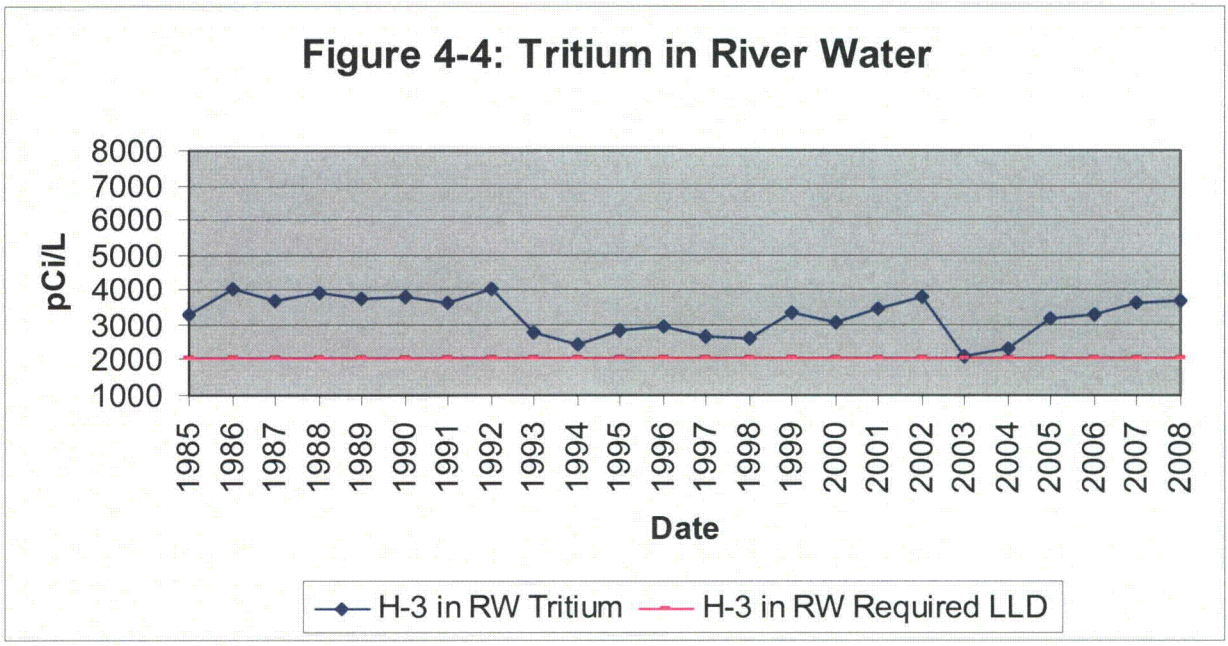
4.10 Well Water

Water was sampled quarterly from the on site well at the metrology laboratory. These samples were analyzed for gamma radiation and for tritium. The second quarter sample was analyzed for strontium-89 and strontium-90. The results of these analyses are presented in Table 3-10. No plant related isotopes were detected. No gamma emitting isotopes were detected during the pre-operational period.

4.11 River Water

A sample of water from the North Anna River was collected monthly. The analyses are presented in Table 3-11. All monthly samples are analyzed by gamma spectroscopy. The monthly samples were composited quarterly and analyzed for tritium. Additionally, the second quarter samples were requested to be analyzed for strontium-89 and strontium-90 in accordance with program requirements. However, the vendor failed to perform them. The samples were discarded by the

vendor before the analyses could be performed. There has been no detection of these fission products at any of the indicator or control stations in recent years. No gamma emitting radioisotopes were detected in any of the samples. There was no measured activity of strontium-89 or strontium-90. Tritium was measured in all four samples with an average annual concentration of 3660 pCi/liter and a range of 2850 to 4100 pCi/liter. These levels are comparable to those observed in previous years, see Figure 4-4. No river water samples were collected during the pre-operational period.

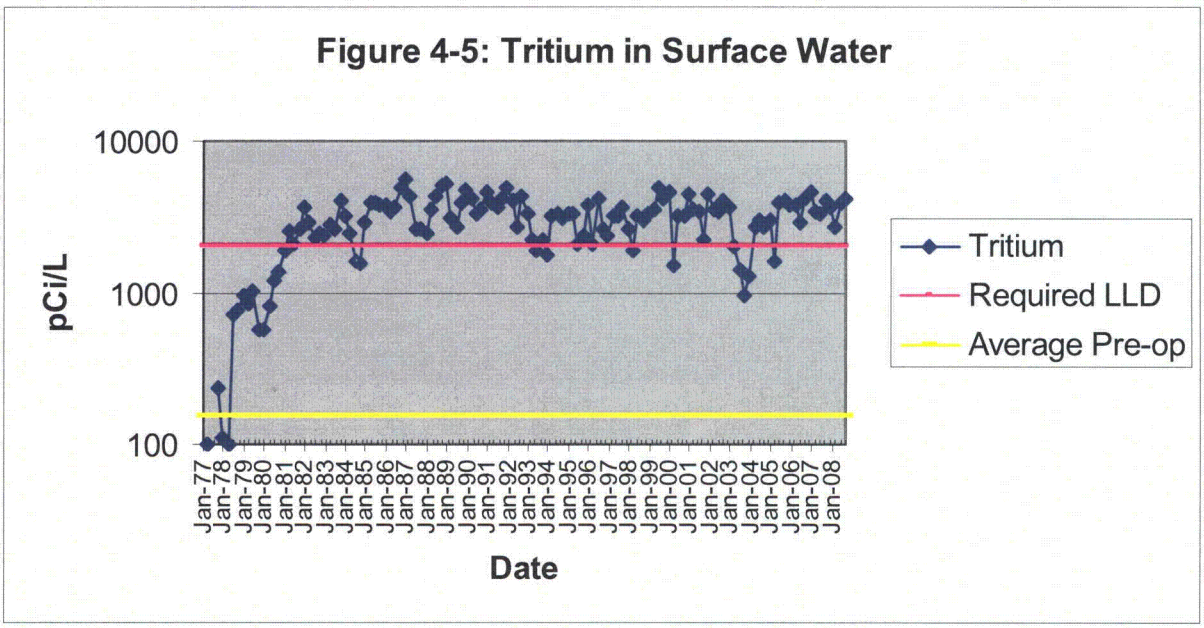


4.12 Surface Water

Samples of surface water were collected monthly from two stations, an indicator station located at the discharge lagoon and a control station located 12.9 miles WNW. The samples were analyzed by gamma ray spectrometry and for iodine-131 by radiochemical separation. A quarterly composite from each station was prepared and analyzed for tritium. Additionally, the second quarter samples were requested to be analyzed for strontium-89 and strontium-90 in accordance with program requirements. However, the vendor failed to perform them. The samples were discarded by the vendor before the analyses could be performed. There has been no detection of these fission products at any of the indicator or control stations in recent years. The results are presented in Table 3-12.

Neither gamma emitting radioisotopes nor iodine were detected in any of the samples. No tritium was detected at the control location. The average level of

tritium activity at the indicator station was 3580 pCi/liter with a range of 2730 to 4140 pCi/liter. Levels of tritium have increased since 1978 when the average level was below 300 pCi/liter. Levels measured at the indicator location (Station 8) are comparable to those measured since 1986, see Figure 4-5. During the pre-operational period tritium was measured in several samples with concentrations between 90 and 250 pCi/liter.



4.13 Bottom Sediment

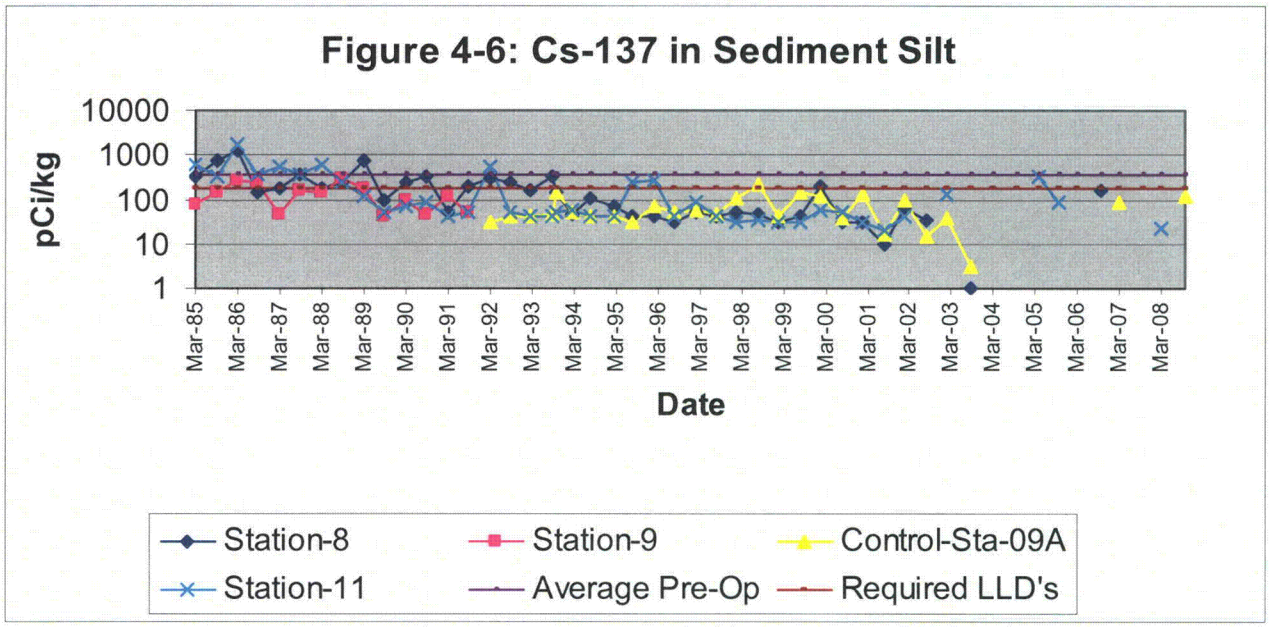
Bottom sediment or silt is sampled to evaluate any buildup of radionuclides in the environment due to the operation of the station. Buildup of radionuclides in bottom sediment could indirectly lead to increasing radioactivity levels in fish.

Sediment samples were collected during March and October from each of three locations and were analyzed by gamma spectrometry. The October samples were analyzed for strontium-89 and strontium-90. The results are presented in Table 3-13. Figure 4-6 shows the historical trend of Cs-137 in sediments.

In 2008, one (1) sediment sample from an indicator location showed Cs-137 level of 21.2 pCi/kg. This should be compared to one (1) sample at a level of 120 pCi/kg from the control location in 2008. The detection of Cs-137 in bottom

sediment is historically common with positive indications usually apparent in both indicator and control samples. The detection of Cs-137 is the result of accumulation and runoff into the lake of residual weapons testing fallout; its global presence has been well documented. During the pre-operational period sediment samples were also analyzed by gamma ray spectroscopy.

There was no measurable amount of strontium-89 or 90 in aquatic sediment/silt. A number of naturally occurring radioisotopes were detected in these samples at background levels.



4.14 Shoreline Soil

Shoreline soil/sediment, unlike bottom sediment, may provide a direct dose to humans. Buildup of radioisotopes along the shoreline may provide a source of direct exposure for those using the area for commercial and recreational uses. Samples of shoreline soil were collected in March and October from indicator station 08. The samples were analyzed by gamma ray spectrometry. The October sample was analyzed for strontium-89 and strontium-90. The results are presented in Table 3-14.

Naturally occurring radioisotopes were detected at concentrations equivalent to normal background activities. No plant related isotopes were detected in the two samples analyzed. Strontium-90 is often detected in this media, however as discussed previously, the presence of Sr-90 and Cs-137 is attributed to

accumulation of residual global fallout from past atmospheric weapons testing.

4.15 Fish

Four sample sets of fish, two from Lake Anna and two from the control station, Lake Orange, were collected during 2008 and analyzed by gamma spectroscopy. Each sample set consisted of a sample of game species and a sample of bottom-dwelling species, which were analyzed separately. The results are presented in Table 3-15. Naturally occurring K-40 was detected in half the samples. No plant related isotopes were detected. Cs-137 was measured in pre-operational environmental fish samples.

5. PROGRAM EXCEPTIONS

REMP Exceptions for Scheduled Sampling and Analysis During 2008 – North Anna

Location	Description	Date of Sampling	Reason(s) for Loss/Exception
Sta. 14-16, 23, 26	Vegetation	01/16/08	Seasonal Unavailability.
Sta. 01A	Air Particulate And Iodine	02/05/08	Pump not running. LLD achieved
Sta. 14-16, 23, 26	Vegetation	02/13/08	Seasonal Unavailability.
Sta. 08	Surface water	02/20/08	LLD not met for I-131.
Sta. 14-16, 23, 26	Vegetation	03/18/08	Seasonal Unavailability.
Sta. 14-16, 23, 26	Vegetation	04/22/08	Seasonal Unavailability.
Sta. 01	Iodine	04/29/08	No charcoal in sampler.
Sta. 22	Air Particulate and Iodine	06/18/08	Timer malfunction volume estimated. LLD achieved.
Sta. 04	Air Particulate and Iodine	06/18/08	GFCI breaker tripped. LLD achieved.
Sta01-07, 21-24	Air Particulate Sr-89/90	04/01/08 - 06/25/08	Vendor failed to perform analyses as requested. Sample disposed of.
Sta. 01A	Precipitation Gamma Spec.	01/01/08 - 06/25/08	Vendor failed to perform analyses as requested. Sample disposed of by vendor.
Sta 08, 9A, 11	Surface/River Water (Sr-89/90)	04/15/08 – 06/11/08	Vendor failed to perform analyses as requested. Sample disposed of by vendor
Sta. 01-07, 21-24	Air Iodine and Particulate	07/01/08	Samples lost by carrier during deliver to vendor for analysis.
Sta. 14a-16, 23, 24	Vegetation	11/18/08	Seasonal Unavailability.
Sta. 14a-16, 23, 24	Vegetation	12/17/08	Seasonal Unavailability.
Sta. 06	Air Particulate and Iodine	12/17/08	Sampler malfunction, blown fuse. LLD achieved.
Sta. 13	Milk	12/23/08	LLD not achieved for Ba-140.

REFERENCES

References

1. Dominion, North Anna Power Station Technical Specifications, Units 1 and 2.

2. Dominion, North Anna Power Station Independent Spent Fuel Storage Installation Technical Specifications.

3. Dominion, Station Administrative Procedure, VPAP-2103N, "Offsite Dose Calculation Manual".

4. Virginia Electric and Power Company, North Anna Technical Procedure, HP-3051.010, "Radiological Environmental Monitoring Program".

5. Title 10 Code of Federal Regulation, Part 50 (10CFR50), "Domestic Licensing of Production and Utilization Facilities".

6. United States Nuclear Regulatory Commission Regulatory Guide 1.109, Rev. 1, "Calculation of Annual Doses to Man from Routine Releases of Reactor Effluents for the Purpose of Evaluating Compliance with 10CFR50, Appendix I", October, 1977.

7. United States Nuclear Regulatory Commission, Regulatory Guide 4.8 "Environmental Technical Specifications for Nuclear Power Plants", December 1975.

8. USNRC Branch Technical Position, "Acceptable Radiological Environmental Monitoring Program", Rev. 1, November 1979.

9. NUREG 0472, "Radiological Effluent Technical Specifications for PWRs", Rev. 3, March 1982.

10. HASL-300, Environmental Measurements Laboratory, "EML Procedures Manual," 27th Edition, Volume 1, February 1992.

11. NUREG/CR-4007, "Lower Limit of Detection: Definition and Elaboration of a Proposed Position for Radiological Effluent and Environmental Measurements," September 1984.

APPENDICES

APPENDIX A: LAND USE CENSUS

Year 2008

LAND USE CENSUS

North Anna Power Station
North Anna County, Virginia

January 1 to December 31, 2008

Direction	Distance *(miles)*					
	Nearest Site Boundary	Nearest Resident	Nearest Garden (> 50m^2)	Nearest Meat Animal	Nearest Milch Cow	Nearest Milch Goat
N	0.9	1.5	2.7	*None*	*None*	*None*
NNE	0.9	0.9	3.1	1.5	*None*	*None*
NE	0.8	0.9	1.6	1.5	*None*	*None*
ENE	0.8	2.1	2.4	2.5	*None*	*None*
E	0.8	1.3	1.3	3.5	*None*	*None*
ESE	0.9	1.7	1.7	*None*	*None*	*None*
SE	0.9	1.4	1.4	1.5	*None*	*None*
SSE	0.9	1.0	1.0	2.8	*None*	*None*
S	0.9	1.1	1.0	*2.8*	*None*	*None*
SSW	1.0	1.4	3.8	1.9	*None*	*None*
SW	1.1	1.7	3.1	*None*	*None*	*None*
WSW	1.1	1.6	1.6	1.6	*None*	*None*
W	1.1	1.5	3.3	None	*None*	*None*
WNW	1.0	1.1	3.1	3.9	*None*	*None*
NW	1.0	1.0	*None*	*None*	*None*	*None*
NNW	0.9	1.0	1.1	*None*	*None*	*None*

2007 to 2008 Land Use Census Changes			
Nearest	**Direction**	**2007 Distance**	**2008 Distance**
Site Boundary	*None*		
Resident	*None*		
Garden			
	N	1.8	2.7
	NE	0.9	1.6
	ENE	2.1	2.4
	SSW	1.4	3.8
	W	1.5	3.3
	WNW	2.6	3.1
	NW	1.6	*None*
Meat Animal	*None*		
Milch Cow	*None*		
Milch Goat	*None*		

APPENDIX B: SUMMARY OF INTERLABORATORY COMPARISONS

YEAR 2008

INTRODUCTION

This appendix covers the Intercomparison Program of the GEL Laboratories, LLC Environmental Laboratory as required by technical specifications for the Radiological Environmental Monitoring Program (REMP). GEL uses QA/QC samples provided by Eckert & Zeigler Analytics, Inc, Environmental Resource Associates, (ERA) and Mixed Analyte Performance Evaluation Program (MAPEP), to monitor the quality of analytical processing associated with the REMP. The suite of samples is designed to be comparable with the pre-1996 US EPA Interlaboratory Cross-Check Program in terms of sample number, matrices, and nuclides. This includes:

- milk for gamma (10 nuclides) and low-level (LL) Iodine-131 analyses once per quarter,
- milk for Sr-89 and Sr-90 analyses during the 1st and 3rd quarters,
- water for gamma (10 nuclides) and low-level (LL) Iodine-131 analyses during the 1st and 3rd quarters,
- water for Sr-89 and Sr-90 analyses during the 4th quarter,
- water tritium analysis during the 2nd and 4th quarters,
- air filter for gamma (9 nuclides) analyses during the 2nd quarter, and
- air filter for gross beta analysis during the 1st and 3rd quarters.

RESULTS

Interlaboratory comparison program results are evaluated using GEL's criterion. Any sample analysis result that does not pass the criteria is investigated by GEL.

A summary of GEL's results is provided in the tables below for the required sample matrix types and isotopic distribution. Delineated in the table for each of the media/analysis combinations, are: the specific radionuclide; its result; analytical date; the known values supplied by the providers; pass or fail criteria.

GEL analyzed 17 samples for 85 parameters in 2008. All results except twelve met the acceptance criteria and are discussed below.

• The 2nd quarter Sr-89 in milk result fell below the acceptance criteria. All data were reviewed and no errors are apparent. A batch duplicate was also analyzed with this sample and its results fell within the acceptance criteria. All other quality control criteria were also met. No further investigation will be performed.

• The cause of the Sr-90 failure in the 1st quarter was determined to be method inaccuracies when using a small sample volume. The Sr-90 data over the past 2.5

years was evaluated using average relative bias and relative precision statistics as outlined in ANSI N13.30. The average relative bias over this period is 0.0230 which is an excellent average relative bias. The relative precision is within the recommended 0.40 range at 0.2325. This indicates the method is in control. The normal procedure utilizes 500 - 800 mL of sample for analysis resulting in a lower detection limit and a lower uncertainty when compared to the analysis of the cross check samples normally utilizing 200 mL of sample due to limited sample volume

• The cause of the Gamma Emitter (Ba-133, Cs-134, Cs-137, Co-60, Zn-65) failures were attributed to an incorrect dilution. The samples are received as concentrates and must be diluted prior to preparation. Per the instructions, the samples should have been diluted to a final volume of 2 liters but were diluted to 4 liters instead. All instructions are now scanned by the Quality Assurance Officer and emailed to the laboratory Group Leader when the samples are logged. The instructions are also stored in a location accessible to all laboratory personnel.

• The Cs-137 result fell just above the acceptance criteria. All data were reviewed and no errors were apparent. A batch duplicate was also analyzed with this sample and its results fell within the acceptance criteria. All other quality control criteria were also met. A remedial sample was performed and the results fell within the acceptance range.

• The cause of the Americium-241 and Cesium-134 failures is thought to be matrix interference and the potential for volatilization. Two containers (100g and 10g) of this sample were received and logged for all parameters. All results were reported from the 100g. The Quality Assurance Officer (QAO) was later informed by the group leader that the gamma results should have been reported from the 10g container due to matrix interference and the potential for volatilization of some of the compounds.

• The Nickel-63 failure was attributed an unusually low gravimetric yield. A review of data back to the year 2000 indicated there had been no other failures. The sample was re-analyzed and acceptable results, 34.4 Bq/L, which is within 12% of the reference value, were obtained.

• The cause of the Fe-55 failure was determined to be interference from Co-60. The Standard Operating Procedure (SOP) has been modified to include additional rinses and added Cobalt carrier to help eliminate Cobalt as an interferent. The sample was also reanalyzed after the SOP modification and acceptable results were obtained.

Analysis or Radionuclide	Analysis Date	GEL Value	Known Value	Pass/Fail
Iodine Analysis of a Cartridge (pCi/L)				
I-131	03/20/2008	63	60	Pass
	06/19/2008	87.5	84.5	Pass
	10/30/2008	93.80	89.1	Pass
	12/11/2008	56.50	53.2	Pass
Sr-89/90 Analysis in Milk (pCi/L)				
Sr-89	03/20/2008	96.7	95.8	Pass
	06/19/2008	61.14	85	Fail
	10/30/2008	63.10	73.9	Pass
	12/11/2008	85.50	91.9	Pass
Sr-90	03/20/2008	9.32	12.9	Fail
	06/19/2008	11.82	14.5	Pass
	10/30/2008	9.25	11	Pass
	12/11/2008	10.90	12.6	Pass
Gamma Analysis in Milk (pCi/L)				
I-131	03/20/2008	61.8	60	Pass
	06/19/2008	72.9	71.4	Pass
	10/30/2008	69.1	67.9	Pass
	12/11/2008	76.6	79.9	Pass
Ce-141	03/20/2008	255	249	Pass
	06/19/2008	166	174	Pass
	10/30/2008	159	161	Pass
	12/11/2008	179	191	Pass
Cr-51	03/20/2008	331	359	Pass
	06/19/2008	151.5	138	Pass
	10/30/2008	392	421	Pass
	12/11/2008	248	246	Pass
Cs-134	03/20/2008	107	125	Pass
	06/19/2008	73.8	76.7	Pass
	10/30/2008	213	232	Pass
	12/11/2008	128	134	Pass
Cs-137	03/20/2008	151	146	Pass
	06/19/2008	122	116	Pass
	10/30/2008	154	162	Pass
	12/11/2008	123	120	Pass
Co-58	03/20/2008	72.9	70.8	Pass
	06/19/2008	64.4	61.9	Pass
	10/30/2008	167	179	Pass
	12/11/2008	101	104	Pass

Analysis or Radionuclide	Analysis Date	GEL Value	Known Value	Pass/Fail
Gamma Analysis in Milk (pCi/L) (continued)				
Mn-54	03/20/2008	96.7	94.2	Pass
	06/19/2008	153.0	135	Pass
	10/30/2008	172.00	166	Pass
	12/11/2008	151	152	Pass
Fe-59	03/20/2008	106	102	Pass
	06/19/2008	92	91.7	Pass
	10/30/2008	157	144	Pass
	12/11/2008	103	100	Pass
Zn-65	03/20/2008	142	137	Pass
	06/19/2008	128	127	Pass
	10/30/2008	327	319	Pass
	12/11/2008	193	183	Pass
Co-60	03/20/2008	240	236	Pass
	06/19/2008	103	104	Pass
	10/30/2008	227	234	Pass
	12/11/2008	139	133	Pass
Gross Alpha/Beta in Air Filters (Bq/sample)				
Gross Alpha	03/22/2008	0.143	0.348	Pass
	10/22/2008	0.003	0	Pass
Gross beta	03/22/2008	0.321	0.286	Pass
	10/22/2008	0.564	0.525	Pass
Gross Alpha/Beta in Water (pCi/L)				
Gross Alpha	05/08/2008	56.0	50.8	Pass
	11/21/2008	17.6	26.9	Pass
Gross beta	05/08/2008	46.3	51.4	Pass
	11/21/2008	28.8	38	Pass
Gamma Analysis in Water (pCi/L)				
I-131	03/20/2008	77.3	70.4	Pass
	06/19/2008	40.9	45.3	Pass
	10/30/2008	115	105	Pass
	12/11/2008	63.7	64.1	Pass
Ce-141	03/20/2008	191.3	198	Pass
	06/19/2008	222.0	237	Pass
	10/30/2008	114	107	Pass
	12/11/2008	224	224	Pass
Cr-51	03/20/2008	279.2	286	Pass
	06/19/2008	212.0	188	Pass
	10/30/2008	317	279	Pass

Analysis or Radionuclide	Analysis Date	GEL Value	Known Value	Pass/Fail
Gamma Analysis in Water (pCi/L) (continued)				
Cr-51 (cont)	12/11/2008	278	288	Pass
Cs-134	03/20/2008	96.1	99.7	Pass
	06/19/2008	100.0	104	Pass
	10/30/2008	147	154	Pass
	12/11/2008	159	157	Pass
Cs-137	03/20/2008	114.8	116	Pass
	06/19/2008	169.0	158	Pass
	10/30/2008	116	107	Pass
	12/11/2008	148	140	Pass
Co-58	03/20/2008	58.9	56.4	Pass
	06/19/2008	85.6	84.2	Pass
	10/30/2008	119	118	Pass
	12/11/2008	126	122	Pass
Mn-54	03/20/2008	80.4	75	Pass
	06/19/2008	193.0	184	Pass
	10/30/2008	126	110	Pass
	12/11/2008	192	178	Pass
Fe-59	03/20/2008	86.1	81.4	Pass
	06/19/2008	129	125	Pass
	10/30/2008	109	95.6	Pass
	12/11/2008	128	117	Pass
Zn-65	03/20/2008	110.7	109	Pass
	06/19/2008	194.0	172	Pass
	10/30/2008	228	211	Pass
	12/11/2008	238	214	Pass
Co-60	03/20/2008	194.8	188	Pass
	06/19/2008	155.0	142	Pass
	10/30/2008	155	155	Pass
	12/11/2008	168	156	Pass
Sr-89/90 Analysis in water (pCi/L)				
Sr-89	05/09/2008	57.8	60.4	Pass
	11/08/2008	44.3	48.7	Pass
Sr-90	05/09/2008	30.7	39.2	Pass
	11/08/2008	32.2	33.6	Pass
Gamma Emitters in Water (pCi/L)				
Ba-133	05/13/2008	17.2	58.3	Fail
	11/11/2008	60.7	63.5	Pass
	11/20/2008	72.6	73.1	Pass

Analysis or Radionuclide	Analysis Date	GEL Value	Known Value	Pass/Fail
Gamma Analysis in Water (continued)				
Cs-134	05/13/2008	11.2	46.6	Fail
	11/11/2008	28.1	25.6	Pass
	11/20/2008	72.8	64.9	Pass
Cs-137	05/13/2008	24.8	102	Fail
	11/11/2008	31.5	25.6	Fail
	11/20/2008	184	176	Pass
Co-60	05/13/2008	20.6	76.6	Fail
	11/11/2008	46.7	49.1	Pass
	11/20/2008	87.3	84.4	Pass
Zn-65	05/13/2008	31.8	106	Fail
	11/11/2008	77.2	68.6	Pass
	11/20/2008	354.0	327	Pass
I-131 Analysis in Water (pCi/L)				
I-131	04/15/2008	28.4	28.7	Pass
	10/15/2008	29.2	28.1	Pass
Tritium in Water (pCi/L)				
Tritium	05/19/2008	12500	12000	Pass
	11/01/2008	2100	2220	Pass
Soil Radionuclides (pCi/kg)				
Ac-228	05/16/08	1230	1180	Pass
	11/21/08	1000	1320	Pass
Am-241	05/16/08	1190	1230	Pass
	11/21/08	1070	1050	Pass
Bi-212	05/16/08	1224	1360	Pass
	11/21/08	721	1540	Pass
Bi-214	05/16/08	1990	1790	Pass
	11/21/08	852	851	Pass
Cs-134	05/16/08	5350	5640	Pass
	11/21/08	3570	3470	Pass
Cs-137	05/16/08	5850	6010	Pass
	11/21/08	5320	5390	Pass
Co-60	05/16/08	5090	5130	Pass
	11/21/08	6140	6040	Pass
Pb-212	05/16/08	1221	1080	Pass
	11/21/08	1130	1520	Pass
Pb-214	05/16/08	2200	2020	Pass

Analysis or Radionuclide	Analysis Date	GEL Value	Known Value	Pass/Fail
Soil Radionuclides (pCi/kg) (continued)				
Pb-214	11/21/08	912	948	Pass
Mn-54	05/16/08	<52.0	0	Pass
	11/21/08	<37.2	0	Pass
K-40	05/16/08	9990	11000	Pass
	11/21/08	10700	11100	Pass
Th-234	05/16/08	1310	2030	Pass
	11/21/08	2550	2030	Pass
Zn-65	05/16/08	2770	2660	Pass
	11/21/08	2680	2450	Pass
Sr-90	05/13/08	4420	5360	Pass
	11/21/08	2640	2710	Pass
Water Radionuclides (pCi/L)				
Am-241	05/08/2008	95	90.9	Pass
	11/21/2008	174	161	Pass
Cs-134	05/08/2008	693	751.0	Pass
	11/21/2008	1250	1240.0	Pass
Cs-137	05/08/2008	1970	1990	Pass
	11/21/2008	1270	1270	Pass
Co-60	05/08/2008	1480	1420	Pass
	11/21/2008	1160	1130	Pass
Mn-54	05/08/2008	<9.32	0	Pass
	11/21/2008	<9.12	0	Pass
Zn-65	05/08/2008	800	694	Pass
	11/21/2008	1070	987	Pass
Sr-90	05/13/2008	517	512	Pass
	11/21/2008	678	655	Pass
Water Tritium (pCi/L)				
Tritium	06/20/2008	25800	25800	Pass
	11/21/2008	27600	28800	Pass
Radiological in Soil (Bq/kg)				
Am-241	03/12/2008	121	127.2	Pass
	10/22/2008	65.88	69.1	Pass
Cs-134	02/02/2008	719	854.0	Pass
	10/22/2008	585	581	Pass
Cs-137	02/02/2008	522	545	Pass
	10/22/2008	3.5	2.8	Pass

Analysis or Radionuclide	Analysis Date	GEL Value	Known Value	Pass/Fail
Radiological in Soil (Bq/kg) (continued)				
Co-57	02/02/2008	380	421	Pass
	10/22/2008	333.7	333	Pass
Co-60	02/02/2008	2.67	2.9	Pass
	10/22/2008	149	145	Pass
Mn-54	02/02/2008	570	570	Pass
	10/22/2008	440.7	415	Pass
K-40	02/02/2008	586	571	Pass
	10/22/2008	628	570	Pass
Zn-65	02/02/2008	-0.426	0	Pass
	10/22/2008	-0.67	0	Pass
Fe-55	03/28/2008	615	390	Fail
	10/22/2008	709.8	676	Pass
Ni-63	03/28/2008	639	640	Pass
	10/22/2008	763	760	Pass
Sr-90	03/27/2008	473	493	Pass
	10/22/2008	0.5	0	Pass
Radiological in Water (Bq/kg)				
Am-241	03/12/2008	1.27	1.23	Pass
	10/22/2008	-0.0003	0	Pass
Cs-134	03/06/2008	0.108	0	Pass
	10/22/2008	18.9	19.5	Pass
Cs-137	03/06/2008	0.0648	0	Pass
	10/22/2008	23.0	23.6	Pass
Co-57	03/06/2008	23.2	22.8	Pass
	10/22/2008	0.01	0	Pass
Co-60	03/06/2008	8.41	8.4	Pass
	10/22/2008	11.4	11.7	Pass
Mn-54	03/06/2008	483	472	Pass
	10/22/2008	13.4	13.7	Pass
Zn-65	03/06/2008	17.4	16.3	Pass
	10/22/2008	17.0	17.1	Pass
Fe-55	03/27/2008	46.9	36.5	Pass
	10/22/2008	44.8	46.2	Pass
Ni-63	03/27/2008	40.3	30.7	Fail
	10/22/2008	-0.2	0	Pass

Analysis or Radionuclide	Analysis Date	GEL Value	Known Value	Pass/Fail
Radiological in Water (Bq/kg) (continued)				
Sr-90	03/20/2008	12.0	11.4	Pass
	10/22/2008	6.40	6.45	Pass
Radiological in Air Filter (Bq/sample)				
Am-241	03/18/2008	0.123	0.158	Pass
	10/22/2008	-0.0003	0.0	Pass
Cs-134	02/22/2008	1.97	2.52	Pass
	10/22/2008	2.727	2.63	Pass
Cs-137	02/22/2008	2.47	2.70	Pass
	10/22/2008	0.024	0.00	Pass
Co-57	02/22/2008	3.30	3.55	Pass
	10/22/2008	1.653	1.50	Pass
Co-60	02/22/2008	1.16	1.31	Pass
	10/22/2008	0.051	0.00	Pass
Mn-54	02/22/2008	-0.0113	0.00	Pass
	10/22/2008	2.870	2.64	Pass
Zn-65	02/22/2008	1.92	2.04	Pass
	10/22/2008	1.063	0.94	Pass
Sr-90	03/28/2008	1.48	1.548	Pass
	10/22/2008	1.080	1.12	Pass
Radiological in Vegetation (Bq/sample)				
Am-241	03/22/2008	0.121	0.240	Fail
	10/22/2008	0.257	0.3	Pass
Cs-134	03/22/2008	4.09	6.28	Fail
	10/22/2008	5.47	5.50	Pass
Cs-137	03/22/2008	2.49	3.41	Pass
	10/22/2008	0.073	0.00	Pass
Co-57	03/22/2008	6.94	6.89	Pass
	10/22/2008	6.813	7.10	Pass
Co-60	03/22/2008	2.87	2.77	Pass
	10/22/2008	4.703	4.70	Pass
Mn-54	03/22/2008	5.16	4.74	Pass
	10/22/2008	5.737	5.80	Pass
Zn-65	03/22/2008	-0.205	0.00	Pass
	10/22/2008	7.617	6.90	Pass
Sr-90	03/22/2008	1.11	1.273	Pass

Analysis or Radionuclide	Analysis Date	GEL Value	Known Value	Pass/Fail
Radiological in Vegetation (Bq/sample) (continued)				
Sr-90	10/22/2008	1.713	1.9	Pass

AREVA NP Environmental Laboratory Condition Report Status

Although AREVA NP Environmental Laboratory was not used by North Anna in 2008 for any environmental analyses, it was used in 2007 and 4 condition reports were still open at the time of the 2007 report. The status of each is summarized below. Any item that is still open will be included in the 2009 Radiological Environmental Operating Report, if North Anna uses AREVA for environmental analyses in 2009.

CR-08-01, written due to 3rd quarter 2007 Analytics cross check filters failing the bias criteria for gross alpha, is still open. No error was found in the paperwork. A recalibration of the instrument using a new source showed a 3.3% change in instrument efficiency.

CR-08-02 , written due to 2nd quarter 2007 Analytics cross check filters failing bias criteria for Cr-51 and a failure of Ce-141 bias criteria in milk, has been closed. The failure was determined to be "bubbling" of the filter in the petri dish. The filters were too large for the petri dish. The petri dish was resized and the 2008 2nd quarter sample was counted successfully. The Ce-141 failure in the milk sample was attributed to delay in counting causing poor statistics.

CR-08-10, written due to failure of the 4th quarter 2007 Analytics environmental cross check filters failing the bias criteria for Sr-89/90, is closed. The root cause was determined to be erroneous data entry for tracer weight. This caused the chemical recovery to be calculated incorrectly

CR-08-11, written due to failure of the Analytics 4th quarter 2007 environmental cross check filters failing the bias criteria for Fe-59, Zn-65 and Co-60, is closed. The failure was determined to be "bubbling" of the filter in the petri dish. The filters were too large for the petri dish. The petri dish was resized and the 2008 2nd quarter sample was counted successfully.